

implementing and testing solutions to address the root causes identified during analysis.

3.8.1 Improvement Proposals

After analyzing the data, the expected results stem from the proposed solution. This involves crafting a new, customized order processing model specifically designed for the company. This model is proposed as a management project recommended to accomplish the set objectives outlined in this study.

3.8.2 Implementation

This implementation will be carried out from the UT Site in Tanjung Enim to the top 10 customers in the Tanjung Enim area. Approval for this implementation has been obtained. During the data collection process, this serves as the evaluation goal for this research.

3.8.3 Verification

The verification outcomes after the application of the new recommendations hold great significance. Evaluating the implementation aligning with expectations is crucial. Certain data will be gathered and subject to evaluation. The aim is to assess the system, identifying any potential bugs or system failures when issues arise within the critical system. These evaluations can lead to modifications, enhancements, or refinements in the system's design or programming process. If issues are detected, the stage will loop back to the improvement process to address the requirements identified through evaluation.

3.9 Control

In the final phase, it's crucial to maintain and oversee the implemented measures and the verified recommendations from this thesis, which have shown positive results. Control is maintained through the execution of a structured internal audit program and regular monitoring of reports on a scheduled basis.

CHAPTER 4 – RESULTS AND DISCUSSIONS

4.1 Problem Discussion

In the fourth chapter, the Voice of Customer (VoC) regarding UT's service level to its customers will be explained. For this research, 10 customers with the highest sales achievements in historical data from 2022 have been selected. Presently, there's a significant issue where the Collection Period Days and the lead time for document delivery to customers are high. The high Collection Period Days are reflected through the lead time delivery of documents exceeding the set target. The service level is depicted through document delivery, which remains below the established target. Current service measurements encompass all requests from these 10 customers. Additionally, the Researcher has crafted 10 questions related to service quality provided by UT and several competitor vendors.

This chapter will also explain the analysis conducted to determine an initiative program that will be implemented for these 10 customers. It will serve as a pilot project at the UT Site Tanjung Enim for enhancing service provision to these customers.

To assess the quality of this initiative program, both quantitative and qualitative analyses will be employed. Quantitative approaches in customer surveys typically utilize structured questions with rating scales or other closed-ended questions that can be measured numerically. On the other hand, qualitative approaches involve open-ended questions allowing customers to provide free-form responses without specific answer limitations. This method will involve Focus Group Discussions (FGD), assessments within the company, and refinement of methods. With these methodologies, criteria will be established that must be approved by UT management to determine which policy steps will be taken in the future.

Table 7. Collection Period (CP) Target for Customer

Customer	CP Target (Days)
PT.A	68
PT.B	68
PT.C	68

Customer	CP Target (Days)
PT.D	68
PT.E	68
PT.F	68
PT.G	68
PT.H	68
PT.I	68

Detail Customer name refer to Table 1.

4.2 Data Collection

CP target calculation or ideal condition is obtained from Term of Payment (TOP) coupled with the leadtime of documents delivery. From internal data obtained information TOP customer PT.B until KPP is 30 days and Collection Period days is 68.

Table 8. Survey Question

No	Voice of Customer
1	Response to requests within 24 hours
2	Completion of goods delivery within 24 hours
3	Speed and accuracy of goods delivery to customers (OTIF)
4	Speed in responding to customer orders
5	Accuracy of billing document content for customers
6	Speed of delivery for billing documents to customers
7	Choice of expedition mode from UT Site Tanjung Enim for billing document delivery
8	Invoice reconciliation time with the customer
9	Timeliness of invoice payment
10	Block Account

Talking lots with customers is super important because what they need is always changing. Sometimes it changes really fast, so we always get check and adjust to what they need. If we don't guess these changes, our company might not do as well against others in the market. Customers will be asked to assess the level of importance and competitiveness of this company compared with competitors at each item, and Competitiveness assessment is focused on customer assessment of the level of competitiveness of this company with competitors in each of these items. (Baladi, 2020). Several factors contribute to the emergence of new customer needs, including

advancements in technology, intensified market competition, evolving consumer preferences, societal transformations, and global conflicts (Sugiarto, 2001).

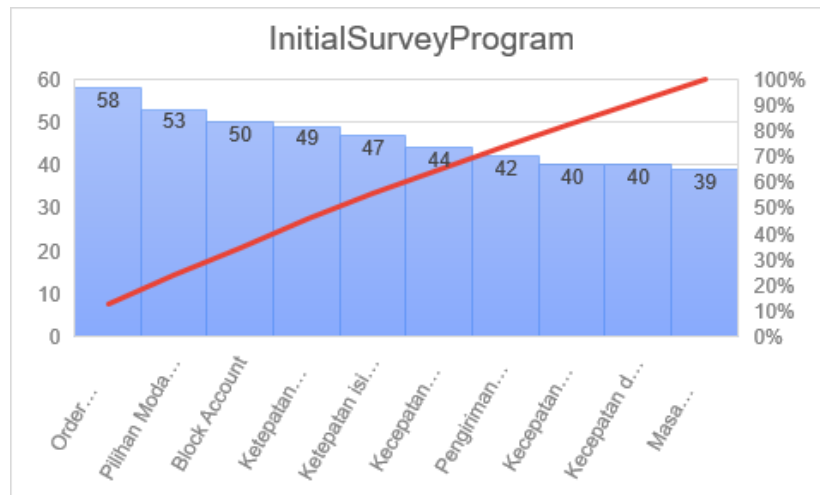


Figure 4.1 Initial Survey customer TJE

The fluidity of customer demands underscores the criticality of ongoing communication. By engaging in regular dialogue, companies can vigilantly track and respond to any developments or alterations in customer requirements. This continuous exchange serves as a strategic tool, enabling organizations to stay abreast of evolving market trends and changing consumer expectations. Neglecting this aspect risks leaving a company out of sync with market dynamics, leading to potential loss in competitiveness. Therefore, maintaining an open line of communication with customers is indispensable for companies seeking to adapt, innovate, and thrive within dynamic and competitive landscapes.

Table 9. QFD Iteration One

Symbol		Meaning	
	☑	Strong Positive Impact	
	☐	Moderate Positive Impact	
	Blank	No Impact	
	X	Moderate Negative Impact	
	XX	Strong Negative Impact	

No	Voice of Customer	Customer										System Available	Staff Size	Clear Process	Clean Process	System Speed	System Capability	Training Process	Total	Total (%)	Competitor T	Competitor V	Ranking
		PPA	MTN	PTBA	SBS	BSS	AMU	ULTM	LDA	KPP	Average												
1	Permintaan di respon dalam waktu 24 jam	3	3	2	2	1	2	2	2	3	2	9	9	9	3	3	3	1	74	15%	3	2	1
2	Pengiriman Barang diselesaikan dalam waktu 24 jam	2	2	1	1	1	1	1	1	2	1		9	9	9	3	1		31	6%	2	2	2
3	Kecepatan dan Ketepatan Pengiriman Barang ke customer (OTIF)	3	3	1	1	2	1	1	1	2	2		3	9	9	3	3	3	60	13%	3	2	3
4	Kecepatan dalam merespon Order Customer	3	3	2	1	2	2	2	3	2	9	9	3	3	3	1	9	3	56	12%	3	2	4
5	Ketepatan isi dokumen tagihan ke customer	3	2	1	1	2	3	2	3	2	1	1	1	3	3	3	3	3	46	10%	2	2	7
6	Kecepatan Pengiriman dokumen tagihan ke customer	3	2	1	1	2	3	2	3	2	1	1	1	3	3	3	3	9	46	10%	3	3	8
7	Pilihan Moda ekspedisi dari The Company untuk pengiriman dokumen tagihan	4	3	1	1	2	2	2	4	2	9	3	3	3	1	9	3	3	50	10%	2	2	5
8	Masa rekonsiliasi tagihan dengan Customer	3	3	1	2	3	1	1	4	3	2	3	3	9	9	1	3	3	50	10%	3	3	6
9	Ketepatan waktu pembayaran tagihan	2	4	2	2	5	3	2	2	3	3		3	3	3	1	3		30	6%	3	2	10
10	Block Account	4	4	1	2	3	3	3	2	4	3	9					3		36	8%	2	2	9
																			475				

Here are the results of the survey mapping of customers, which represent the values of Competitor T and Competitor V. Here are the data results of the survey mapping of customers, which represent the values of Competitor T and Competitor V. The data above becomes raw data to start this project / program initiative how from the 10 questioners can answer VOC by also comparing the results of the UT Survey of competitors T and V.

Table 10. Survey Competitor T

No	Voice of Customer	Customer									Priority Average
		PPA	MTN	PTBA	SBS	BSS	AMU	JLTM	LDA	KPP	
1	Response to requests within 24 hours	2	1	3	1	3	3	3	4	4	3
2	Completion of goods delivery within 24 hours	3	3	2	2	3	2	2	1	3	2
3	Speed and accuracy of goods delivery to customers (OTIF)	3	3	2	1	3	3	2	3	3	3
4	Speed in responding to customer orders	3	3	3	1	4	4	3	3	3	3
5	Accuracy of billing document content for customers	3	2	2	1	5	2	1	4	4	2
6	Speed of delivery for billing documents to customers	3	2	4	3	3	3	2	3	5	3
7	Choice of expedition mode from UT Site Tanjung Enim for billing document delivery	3	2	3	2	2	3	2	3	1	2
8	Invoice reconciliation time with the customer	2	4	4	2	3	4	4	4	4	3
9	Timeliness of invoice payment	3	3	5	1	2	2	2	4	3	3
10	Block Account	2	3	1	2	3	1	3	2	3	2

No	Voice of Customer	Customer									Priority Average
		PPA	MTN	PTBA	SBS	BSS	AMU	JLTM	LDA	KPP	
1	Response to requests within 24 hours	2	1	3	1	3	3	3	4	4	3
3	Speed and accuracy of goods delivery to customers (OTIF)	3	3	2	1	3	3	2	3	3	3
4	Speed in responding to customer orders	3	3	3	1	4	4	3	3	3	3
6	Speed of delivery for billing documents to customers	3	2	4	3	3	3	2	3	5	3
8	Invoice reconciliation time with the customer	2	4	4	2	3	4	4	4	4	3
9	Timeliness of invoice payment	3	3	5	1	2	2	2	4	3	3

Based on the survey conducted by UT for Competitor T, using the same questions, a Priority score of 242 was obtained. Several standout questions for Competitor T were 1, 3, 4, 6, 8, and 9. Regarding the service level for responding to requests within 24 hours, Competitor T performs quite well. The average rating from these 10 customers reflects positively on Competitor T because customers don't have to wait long for price inquiries and stock checks. This enables customers to promptly decide whether to place an order, which is advantageous.

Moreover, Competitor T's speed and accuracy in delivering goods are noteworthy. This ensures that orders reach customers quickly and accurately, matching what was requested. The precision in the quantity and items delivered by the courier contributes significantly to customer satisfaction. In the heavy equipment industry, errors like these are common, so ensuring accuracy is crucial. This concern resonates across vendors in the heavy equipment sector, as such mistakes could disappoint customers and impact satisfaction levels.

Furthermore, Questions 8 and 9 are closely related because effective reconciliation between Competitor T's representative and the customer facilitates ease

in payment processes. However, this doesn't align consistently with Question 10 due to Competitor T's strict account blocking policies. Consequently, this aspect receives lower scores from customers because the vendor's payment terms are short and could potentially lead to customer account blocking.

For Competitor V, the survey results based on the same questions conducted by UT can be displayed in the table below.

Table 11. Survey Competitor V

No	Voice of Customer	Customer									Priority Average
		PPA	MTN	PTBA	SBS	BSS	AMU	JLTM	LDA	KPP	
1	Response to requests within 24 hours	4	3	5	3	2	2	1	1	1	2
2	Completion of goods delivery within 24 hours	4	1	4	3	2	2	2	2	2	2
3	Speed and accuracy of goods delivery to customers (OTIF)	2	2	2	1	3	3	2	3	3	2
4	Speed in responding to customer orders	3	3	2	2	1	1	1	2	2	2
5	Accuracy of billing document content for customers	3	3	3	2	2	2	2	1	2	2
6	Speed of delivery for billing documents to customers	2	2	4	4	2	2	2	3	3	3
7	Choice of expedition mode from UT Site Tanjung Enim for billing document delivery	1	1	2	2	2	1	2	2	1	2
8	Invoice reconciliation time with the customer	4	4	4	2	1	2	2	1	3	3
9	Timeliness of invoice payment	3	2	4	1	2	2	2	3	3	2
10	Block Account	4	2	3	2	1	1	1	1	4	2

No	Voice of Customer	Customer									Priority Average
		PPA	MTN	PTBA	SBS	BSS	AMU	JLTM	LDA	KPP	
6	Speed of delivery for billing documents to customers	2	2	4	4	2	2	2	3	3	3
8	Invoice reconciliation time with the customer	4	4	4	2	1	2	2	1	3	3

Based on UT's survey for Competitor V using the same questions, a Priority score of 204 was obtained. Among the 10 questions, 2 received the most positive feedback. For instance, Question 6, concerning the promptness of invoicing document delivery from Competitor V to customers, received highly positive ratings. This indicates a strong emphasis on timely billing for customers. Additionally, Question 8 revealed that the reconciliation process between Competitor V and its customers is commendable. This reflects the ability to maintain optimal cash flow into the company for supplied goods by the Vendor.

However, beyond these aspects, many operational facets failed to garner positive feedback from customers. In terms of service level, there's a considerable gap between Competitor T and Competitor V. Only 2 customers provided positive feedback on this aspect, while the rest rated Competitor V as "Not Good" in this regard. It seems that while Competitor V excels in certain financial and documentation aspects, there are significant shortcomings in operational areas, especially in meeting customer service level expectations, which resulted in less favourable feedback from many customers.

4.3.1 Determining the root cause of the problem using a 5 Whys diagram.

Five is a good rule of thumb. By asking “why” five times, one can usually peel away the layers of symptoms that hide the cause of a problem. But one may also find one needs to ask “why” fewer times, or conversely more.

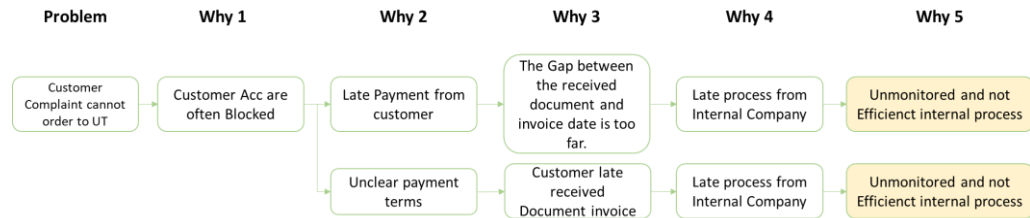


Figure 4.2 Diagram 5 Why

By using the 5 Whys diagram, it's possible to identify one aspect of the problem of customer complaints caused by system blocking is Unmonitored and unefficient Internal Process.

In response to this, UT Tanjung Enim has initiated a program where Invoice Production Monitoring becomes key to improving processes based on the previous survey results conducted with customers. Below is the monthly dashboard monitoring during the implementation process of this Invoice Production Monitoring initiative aimed at maintaining the performance of document reception by customers.

Table 12. Invoice Production Monitoring

Count of Doc	Sep-23			Oct-23			Nov-23		
Row Labels	Bill.Doc	Received	IPM	Bill.Doc	Received	IPM	Bill.Doc	Received	IPM
AMU	25	25	100%	16	16	100%	15	15	100%
JLTM	9	9	100%	3	3	100%	5	5	100%
SBS	5	5	100%	5	5	100%	4	4	100%
PTBA	6	6	100%	6	6	100%	18	18	100%
PPA	539	539	100%	557	557	100%	536	536	100%
MAS	101	101	100%	114	114	100%	76	76	100%
MTN	110	110	100%	117	117	100%	102	102	100%
LDA	44	44	100%	30	30	100%	30	30	100%
KPP	7	7	100%	10	10	100%	15	15	100%
BSS	36	36	100%	30	30	100%	53	53	100%
OTH	385	385	100%	358	358	100%	337	337	100%
General Total	1267	1267	100%	1246	1246	100%	1191	1191	100%

Based on **Table 12**, it provides an overview dashboard monitoring the Lead Time of invoices from UT to customers, comparing the amount of Bill Documents Created with the Documents Received. This dashboard serves as the basis for feedback and follow-up actions in case of operational or forwarding-related issues. Additionally, results for the Collection Period (CP) during the initiative program from August 2023 to November 2023 were obtained. Compared to before, there's a

significant number of instances highlighted in red indicating CP > 68 days for each customer. This represents a notable improvement by reducing the CP to < 68 days, which is beneficial.

Table 13. Collection Period Per Customer

Cust	PS	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AMU	PRT	46	80	51	69	152	35	70	40	61	57	61	
	SVC	0	0	0	102	0	65	78	53	59	0	0	
JLTM	PRT	79	324	140	307	87	493	240	97	33	33	33	
	SVC	0	0	0	0	0	0	0	0	0	0	0	
SBS	PRT	117	346	0	37	39	209	4173	18	43	33	33	
	SVC	27	15	0	1	0	0	0	114	34	33	61	
PTBA	PRT	3109	0	0	14	59	0	98	138	44	43	45	
	SVC	172	31	61	77	122	122	98	26	38	33	41	
PPA	PRT	61	126	76	39	90	95	55	85	62	60	61	
	SVC	53	158	120	140	256	48	39	62	66	66	54	
MAS	PRT	66	32	40	41	45	35	36	35	41	64	59	
	SVC	98	57	65	144	22	106	40	28	46	57	32	
MTN	PRT	32	10	124	57	62	93	36	24	33	41	34	
	SVC	316	8	44	48	0	35	0	2	33	33	0	
LDA	PRT	60	62	44	183	109	33	63	40	48	62	39	
	SVC	1	0	0	169	83	0	84	8	45	68	45	
KPP	PRT	66	46	38	65	23	87	51	27	60	32	63	
	SVC	24	43	12	0	5	20	38	68	57	55	57	
BSS	PRT	46	39	34	51	69	38	54	55	45	42	37	
	SVC	0	0	0	141	43	0	46	0	0	0	0	
OTH	PRT	27	218	67	55	19	52	52	68	43	51	59	
	SVC	0	0	0	0	0	79	57	22	86	61	53	
Total Red Highlight	PRT	3	5	3	3	5	5	4	3	0	0	0	
	SVC	3	1	1	6	3	3	3	1	1	0	0	

 Indicates that the number of Days of Collection not achieved

In **Table 13**, the total days of the Collection Period from January to November 2023 were obtained, whereas this research started in August 2023. At the initiation of this program, during the Go-Live phase in August 2023, the implementation was not yet running smoothly due to carry-over issues from July 2023. This understandably became a shared concern internally within the company to maintain lead times and processes from upstream to downstream. This involves the process from the Customer Order Processor team creating offers to the Part Distribution Center team delivering parts to the customer and the customer's acceptance. Subsequently, the Parts ADM proceeds to generate invoice documents to be sent to the Finance customer team as per their intended purpose.

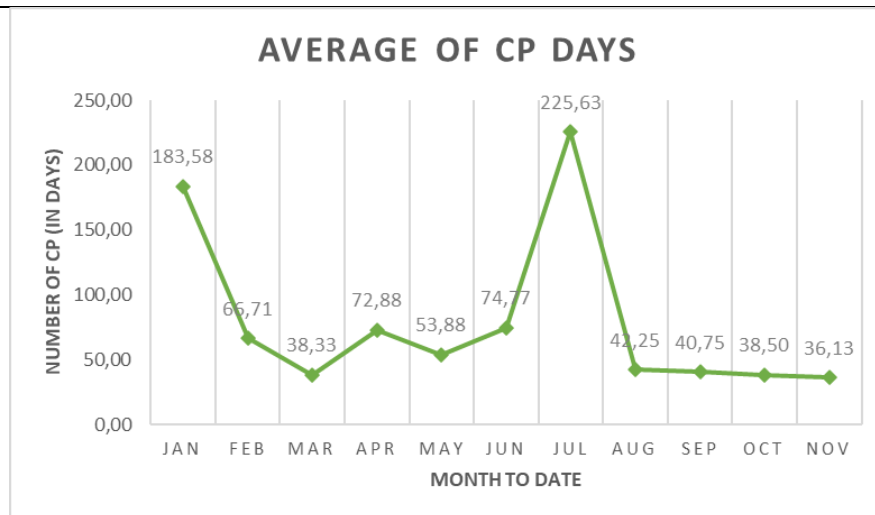


Figure 4.3 Average of Collection Period Days

The graph in Figure 4.3 is a continuation of Table 11, discussing the days of the Collection Period on a month-to-month basis. It represents the average Days of Collection Period for the top 10 customers in UT Tanjung Enim. The graph shows a gradual decline in the average from 110 days from January to July to an average of 39 days from August to November 2023. This improvement is attributed to internal process enhancements, specifically in managing the WHS process (from Billing lead time to the creation of Acknowledgment Receipt), ADM Parts process (from Acknowledgment Receipt leadtime to the creation of delivery receipts), and Forwarder process (from the delivery receipt to the customer's document pack receipt).

These collective improvements are a shared concern addressed in creating the journey document for the invoice pack to ensure customer receipt certainty within the document lead time, as depicted in Table 12 below:

Table 14. Monitoring Leadtime per Internal Process

Review untuk bulan Agustus 2023				Review untuk bulan September 2023				Review untuk bulan Oktober 2023				Review untuk bulan November 2023				
Row Labels	(WHS)	(ADM)	(PANDU)	Row Labels	(WHS)	(ADM)	(JNE,JNT,PANDU)	Row Labels	(WHS)	(ADM)	(JNE)	Row Labels	(WHS)	(ADM)	(JNE)	LT Average per cust
	LT dari Billing s/d Terbentu TT	LT dari TT s/d Terbentu Resi	LT dari Resi s/d di terima Cust		LT dari Billing s/d Terbentu TT	LT dari TT s/d Terbentu Resi	LT dari Resi s/d di terima Cust		LT dari Billing s/d Terbentu TT	LT dari TT s/d Terbentu Resi	LT dari Resi s/d di terima Cust		LT dari Billing s/d Terbentu TT	LT dari TT s/d Terbentu Resi	LT dari Resi s/d di terima Cust	
	(Average)	(Average)	(Average)		(Average)	(Average)	(Average)		(Average)	(Average)	(Average)		(Average)	(Average)	(Average)	
AMU	2	2	2	AMU	2	2	2	AMU	3	2	2	AMU	2	2	1	5
JLTM	3	2	3	JLTM	1	2	2	JLTM	2	3	2	JLTM	2	2	2	6
SBS	4	1	2	SBS	7	3	2	SBS	3	4	-	SBS	4	1	1	6
PTBA	3	1	1	PTBA	1	3	2	PTBA	1	1	5	PTBA	1	3	4	8
PPA	5	1	-	PPA	6	1	-	PPA	4	1	-	PPA	4	1	-	5
MAS	2	2	2	MAS	2	4	1	MAS	2	2	1	MAS	2	3	1	6
MTN	2	2	4	MTN	3	3	2	MTN	2	2	2	MTN	2	2	2	6
LDA	3	4	4	LDA	2	3	1	LDA	2	4	1	LDA	2	3	1	6
KPP	4	1	-	KPP	4	2	-	KPP	3	1	-	KPP	1	2	-	3
BSS	3	4	4	BSS	2	3	3	BSS	2	3	2	BSS	2	3	2	7
OTH	2	3	4	OTH	2	3	3	OTH	3	3	2	OTH	2	3	3	8

	Customer Name
	LT Average Per Customer

Table 15. QFD for Leadtime Delivery Document (similar with www.citoolkit.com)

Project title:	Improving Leadtime Delivery Document
Project leader:	Able I
Date:	Agustus - November 2023

Project title: Improving Leadtime Delivery Document			
Project leader: Abiel			
Date: Agustus - November 2023			

Customer importance rating	Desired direction of improvement (↑, ↓, ↔)	Functional Requirements (How's)					Competitive evaluation (1: low, 5: high)				
		Customer Requirements - (What's) ↓	System Available	Staff Size	Clear Process	Clean Process	System Speed	System Capability	Training Process	Weighted Score	Competitiveness
3,33	Permintaan di respon dalam waktu 24 jam	9	9	9	9	3	3	3	1	123,33	33,33
2,78	Pengiriman Barang diselesaikan dalam waktu 24 jam		9	9	9	9	3	1		86,11	22,50
3,00	Kecepatan dan Ketepatan Pengiriman Barang ke customer (OTIF)		3	9	9	9	3	3	3	90,00	27,00
3,00	Kecepatan dalam merespon Order Customer	9		3	3	3	1	9	3	84,00	24,00
3,44	Ketepatan isi dokumen tagihan ke customer	1	1	3	3	3	3	9	3	79,22	30,88
3,00	Kecepatan Pengiriman dokumen tagihan ke customer	1	1	3	3	3	3	3	9	69,00	24,00
3,00	Pilihan Moda ekspedisi dari The Company untuk pengiriman dokumen tagihan	9		3	3	1	9	3		75,00	19,50
2,56	Masa rekonsiliasi tagihan dengan Customer	3		9	9	9	1	3		63,89	12,80
3,22	Ketepatan waktu pembayaran tagihan			3	3	3	1	3		32,22	25,84
2,89	Block Account	9						3		34,67	16,34
	Technical Importance score	124,11	70,44	152,00	126,00	82,44	123,78	58,67		737,44	
	Importance %	17%	10%	21%	17%	11%	17%	8%		100%	
	Priorities rank	3	6	1	2	5	4	7			
	Technical Competitiveness Score	931,81	638,35	1233,33	994,35	651,27	992,85	494,97		5936,93	
	Competitiveness %	16%	11%	21%	17%	11%	17%	8%		100%	
	Competitiveness Rank	4	6	1	2	5	3	7			
	Improvement Status: Importance - Competitiveness Quadrant	III	II	III	III	I	III	II			

Correlation:

+	.	-
Positive	No correlation	Negative

Relationships:

9	3	1
Strong	Moderate	Weak