PROJECT REPORT

Undelivering Service Quality in Public Transport
Case of:
Commuter Railway of Jabodetabek

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I. INTRODUCTION

I.1 Background

Jabodetabek is abbreviation for Jakarta, Bogor, Depok, Tangerang, and Bekasi. Jakarta as capital city of Indonesia has become attraction area for four hinterland area surrounding: Bogor, Depok, Tangerang, and Bekasi. According to statistic data in 2007 the population of Bogor municipalities and city is 4,420,169 people, Depok city is 1,490,000 people, Tangerang city is 3,435,205 people, Bekasi city is 1,914,316 people, and Province Jakarta is 8,961,680 people. There are many residents in Bogor, Depok, Tangerang, and Bekasi working in Jakarta. Almost three quarter of the populations have to travel back and forward to Jakarta everyday especially in working days. This can be observed from the statistic number of trip in Jakarta area. The number of vehicles that operated in the Jakarta roads during 2007 was counted totaling 7,773,957, that consists of motorcycle vehicle 5,136,619 units, car 1,816,702 units, bus 316,896, and other vehicle 503,740. From the total of those, public transport only shared 2% from all vehicles in Jakarta (BPS Jakarta, 2008).

Figure 1 Jabodetabek Transportation Network Map (Litbang Dephub, 2005)
Transportation in urban areas such as Jakarta is highly complex because of the modes involved, the multitude of origins and destinations, and the amount and variety of traffic. Traditionally, the focus of urban transportation has been on passengers as cities were viewed as locations of utmost human interactions with intricate traffic patterns linked to commuting, commercial transactions and leisure/cultural activities. However, cities are also locations of production, consumption and distribution, activities linked to movements of freight. In urban area with high population and spread resources railway becomes public transport that can accommodate the need of mobility. Railway is a public transportation mode which appropriate to serve Jabodetabek community, especially because it has large capacity, high safety level, and free from traffic jam. Those characteristic should makes railway as primary public transportation.

Railway sector in Indonesia is regulated by Ministry of transportation Directorate General of Railways. The vision is to establish mass transportation for passenger and freight that reliable, secure, safe, trustworthy and affordable. The missions are to improve railway as public transportation, backbone of freight transport, and as pioneer in creating integrated transportation. The target is to improve the capacity, punctuality, safety, service, accessibility, and integration with other mode. In maintaining relationship between the operator and the stakeholder, the services that operator gives is tied in a legal form of contract. Contract is a form of legal written document, constitute a foundation for measurement and control of business performance (Bryntse 2000, Enquist 2005). This means that to see whether the operator has done their obligation can be evaluate through the standard of services which stated inside of the contract. To do the evaluation it necessary has quality-of service standard as a performance measurement. The item of the quality-of service standard should be matching the services with the customer demand which can be a major determinant for success in achieving customer satisfaction.

Service quality level of Jabodetabek Commuter Railways is still low compared with other transportation mode. At present Jabodetabek commuter railways operational is still colored with the delay, limited well-condition vehicle, and unclear train travel information that often disadvantage passengers, and many of services offered were failed to attract passengers. These conditions result in decreasing quality of services and insufficient railways operation. This is caused by infrastructure and rail facilities that have not been
adequate to serve demand railway transportation services, in addition to quality services that are still not satisfactory service user. Thus, a challenge to improve the railway transport services to be able to serve the needs of the community and encourage economic movement effectively and efficiently. Strategic issues in railway systems are related to the desirable service level to be provided to the customers (in terms of number of direct connections, frequencies, and reliability), and the capacities of the resources that are required to accomplish these services. Operator and public transport agency should know what exactly the passenger or the public need and improving their quality of service so they will prefer to use railway as their mode transportation.

I.2 Problem

Government represented by Directorate General of Railways (DGR) gives the railway operational task to the operator. In this scheme, DGR become the Public Transport authority (PTA) which manages and making agreement with the operator. The relationship between the government and the operator tied in written agreement of contract. The contract regulated the obligation and the rights of each party. As for the operator, the contract have specification substances that operator must fulfill and evaluate through performance measurement. Railway operator has support in financial and public policy from the government as commitment of government in sustainable transport system. Those advantages should make railway as prime mass transport with good service quality compare to other public transport which not receive subsidy. But contrary, the service quality of railway is lower than other modes.

The number of Jabodetabek commuter railway passenger in the last 5 years is increasing. This means that people has desire to begin using public transport in their daily activity. But the increase of railway passenger still follows by the increase of private motor vehicle, means that people still choose private motor vehicle as their main transport. One of suspicion cause for the phenomena is that people not satisfied with the public transport service. There are many complains from the passenger or public about railway service. It shows that people have big expectation on railway but the service still not fulfill their need. This lead to interesting research in how the present service quality level in Jabodetabek
-commuter railways is and what is the obstacles which cause the operational cannot have the expected service quality.

I.3 Purpose

The aim of this study is to explore service quality in Jabodetabek commuter railways. It will give clear picture of railways service quality and the problem inside the delivering service. The expectation through deeper analysis is to find key factors that influence service quality delivery which influences the customer satisfaction. In this study I use Värmlandstrafik AB (VTAB) which is the PTA of Värmlands County, one of the counties in Sweden, as the comparison. Comparison is needed to see the problems objectively and to identify service area that need improvement. The reason using VTAB as comparison is because from general view and observation VTAB has delivered good quality service for Värmlands community. The research in VTAB consist the subject of how VTAB can deliver service quality to citizen.

This report uses three sources of data which are documentation, archival record, and interviews. In documentation, the data I collected from official website of related organization, community mailing list, electronic literature that related to the subject of research, news from trusted sources, studies, and letters from related organization.

I.4 Methodology

In general, data collections in this project report consist of literature reviews, documents observation, and interviewing key-person in related organization. The flow process is to gather primary and secondary data and make general observation review from data collection.

This research is using qualitative research approach. This study based on literature study of railway operational with condition in Jabodetabek area in certain period. The review process is applied to collection of qualitative data from transport department, transport provider and bus operators. Data collection also gathered from Journal of Service and Journal of Public Transportation.
II. THEORETICAL

II.1 Public Transport as Service

Transport is a service rarely in demand for its own characteristics. Demand for public transport is usually derived from some other function (Cole, 2005). In Webster’s dictionary the following definition can be found:

“A product of human activity (e.g. transport, research) meant to satisfy a human need but not constituting an item of goods”

This definition corresponds with the assumed that service is intangible. As Zeinthaml, Parasuraman and Berry (1990) noticed and summarized the characteristic of service into four characteristic:

1. Intangibility, service is intangible in contrast to physical products. Services are performances and experiences rather than objects. They cannot be seen, felt, tasted or touched like a physical product.
2. Heterogeneity, services are non-standardized. They are usually performed by human beings and the needs of the customers vary. The more people involved the more variations.
3. Inseparability, a service is generally consumed while performed; production and consumption cannot be separated.
4. Perishability, services cannot be stored. The capacity must be there when needed and overcapacity cannot be used later; it is difficult to synchronize supply and demand.

According to Edvarsons (1997), a service is viewed as part of the wider concept product. A product can consist of a commodity, a service, computer software or - more common- of a combination of these. A service is generated by a process. This process differs from processes in the production of goods, where as a rule the production process occurs at a time and place without the presence or participation of the customer. In the production of a service, on the other hand, the customer is often a co-producer and experiences what takes place in the "service factory". Customers always have the option to buy or not to buy, to choose between different services and various service providers. The service concept should be approached from the customer's point of view. It is the customer's perception and opinion of the process and the total result that "constitutes the service", forms the
perception of quality and determines if the customer is satisfied or not. Moreover, the result is sometimes valued not only by the specific customer but also by people who just happen to be around.

As a service, public transport is “produced” in the customer’s presence: production (transport operation) is thus part of the customer relationship. Public transport’s special attributes uniquely highlight this relationship, while its operating conditions make performance uncertain and failures likely and visible. If the relationship is weak, customers will neither have faith in public transport nor make allowance for its failures. Simply put, public transport lives or dies on its relationship with customers. The market failure of public transport clearly in view, the striking fact is that it attracts too few customers – a seemingly trivial point, but a reminder that people are public transport’s market. That is, poor market numbers originate, not with dark economic forces, but with individuals who choose not to use public transport. Whatever the reasons for their choice, the point is that public transport can be revived only by re-gaining their favor. To do so, we must know transport’s human aspect and respect it. That is, we will not coerce or manipulate people into using what they don’t want: we will not force public transport on them. We will make it work better, so that they come to prefer it (Bunting, 2003).

II.2 Railways Operational

According to Indonesia Railways Law No.23 2005, Railway is united system which consist infrastructure, vehicle, and human resources, also norm, criteria, requirement, and procedure in order to operate railway as transportation mode. Railway operational consists of infrastructure and vehicle (freight and passenger train) operational. Railway infrastructure covers all the fixed installations on routes and stations which are required for the running of trains. The activities inside infrastructure area are infrastructure operational, construction, maintenance, and management. Railway operational consists of vehicles steered by a track on a dedicated area, which are governed by a signaling system. The activities inside vehicle operational are vehicle availabilities, vehicle operation, vehicle maintenance, and vehicle cultivation. Railways operator besides responsible in operate the vehicle, has also an obligation in taking care the vehicle so it will be in good condition. By deregulation of the railway market and the entrance of new operators, the industry ought to
be more efficient. The aim of deregulation is to increase competition. However, competition can be achieved in various ways. There are competition for the market and competition in the market. Competition for the market means that there is a competitive tendering for the traffic and that the winning company gains a monopoly. According to economic theory, a competition market is supposed to be more efficient than a monopoly.

II.3 Service Quality

Quality has been defined as “provide for needs and fulfill expectations – the customers, the employees and the owners” (Olsen 1993, Carlsson 2001). The foundation of service quality theory lies in the product quality and customer satisfaction literature (brandy & Cronin, 2001). Gronroos (1984) and Parasuraman et al. (1985) define service quality in terms of customer satisfaction; that is, the degree of fit between customers’ expectation and perceptions of service. Service quality is a measure of how well the service level delivered matches customer expectations. Delivering quality service means conforming to customer expectations on a consistent basis (Lewis and Booms, 1983). According to Edvardson (1997), Service quality is realized in the service process, in many service encounters and since the customer is the ultimate judge of the service, customer orientation should be a central point of departure for all service development. This means placing the customer in the centre but not being governed in all respects by the customer and what he/she says. It is important to understand and respect the customer's needs, wishes and requirements but not to follow them slavishly.

Table 1 The items of service quality (Parasuraman et. al. 1988)

<table>
<thead>
<tr>
<th>Items of Service Quality</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangibles</td>
<td>Physical facilities, equipment, and appearance of personnel</td>
</tr>
<tr>
<td>Reliability</td>
<td>Ability to perform the promised service dependably and accurately</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Willingness to help customers and provide prompt service</td>
</tr>
<tr>
<td>Assurance</td>
<td>Knowledge and courtesy of employees and their ability to inspire trust and confidence</td>
</tr>
<tr>
<td>Empathy</td>
<td>Caring, individualized attention the firm provides its customers</td>
</tr>
</tbody>
</table>
The customer-oriented service company has insight into the customer's assessment criteria and acts on them. Parasuraman et al. (1988) has categorized the items of service quality into five items which known as SERVQUAL. Having knowledge of customer needs in each of the items and their response based on their experience can be a tool in measuring customer perceptions of service quality. An evaluation of the items may reveal attributes of service that are become customer priority and critical for ensuring high service quality. The SERVQUAL approach focused on assessing and understanding customers’ perceptions of service quality. The description of SERVQUAL can be seen in Table 1.

II.4 Service System and Resource Structure

According to Edvardsson (1997), in order to have well functioning service process needs service system. Service system includes the resources available to the process for realizing the service concept. By service concept, it means a description of the customer needs which are to be met and how these needs shall be met in the form of service content or design of the service package. Service system consists of:

1. Customers, this can be a company or private individual/household. The service system should be designed so it easy for the customer not only to take part but also actively contributes to the process.

2. Organization structure and system, there are four aspect related to this item.
   a. The organizational structure which must have clearly define responsibility and authority in an appropriate manner, e.g. the division of activity and profit centers.
   b. The administrative support systems which play a key role in controlling the business, e.g. planning and information, financial system, etc
   c. The interaction, dialogue with customers and other interested parties
   d. The organization of various activities connected with marketing. There are three important tasks in marketing that need to be organized and controlled.
      (i) Using market and customer analysis to understand the competitive situation, customer needs and demand, and customer logic
      (ii) Ensuring that realistic expectations are created.
      (iii) Teaching customer how to act/behave in the role of co-producer.
3. Management and staff, employees usually seen as the service company’s key resource. They represent the company quality of service. Employee’s performance has great influence to the customer perception about the company overall quality of service.

4. Physical/technical resources include premises, hardware, technical systems, and other tangible equipment. Physical/technical resources create a favorable condition, increase the service and more profitable business deals.

![Figure 2](image)

**Figure 2** Model of the resource categories of the service system (Edvardsson, 1997)

The service system can be divided into an interactive part, which is visible to the customer, and a support or back office part, which is invisible to the customer. Service system is affected or controlled by the business concept, the strategy, and the goals of the company. There are other influences that affected the service system; internal infrastructure in the form of resources and competence in other parts of the company, by distribution channels or strategic alliances with other companies, and the external infrastructure in the form of laws and regulation.

II.5 Service Process

Edvardsson (1995) describes service process as chain or chains of parallel and sequential activities which must function if the service is to be produced. The service process partly consists of activities at partners’ and customers’ premises. The company does not have direct control over all parts of the process but must be able to control the process in its entirety. To generate a service which meets the service concept in all respects, it is
necessary to determine in detail the process which will ensure the right service. Quality and productivity must be built in from the beginning by developing the right service process.

![Service Process Diagram](image)

**Figure 3** Service Process (Edvardsson, 1993)

### III. EMPIRICAL STUDY

#### III.1 Transportation of Jabodetabek area

Indonesia transport is facing many problems. The increasing number of private vehicles each year led to negative impacts such as congestion, increasing pollution levels, and decreasing quality of life. For urban city, pollutant source of air emissions wasting gas from vehicles. Many researches from around the world prove that transport sector is the largest contributor of air pollution. In some cities, transportation sector contribution could reach up to 70% of pollutant. This trend also applies to major cities in Indonesia such as Jakarta.

Public transport most obvious advantages is its eco-friendliness, which is described in many studies either highlighting the disadvantages of car traffic or the advantages of public transport. In addition, it connects with the health problem, traffic noise, and quality of life. Dependence on private vehicles create high cost environment, social and economic level. Although these costs were not directly realize by the user of private vehicle. Based on those facts, interventions and development in transport sector is seen as the best way to solve the environmental and society problem. Transportation system can be addressed to become environment-friendly and working effectively also efficient, the emissions can be pressed and society quality of live can be increased. One of the improvements in urban transport is
to develop a good mass public transportation system. The types of public transport in Jakarta are as follows (Mochtar & Hino 2006):

1. Bus: There are a large number bus companies servicing routes in Jakarta. Many of the larger buses seat 25-40 people (depending on type of bus: big, medium or small). The type of bus companies can be divided into three: owned by Government/Public (DAMRI and PPD); owned by Private (Metro Mini, Mayasari, Patas AC, Kopaja, Kopami); and owned by Public-Private (TransJakarta Busway as Bus Rapid Transit).

2. Train: A commuter train runs several times daily from Bogor to Jakarta. These trains are quite simply furnished and often dirty.

3. Taxi: A taxi is public transportation that uses cars to carry passengers. Taxis are generally the type of sedan car, but in some countries there is also a type of taxi van that can carry more passengers or cargo.

4. Angkutan Kota/Angkot: Angkot are smaller vans/mini-buses serve routes on smaller main roads. They seat 9-12 people, depending on the type and fares are depending on the distance route.

5. Bajaj: Traditional vehicle with two passengers. Their areas of operation are limited to one majority in the city. Fare determination is by bargaining.

6. Motorcycle Taxi/Ojek: Began appearing in Jakarta after Becak (Becak are widely missed people who live in village, same like tuktuk or riksaw, fit for two passengers) were banned in 1994. There is no government licensing for or control over ojek.

7. Bicycle Ojek: Rarely seen in areas of Jakarta outside Kota and Tanjung Priok in North Jakarta. Bicycle ojek is operated much like ojek, except for shorter distance.

Transportation in Jabodetabek as urban area is complex because of the modes involved, the multitude of origins and destinations, and the amount and variety of traffic. Traditionally, the focus of urban transportation has been on passengers as cities were viewed as locations of utmost human interactions with intricate traffic patterns linked to commuting, commercial transactions and leisure/cultural activities. However, cities are also locations of production, consumption and distribution, activities linked to movements of freight. Conceptually, the urban transport system is intricately linked with urban form and spatial structure. Urban transit is an important dimension of mobility, notably in high density areas. In urban area with high population and spread resources, railway becomes public
transport that can accommodate the need for high mobility, wide coverage, and rapid travel time.

In order to improving and create a desirable public transportation many studies have been conducted. The results related to the service quality and satisfied or dissatisfied passengers to public transport they used. Transit service is an option for a trip only when service is available at or near the locations and at times when a customer wants to travel, can get to and from the transit stops, knows how to use the service and sufficient capacity is available at the desired time. If any of these factors is not satisfied, transit will not be an option for that trip, either a different mode will be used, the trip will be taken at a less convenient time, or the trip will not be made at all (TCRP 88, 2003). People that satisfied with the public transport service will likely to use the service.

III.2 Railway operational in Jabodetabek Area

PT. Kereta Api Indonesia, Tbk (PT. KAI) is the main operator for railway in Indonesia. PT. KAI is a state owned company affiliated to Ministry of Transportation and Ministry of State Owned Company with monopoly powers to provide rail services (suburban and inter-city passenger and freight) in Indonesia. PT. KAI is organized on a functional basis and is highly vertically integrated. It is responsible for both infrastructure construction and maintenance, also train operations. The operational of railway in Jabodetabek area is under management of PT.KAI Operational Area I which covers all railways services in Province DKI Jakarta, Province Banten, also 3 cities and 3 regions within the administration area of Province West Java (Depok city and region, Bekasi city and region, also Bogor city and region). The operational not only cover local train but also regional train that departures and arrival in the region, in operational and infrastructure maintenance. In 2008, due to the increasing of commuter demand in local area of Jabodetabek, the section of Jabodetabek commuter established into affiliated company called PT Kereta Api Commuter Jabodetabek (PT. KCJ), based on President Decree No. 5 on 2008 and Letter of Ministry of State Own Enterprises No. S-653/MBU/2008 on 12 August 2008. The operational of PT. KCJ has separated from PT KAI in official inaugurated since April 2009. This affiliated company operational independently and become operator of commuter train in Jabodetabek area.
III.2.1 Jabodetabek Commuter Railways

III.2.1.1 Railway Network

PT. KCJ operates 343,895 km electricity line and track. There are several lines which operated in Jabodetabek area. The railway network in Jabodetabek area connects hinterland area with Province DKI Jakarta. The railway network map of operational lines in Jabodetabek can be seen in figure 3.5. At present, the Jabodetabek rail network faces fatigue condition.

![Jabodetabek Railway Network Map](PT.KAI, 2009)

With available track condition the train speed and frequency is limited. The service routes of Jabodetabek commuter consists of:

- **South Line**, with route Bogor – Depok - Manggarai (44,92 km)
- **Central line** with route Manggarai-Gambir-Kota (9,89 km)
- **Bekasi Line** with route Bekasi-Jatinegara (14,802 km)
- Serpong Line with route Serpong - Tanah Abang (23,278 km)
- Tangerang Line with route Duri - Tangerang (19,297 km)
- Tanjung Priok Line with route Tanjung Priok - Kota (8,115 km)

III.2.1.2 The Station

There are 70 stations which become the responsible of PT. KCJ and DAOP I PT. KAI. The stations that become full responsible of PT. KCJ are the stations specific only to serves or stop by commuter train. The name of the stations can be seen in Figure 3.6. The symbol of circle represents the small station and the square represents the large station or central station. The station is in form of building and divided into the administration office, ticket counter, lobby and emplacement. The emplacement in some station is lower than the train entrance door and some in the same level with train entrance door. The length of the emplacement in some of the station is not as long as the train length. This can causes accident and difficulties for the passenger that going on-board and off board. This condition also prevents person who disabled and elderly to use railway in their mobility. The stations condition that in open access give advantages for passenger with no ticket to get into the train, especially in peak hours with so many passenger make the operator ticketing staff have difficulties to check ticket from all passenger.

Source: http://community.kompas.com/read/artikel/547
III.2.1.3 The vehicles

PT. KCJ operates 395 units electric train (KRL) for commuter services. Most of the trains which used in Jabodetabek are given by Government of Japan. There are also trains which produced by the local company called KRL 1 INKA. There are three type of commuter train; commuter economic non AC, Commuter economic AC and commuter express AC. The commuter economic non AC and Commuter economic AC are trains that included in government subsidy. The commuter express AC is train that operates by PT. KCJ with their own expenses.

One set of commuter train consist of 8 trains. The passenger capacity for one train is 200 passengers. The load capacity of commuter Jabodetabek at this present can carry out
325,000 passengers a day. The numbers of vehicle at this present has not met the people expectations, because the availability is not comparable with the numbers of passenger in peak time. It affected the passenger comfort and the availability.

III.2.1.4 Trip Tariff and Ticket Counter

Tariff for every commuter service is differentiating by origin-destination and type of service. Passengers of economic train pay less than the actual price because the government gives subsidies for economic train. Average tariff for commuter economic non AC is Rp. 2000, for commuter economic AC is Rp. 4500, and for commuter express is Rp. 9000. Ticketing process is handled by operator and goes directly to company revenue. The tariff for economic services is determined by Government and the amount is adjusted with the public’s ability to pay.

The ticket for commuter passenger is available in retail and periodic. Retail ticket is in form of paper and periodic in form of periodic card. But because in checking ticket process the operator still do it in manual many of passenger with no ticket in peak hours easily get into the train without afraid to be caught by the operator staff. Moreover, when the capacity of the train has reach maximum the area for the operator ticket staff to check each of the passenger almost impossible. This make the operator lost Rp. 250 million everyday (www.tempointeraktif.com). The condition is inconvenience for the passenger with ticket and a big lost for the operator.

Figure 7 Ticket Counter in Station
III.2.1.5 Service and Operational hours

The type of commuter train divided into economic AC, economic non AC and express train. These three services differentiated by time of operation, stopping station, and travel time. Because the economic AC and non AC are the government obligation, the standard of service is determined by government and tied in contract. The standard is called the minimum standard of services. The service standard for express train is determined by operator. The travel time for economic commuter train is more than the travel time of express as for the commuter economic train must stop in almost every station it passed by. The travel time is sometimes disturbed by baulk economic train. The delay can take more than 30 minutes.

The Jabodetabek commuter trains operation starts at 4.30 am from Bogor, 5 am from Serpong, and around 6 am from Bekasi and Tangerang. Since 2008, in order to accommodate the demand from workers in Jabodetabek area, the commuter economic AC trains which operate on Jakarta–Bogor, Jakarta–Depok, Jakarta–Bekasi, Manggarai–Tangerang and Manggarai–Serpong operates until 11 pm.

III.2.1.6 Financial System

PT. KCJ revenues come from ticket selling and subsidy from Government as payment for providing economic train. Ticket selling covers around 50% of total operating cost and the remaining 50% of from total operating cost is covered by subsidy. The revenues from ticket selling and subsidies become revenue for the operator. The subsidy is paid gradually at the end of every four month after performance evaluation by DGR. The administration process in withdraw the subsidy make the operator receive the payment in the next term.

III.2.2 Contractual Governance

The service contract is public service contract for economic railway service provision. The type of contract is net contract which the payment given every 4 months after each performance evaluation. The quality of service was defined through technical specifications and the fulfillment of task stated in contract. The service contract consisted of main document and appendix which described specific detailed. The main document consist; 1) specified the supported law which base the agreement, 2) definition of contractor and
operator and their respective roles in delivering the service, 3) specified scope of work and service, 4) specified task characteristic and requirement that need to be obey by the operator and supported law related to the implementation of the task, 5) specified the contractual period (1 year) and the date of the agreement start and end, 6) the contract value, 7) the right and obligation of contractor and operator, 8) specified the condition for payment and all valid contractual documents, 9) specified about verification and audit of the performance, 10) conditions for notice in the case of the contractual agreements being broken (fine and calculation), 11) definition of force major condition that make the agreement broken, 12) specified about tax and duty that attached to the contract value, 13) described about settlement of disputes, 14) specified process of addendum when there is changes inside the implementation of contract. The contract appendix specified the timetable, route, and performance evaluation items.

According to DGR representative, in general operator has fulfill the task in giving service as stated in agreement and there is always effort to provide better service. Every year service standard is reviewed and followed by decreasing failure tolerance of service standard. In 2008 the failure tolerance is 10% and in 2009 it decreasing to 5%. This means the condition and level of service is increasing and getting better. In order to increase the performance the items for service standard is added. In service contract 2009 the additional item of service standard are related to sanitize and hygiene items, not only on-board conditions but also facility.

III.2.3 The Service Quality of Railway Operational Performance

In describing about level of service quality in Jabodetabek railway operation can be done by comparing the contents of service contract between DGR and operator with existing condition. The existing condition data is gain from the customer satisfaction Index (CSI) and also from railway operator and community website complaint database.

III.2.3.1 Reliability

The reliability is related with punctuality and travel time. The punctuality of present condition is still far from people expectation. From the complain database the punctuality performance is one of the problem that the passengers complain. There are 3 conditions that
can influence passenger travel time; waiting time, number of operated fleets, and the vehicle speed. The delay in railway operational happens when there is obstacles that make the train stop or hold up the speed. The baulk of old commuter economic non AC is one of the factor. There are also some technical problems that causing delay in commuter railway operational such as electricity shortage. This led to traffic jam when another train coming into the line. The signaling can also become the cause of delay. Without signaling the train driver have no sign about the lines situation and the driver would not taking risk to endanger the operational.

Table 2  Performance Report 2003-2007

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<th>The Item of Report</th>
<th>2003</th>
<th>2004</th>
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<th>2006</th>
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<tr>
<td>Departure right on time (%)</td>
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<td>81</td>
<td>70</td>
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<tr>
<td>Departure late (%. max. minute)</td>
<td>20 (8)</td>
<td>19 (7)</td>
<td>30 (5)</td>
<td>18 (4)</td>
<td>16 (3)</td>
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<tr>
<td>Arrived right on time (%)</td>
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<td>21</td>
<td>22</td>
<td>23</td>
<td>26</td>
</tr>
<tr>
<td>Arrived late (%. max. minute)</td>
<td>81 (56)</td>
<td>79 (41)</td>
<td>78 (40)</td>
<td>77 (46)</td>
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<tr>
<td>B. Freight Train</td>
<td></td>
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<tr>
<td>Departure right on time (%)</td>
<td>24</td>
<td>21</td>
<td>23</td>
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<td>Departure late (%. max. minute)</td>
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<td>77 (85)</td>
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</tr>
<tr>
<td>Arrived right on time (%)</td>
<td>24</td>
<td>22</td>
<td>19</td>
<td>19</td>
<td>26</td>
</tr>
<tr>
<td>Arrived late (%. max. minute)</td>
<td>76 (204)</td>
<td>78 (86)</td>
<td>81 (112)</td>
<td>81 (107)</td>
<td>74 (95)</td>
</tr>
<tr>
<td>Signaling problem (frequency)</td>
<td>3354</td>
<td>1650</td>
<td>1600</td>
<td>1550</td>
<td>1933</td>
</tr>
<tr>
<td>Locomotive baulk (frequency)</td>
<td>1719</td>
<td>1552</td>
<td>1519</td>
<td>1724</td>
<td>1787</td>
</tr>
<tr>
<td>Average WPG (days)</td>
<td>3.38</td>
<td>3.41</td>
<td>3.27</td>
<td>3.11</td>
<td>2.99</td>
</tr>
</tbody>
</table>

The service contract stated about the punctuality and travel time. The operational for each economic train have fixed and regular schedule. The maximum delay tolerance for urban railway is 20% from overall travel time. The travel time and scheduled is transfer to railway traffic travel time graphic (GAPEKA), a schedule map for all train. It also stated in contract that other supported law about operational regulate the implementation.
III.2.3.2  Tangibles

Tangibles related to appearance and comfort. These items are intended to vehicle performance, equipment, and employee. Complains related to appearance and comfort more to the overall condition on board such as, the inside condition of the train, the availability and ready to use facility on board (fan, AC, window, door, and seat). The present condition shows that demand for commuter train services are higher than number of fleet that operator have which result overloaded capacity.

The service contract between DGR and operator stated about tangibles item. The clause state that the operational must to fulfill the performance standard for vehicle such as condition of facility inside the train (fan, door condition, windows condition, seat, etc) and overall performance of vehicle. The train should pass the performance standard evaluation before it can be operated. The tolerance for facility damage is 10% from performance standard evaluation. The service contract regulates about the availability of the equipment and performance standard for vehicle but does not mention about the comfort criteria and the attributes like cleanliness.

III.2.3.3  Responsiveness

Responsiveness is about willingness of the operator to help customers and provide prompt service. The effort is to provide customer representative (call center, customer service, complain website link) to receive and handle complain from passenger. In operational the operator provide call center and customer service to handle customer complain. PT. KAI also has fans community website and community of commuter website which also gives spaces for complaining. Some of PT.KAI officials joint with community to monitoring and responding complain from railway users.

In service contract between DGR with PT.KAI is not stated about customer representative. In other hand, DGR do not have any customer representative. It only stated that DGR in rating operator performance through observation, supervision, and evaluation. Contract also stated that there are penalize if operator fail in fulfilling the task.
III.2.3.4 Assurance

Assurance is about knowledge and courtesy of employees and their ability to inspire trust and confidence. The items consist of safety and security, also competency and courtesy. According to the commuter website many passengers complain with the safety and security on train and at the station. Many case of robbery and pickpocket happens everyday especially in commuter economic non AC. There are also cases of annoying beggars, misbehavior from some of passenger, and train incidents.

In safety and security of the operational vehicle, contract requires operator to operate vehicles that pass the vehicle feasibility test and only operate the vehicles that have the qualified certification. It also stated about the availability of fire extinguisher and other specification related to safety regulation. In item competency and courtesy implementation taking standard from operational regulation. One that set in the regulation is the driver level of skill and qualification process.

III.2.3.5 Empathy

The items of empathy cover accessibility, service monitoring and cost item. Item accessibility consists of availability of service (service coverage), vehicle capacity, and availability of information. The availability of information is felt enough by the community. The information on-board available only at commuter economic AC and commuter express trains. The time table is available on station announcement board and through the official website. Operator always monitors operational of railways from controlling room in every station. Furthermore, the Jabodetabek area has CTC (Centralized Traffic Control) systems. Without the approval from the traffic officer and controlling room, train will not operational. The ticket price of economic train is set by DGR which the amount of it adjusted with people ability to pay. The price for other service is set by operator. The accessibility is not cover for people with limited condition. There is no particular space for people with disabilities. Wheelchair users are difficult to use train service. The senior people and pregnant women sometime facing problem in using train services as the access to the train is difficult and not comfort for them.
The service contract stated about the maximum capacity and the tolerance of over load factor for each train. Contract not mention about accessibility for people with disable condition or in special condition (senior people, pregnant and disable). The related law only stated that the door for train that provide space for disable people must to be easy access even thought there is no clause that state about train characteristic for disable people. Service coverage includes all stations in Jabodetabek area with terms and ticket price that set by DGR and government approval. The terms are included in appendix and first must to be agreed by DGR and operator. Service monitoring is regulated by supported law about railway operational but not include monitoring for employees attitude.

III.3 Transportation of Värmlands Area

Värmland County is one from 22 counties in Sweden. Värmlands area is covering over 17,500 Km2 with 16 municipalities (www.varmland.se). The county has approximately 273,374 inhabitants. Värmland County have three large municipalities; Karlstad with population of 59,000, Kristinehamn with population of 18,000, and Arvika with population of 1,413. The number of cars on the road increased by almost 49 000 cars, or just over one percent in 2006. At the end of the year 2007 there were around 4 202 500 passenger cars in traffic. The largest increases numbers of cars on the road happen in Skåne County by 2.1 percent or 11 145 cars. This fact become the notice of government as their national transport goal to achieve sustainable transport condition

Värmlandstrafik AB (VTAB) is the PTA which becomes the monopoly provider of public transport service in Värmlands County. The changes of regulation in 1980 implemented in Värmland led to the establishment of VTAB as a private limited company. VTAB is not the operator of the actual public transport services. The PTA only orders services and coordinates the operator of public transport. The PTA responsible for planning traffic and has to coordinate interest in the stakeholder network. All business to business relationship conducted by PTA to operator regulated by contract. These contracts are open to all railway undertakings.
VTAB is owned by the 16 municipalities and the county of Värmland. The headquarters is in Munkfors. VTAB have 60 employees working side by side in managing and coordinate public transport operators in Värmland County with overall staff of 900 employees. VTAB own 15 trains with 3 different fleet type and capacity. The 15 trains consist of 3 light diesel train with capacity of 100 passengers each, 4 diesel train with capacity of 67 passengers each, and 5 electric trains with capacity of 180 passengers each. The railway operational operator is Merresor, which at the end of December 2009 will be taking over by Tägkompaniet. VTAB have co-operation with SJ in order to be able to offer a good and effective service for Värmlands community.

III.3.1 Värmlands Regional Railways

III.3.1.1 Railway Network

and stop stations are Karlstad - Kristinehamn – Hälelfors - Ludvika. The network of railway in Värmland is shown as green lines in Figure 3.7.

![Värmlands Railway and Bus Network](image)

**Figure 3.12** Värmlands Railway and Bus Network (VTAB, 2009)

### III.3.1.2 Stations

There are 13 stations in Värmlands region and 29 shelters. Some of this station building owned by private. The data is not enough to explain more about station and shelter condition. In general, the operational of stations becomes the responsibility of municipalities or private landowners. From observation and key representative interview, overall condition of station and shelter is felt enough by värmlands’ community and already suitable with technical standard and specification in related regulation.
III.3.1.3 Vehicles

VTAB owns 15 train which consist of 5 reginatåg (electric train) with capacity of 180 seats, 3 Itino (modified diesel trains) with capacity of 100 seats, and 7 Y-1 (old diesel train) with capacity of 60 seats. The law in Sweden stated that public transport authority must provide facilities to ease elderly people and people with disabilities to ease them accessing the vehicle. VTAB uses modified train with extra item to ease people with wheel chair so that they can easily enter the train. The vehicles also must environmentally friendly, although it uses diesel, the emission should meet Euro II regulation. The vehicles is own and provide by PTA. The operator is leasing the vehicle for their operational base. The leasing is regulated inside the contract of 8 years concession.

III.3.1.4 Trip Tariff and Ticket Counter

VTAB has different prices for different types of passengers and locations. The price differences for children, youth, adult, student, senior people, people with disabilities and combination of buses and train, and obviously different locations will have different fare. There are 3 type of ticket that can be choose; single ticket, periodic, and ressaplus. Ticket can be bought in station, and local shop. The price of each ticket type and timetable can be search easily through PTA website. Until now the revenue from ticket sale directly goes
into VTAB party but in the future the revenue will be goes directly to the service operator. VTAB will only pay subsidies for passenger with periodic ticket.

III.3.1.5 Service and Operation Plans

The operation of regional train start at 05.40 am until 23.37 pm. The operational hours and frequencies are different for each route. The frequency and operational hours is adjusted with market needs. The time tables in general keep pace with the time schedule of school activities. Municipalities felt that students need to be prioritized for they only depend and use public transportation as their mobility mode.

III.3.1.6 Financial System

VTAB is owned by county council of Värmlands region and 16 municipalities in Värmlands region. The subsidy for train ticket is 52% from total operational cost. The rest of the cost is paid by the passengers. The subsidies are collected from each municipality and from county council. The county council paid 50% of overall subsidies and the rest cover by each municipality. Subsidies that have to be paid by each municipality are different. The amount is based on the population, covering area, and frequency of trip on each municipality.

3.1.1 Contractual Governance

Service contract right now is in form of gross contract which will change into net contract within this year. The changes also consist the concession time of 8 year. Service contract is start from the process of tendering. The offer in tendering is the time table and the price from the kilometer of trip for each train. Contract consists with documents; transport agreement, procurement minutes, operator tender, administrative regulations, service plan, framework, terms, and quality. Each of documents specified the subject. Three item in performance measurement of Värmlands railways operational: regularity (standard technical), punctuality, and frequency. The evaluation done every 4 times a year. The evaluation is a follow up of the contract and the evaluation not as a burden for the operator but this is an indicator which item that need improvement. The PTA has implemented the fees scheme to the evaluation within the item that lack performances, but this not affect and
do not bring any benefit to the two parts and too much administration process. VTAB make it to time deal, within the time of concession it will give the final result. The effort to increase the performance and the quality of the operational takes time. That is the reason why the PTA gives service contract in form of concession.

In future development PTA will interview the public every year, performance inspection, and evaluation of performance measurement, also the technical evaluation. PTA considers that the technical performances influence the overall performances of railway operation. Failure of services is affected the customer satisfaction 4 times yearly meeting is a discussion and reviewing the operational result, this is where the performance measurement takes places. Through discussion and the customer review then the PTA and operator also other stakeholder can discuss the new strategy to improve the quality, the number of passenger and other improvement. Through this continuity process the goal for the operational, PTA’s goal and operator goal, can be achieved.

III.3.2 The Stakeholder Relationship

Public transportation in Sweden is mostly provided by private operators using contracts obtained via a public procurement process. The system based on two interacting value-creating processes. This relationship involves four main actors. First, the principal or politician, i.e. the owner or the authority responsible, representing the political level; the executive management of a regional public transport company, i.e. the Public Transportation Authority (PTA); the employees or, as is the case in public transport, the operators (contractors) who are contracted to provide the services; and the customers, i.e. the passengers and citizens.

It is as Bo Enquist (2005) describes in the rectangular relationship figure. The regional and local politic level is the owner of VTAB. The national politics are important for VTAB due to there regulating function (laws, transport political goals). The politicians are voted by the county’s inhabitants who can be citizens and costumers of VTAB. However, there is relatively little contact between the PTA and the costumers. The costumers are mainly in contact with the operators (e.g. bus driver). The operators are tightly connected to the PTA by contract (Bösch, 2008)
Board principal/politicians

The board principals/politicians are owner of PTA. The board as director set the PTA goal and the service scheme periodically. The board set it based on Sweden national transportation aim and in order to fulfill the needs of community. The members of the Board are the politicians and local government of Värmlands region. The board arranges share holders meeting regularly four times a year to discuss VTAB works and operator performance evaluation. The politicians are representing the community as they are voted by citizens.

Public Transport Authority

VTAB is a public transportation company who responsible for planning and managing public transportation in Värmlands region. Besides planning the public transportation services to citizens/customers, it also has to coordinate with stake holders’ interest. VTAB policies should have an agreement from board of principal/politicians. PTA is not the one that operates the public transportation. It delegates the authority to the selected operator by tender. PTA only gives guidance and coordinates operator in serving citizens. VTAB is tendering the public transport service and making agreement with private company that win the service tender. The PTA set the tariff and the time table for the operational in each public transportation modes. PTA maintains the relationship with the customer directly. The PTA services to passenger is by giving the travel guarantee, accommodate community demand, and the process complain recovery. PTA is the one that held the CSI and measure the performance, and compile the demand. With the changes from gross contract to net

Figure 3.11 Sweden Public Transport Relationship Model
contract, basically the management and relationship between the stakeholders will still the same. The changes will only in financial. The failure of operational is operator responsible.

This new development and responsibilities to the operator make the improvement to their performances and the business strategy to gain more benefit for them. As PTA, VTAB needs to give standard and performance measurement to assurance that the operators give the best service to the passenger. The quality of service was defined through technical specifications and performance measurement stated in form of contract. Strategic issues in railway systems are related to the desirable service level to be provided to the customers (in terms of number of direct connections, frequencies, and reliability), and the capacities of the resources that are required to accomplish these services.

**Operator**

The operator is private company which wins the tendering, and operates the public transportation. In doing the public transport operation, the operator has to obey the guidance that PTA released as specified in service contract. The operator has obligation to give good performance in doing the operational. The present operator for railway in Värmlands region is Merresor. In 2004, Merresor was certified according to quality and environmental ISO 9001:2000 and ISO 14001. This makes Merresor the first Sweden passenger train operator with quality certification. Merresor has commitment to work continuously in improving environmental and quality in their daily operations (www.merresor.se).

**Customers/citizens**

Customers demand for good public transportation services should be a focus of PTA in managing the transportation service that served by operator. This based on fact that the public transportation is subsidized by government. The subsidy is come from the tax that the customer/citizens paid. The government subsidizes 50% from the transportation fee per person. As estimation, each citizen pays about 750 SEK per year for transportation. Government have a bound with the citizens, as the citizens have a right to vote a politician as their representative in government.
III.3.3 The Service Quality of Railway Operational Performance

The description of existing condition of VTAB performance is using the SERVQUAL item. This description is obtained from interview with VTAB representatives, official website, and supporting data from VTAB.

III.3.3.1 Reliability

The reliability which consist punctuality and travel time item is VTAB focus services in railways. Punctuality and travel time is transfer into timetable form. In tendering process item that being offered is timetable. VTAB set the timetable, provide the fleets and give travel guarantee for passenger. Punctuality and travel time have been settled and accomplished well by operators. Local train operates from 05.00 a.m. until late evening gives passenger options in time journey. The travel guarantee, if there a delay more than 50 minutes and affected to the passenger beneficial then the passenger will get the money and compensation. The second guarantee is the guarantee using any mode within Sweden region (ressapluss). Service contract stated about timetable with detail about train kilometers and timetable hours. VTAB evaluate present operator has given good performance in punctuality and travel time.

III.3.3.2 Tangibles

Tangibles related to appearance and comfort. These items are intended to vehicle performance, equipment, and employee. Through observation the vehicle performance, equipment, and employees is in good condition and appearance, it give comfort environment to passengers. Vehicle maintenance is become other operator responsibilities. Provision of vehicle and facilities are PTA responsibilities and PTA leasing the vehicles to operator. The task of operator is only to keep vehicles and their employees in good appearance.

The contract stated operators have responsibilities to keep vehicles and assure the conditions of the trains are in good performance. Contract also stated about the obligation for operator employees to wear uniform with name tag.
III.3.3.3 Responsiveness

VTAB contracting the call center services to other company. The contracting Call Center Company is responsible in handling customer complains related to the public transport operation. VTAB staff who responsible for the complain responses have direct access to data complain in call center company. This person in charge should give feed back to complainer and also report it to operator if it is needed. If the complainer sides suffer financial lost caused by delay then VTAB will pay back the cost. Complainer could reach VTAB to send complain through telephone, short message and email.

III.3.3.4 Assurance

Assurance dimension consist of safety and security, competency and courtesy item. Safety and security through general observation is good and already applied as standard of service. Competency and courtesy items is conducted very well by operator which gives passenger confidence to travel with train.

Contract stated about the safety and security standard equipment provided in train, such as fire extinguishe, supporting device for wheelchair user, etc. Driver recruitment conducted by operator, competency assessment of driver fully under responsibility of operator.

III.3.3.5 Empathy

Empathy consists of accessibility, service monitoring, and cost item. Accessibility consists of availability of service (service coverage), availability of space (capacity) and availability of Information. VTAB have no problem with train capacity, although the train capacity would be full on the peak hours but still enough. VTAB felt that they do not need to add more fleets. VTAB problem is rail capacities that now reach hectic condition. VTAB serves four routes in all municipalities in Värmlands region, VTAB provide public transport by call, like taxi in certain area that does not have big demand. VTAB provide all information about service in public transport including timetable, customer service representative, notification about service changes, etc. the information can be access through phone, website, and SMS. Service monitoring is done by Traffic Management Center.
Accessibility is regulated by National Transport Law that vehicle must be accessible for the person with reduced mobility, including wheelchair users. Contract stated that operator must to ensure good and equal treatment of all passengers, staff and job seekers. Contract also stated about consumer price index to assure that ticket price is controlled by PTA.

IV. Discussion

In summary, the research confirms that service quality of Jabodetabek commuter railways operational is still low. The service failures that happen in service delivering process are proved by how the operational is still not as expected and the performance still below the standard stated in contract. As a service, public transport is “produced” in the customer’s presence: production (transport operation) is thus part of the customer relationship. The market failure of public transport clearly in view, the striking fact is that it attracts too few customers – a seemingly trivial point, but a reminder that people are public transport’s market. Therefore, to make people attract and willing to use public transport government and public transport operator should make and create public transportation, in this case railways, to be desirable public transport. In order to get deeper analysis and result that can give more contribution, this study need to be added with customer satisfaction analysis and service process analysis. It is important to examine whether service has been delivered to people with good service quality and what factors that influenced people’s satisfaction in using railways. Research about service process among stakeholders in public transport will help to identify the strength and weakness of each actor in order to improve public transport service.
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