The Analysis of Time-Driven Activity-Based Costing to Increase Customer Profitability (A Case Study of Distributor Company)

Feki Wahyu Colimah*, Lindawati Gani
Universitas Indonesia, Jl. Prof. Dr. Sumitro Djojohadikusumo, Depok, Jawa Barat, Indonesia
*fekiwahyu@gmail.com

Abstract
This research aims to implement and analyze the concept of time-driven activity-based costing (TDABC) to allocate the cost of serving customers to their accounts, analyze customer profitability, and formulate strategic decisions to increase customer profitability. The study employs a case study strategy with a mixed methods research approach, utilizing various research tools to obtain detailed data. The collected data is analyzed using descriptive analysis with explanation-building techniques. The results reveal that the ten largest customers were profitable for Company A in 2021; however, the most significant profit was not generated by customers who contributed the greatest revenue, and vice versa. The customer profitability analysis indicates that two customers require the highest service priority and care, seven customers should be managed with periodic evaluations, and one customer does not require service priority. These findings underscore the importance of a nuanced approach to customer management and strategic decision-making to enhance overall profitability. By implementing TDABC, companies can more accurately allocate costs and identify key areas for improvement in customer service and profitability.

Keywords: cost of serving customers; customer profitability; time-driven activity-based costing

INTRODUCTION

In today's open market competition, every entity must quickly adapt to all changes for its competitive advantage. Customers are one of the sources that an entity uses to maintain its competitive advantage.

Therefore, understanding customer's characteristics is important for the entity to ensure that the services provided are exactly what is needed. Customers who are satisfied with the value provided by each entity will encourage repeat purchase

transactions, resulting in long-term income generation. Entities that build strong relationships with their customers will obtain their customers' trust and loyalty. The customer's trust can be an intangible asset used to build a company's competitive advantage (Clulow et al., 2007).

As one of the resources for the entity in generating long-term profitability, various entities have implemented a customer-focused strategy known as Customer Relationship Management (CRM) (Anderson & Kerr, 2002). CRM is explicitly defined by Richards and Jones (2008) as a set of activities supported by technology and processes directed by strategy and designed to improve business performance in terms of customer management.

However, CRM is not designed to provide the same service to all existing customers, but rather to focus on customers and potential customers who have the potential to add significant value to the entity when the entity's resources are limited to provide optimal value to all customers. Because not all customers are equally valuable to the entity, the entity should not focus on satisfying all their customers, but rather on the cost-effective customers or the customers who generate profit

(Tarziev et al.,2018). According to Atkinson et al. (2012, p. 126), 80% of the revenue contribution generated by 20% of the entity's customers does not contribute any profit to the entity.

To select a profitable customer, it needs customer information especially their profitability. Having an internal database that automatically calculates, monitors, and analyzes customer's data is one of the key factors in CRM success. (Al-Weshah et al.,2019). Customer profitability is the appropriate metric for delivering the best service with the restricted resources controlled by the entity (Nashir and Hartanti, 2021). An entity may lose its competitive edge if information about the customer's profitability is not available when CRM is implemented as input for formulating strategies and assessing the performance of those strategies. Information about customer's profitability is needed by the entity to select favored customers who can boost profitability for businesses.

Company A, one of the distributor companies in Indonesia, are developing new CRM using advance technology to maintain the competitive advantage in its industry. But the entity is not to provide information about customer profitability information yet. It caused
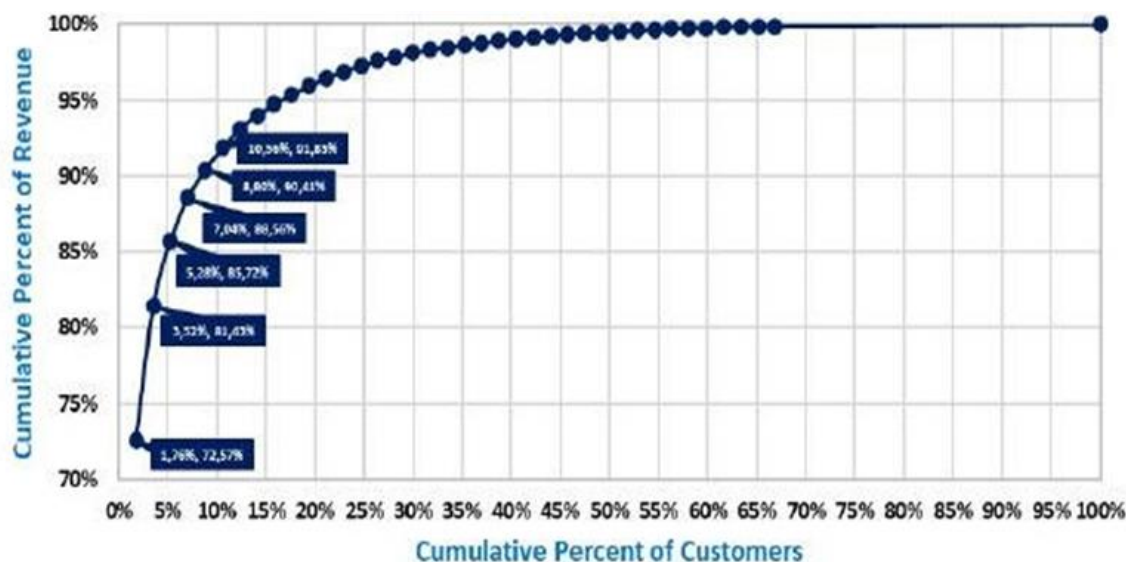
Figure 1. Revenue Contribution by Customers
Source: Company A (2021)

by the limitations in calculating costs related to customers that cannot be traced directly to customers (indirect costs).

One cost allocation technique that is well- known for allocating cost of serving activities to each customer is called activity-based costing (ABC) (Blocher et al., 2019). However, research by Kaplan and Anderson (2007) notes the shortcomings of ABC in business operations due to its rigidity and the high costs and time associated with repeated interviews and observation when there are changes to entity processes or activities. ABC Method doesn't suit Company A because most of its customers is business form. Therefore, company A always improves the business processes or

activities to deliver specific demand to each customer.

Time-Driven Activity-Based Costing (TDABC), was presented by Kaplan & Anderson (2007) to solve ABC's pitfalls in allocating costs that are not immediately traceable to customers. The other benefit of implementing TDABC is the data may be linked to ERP and CRM systems is another benefit (Atkinson et al., 2012). Previous studies implementing TDABC to increase customer profitability work done in the hospital sector by Dalci et al. (2010), tile agency companies by Ariyani (2016), and hotel industry by Ardiansyah et al. (2017) and Jassem (2019).

The sales contribution by company A's customers during 2021 is shown in Figure 1. The Figure demonstrates how 8.8% (50

customers) of all customer interactions in 2021 generated 90.41% of Company A's income. The graph also demonstrates that by managing the 50 largest customers, they were able to guarantee Company A 90.41% of the revenue. The whale curve of the 80:20 Pareto principle, which asserts that 80% of revenue is obtained from 20% of consumers, was proposed by Atkinson et al. (2012), is consistent with the customer contribution graph of company A. Even though the top 50 customers generated 90.41% of the revenue. As of now, Company A has exclusively concentrated on offering priority services to customers who are called big customers, the top 10 revenue contributors. However, there is no information that the big customers with the primary service from the entity give the comparable value for the entity.

This research is driven by the need for solutions to company A's problem to provide information about customer's profitability, especially generated by big customers, and to boost the company's profitability through big customers by TDABC analysis. Thus, the aim of this research is implementation of time-driven activity-based costing (TDABC) analysis to calculate profitability of Company A's big customers and to

decide the appropriate strategy to boost company A's profitability by its big customer.

LITERATURE REVIEW
The Concept of Activity-Based Cost Allocation

Costs are resources that are used to produce income (Carter, 2006). Based on the traceability to cost object, the costs are classified into cost object into direct cost and indirect cost. Direct costs are costs that can be traced accurately on the cost object or in other words, these costs can be seen clearly on the cost object. Meanwhile, indirect costs are costs that cannot be traced directly on a cost object, so a cost allocation method is needed to assign these indirect costs to a cost object.

Cost allocation denotes the assignment of indirect costs to cost objects using reasonable and relevant methods (Mowen et al., 2011). The activity-based cost allocation method, also known as Activity Based Costing, is one of the allocation methods that can be used (ABC). ABC is a cost allocation method that assigns costs based on the use of resources to cost objects based on the activities performed. ABC includes the concept that the products/services produced are the result of resource consuming (Blocher et al., 2019).

ABC divides indirect costs into two stages: assigning resource consumption costs to activities, followed by assigning activity costs to cost objects such as products/services, customers, and so on. Management can use ABC to identify value-added and non-value-added activities for the entity. Activity Based Management (ABM) is the management of resources and activities to increase the value of a product or service to increase an entity's profitability and competitive advantage (Blocher et al., 2019).

Despite its those benefits, according to Kaplan & Anderson (2007), ABC's implementation into business operations has a few limitations including the following:

1. Conducting interviews and surveys takes time and money.
2. The ABC model's data are arbitrary and challenging to verify.
3. Storing, processing, and reporting the data used in the ABC model are expensive.
4. Most ABC models are in local scope and do not offer an extensive perspective of overall profit prospects for the organization.
5. When potential idle capacity is disregarded, the ABC model is judged inappropriate and is

difficult to update to take changing conditions into consideration.

TDABC – Improvement of Activity-Based Costing

Kaplan & Anderson (2007) introduced TDABC as a solution to overcome some of the limitations of ABC in business practices. TDABC simplifies the two-stage ABC process by requiring only two parameter estimates, which are as follows (Kaplan & Anderson, 2007):

1. Determine the cost of each indirect resource.
2. The time required for each resource capacity to perform.

The advantages of TDABC implementation are as follows:

1. Applicable in any industry or company with complex cost objects.
2. Avoid identifying activities in activity-based costing (ABC) that are costly, time-consuming, and subjectivein the first implementation phase such as interviews and employee surveys.
3. Simplify the cost calculation process
4. Does not require time-consuming and costly employee interviews.

5. Report the correct amounts and values relating to the company's process efficiency and idle capacity.

6. Provide relevant information for managerial decision making; for example, one example is assisting management with continuous improvement on evaluating unused capacity.

7. Derive appropriate time equation models to provide more accurate information about the company's complex activities.

Customer Profitability Analysis (CPA)

Profitability can be derived not only from the products sold to customers but also from the customers served. This is since each customer has different satisfaction standards. As a result, meeting the needs of each customer necessitates different activities. The costs of serving customers vary depending on the activity. Customer profitability compares the revenue generated by customers to the costs incurred to serve customers to determine how much profit is provided by customers.

Customer Profitability Analysis (CPA) identifies all customer service activities (consisting of all activities starting from selling until satisfying customers including advertising, sales calls, service calls, and other forms of service activities). Companies will increase overall profits and become more competitive if they have a good understanding of both short-term profitability and potential customers. Customer profitability analysis assists managers in making business decisions such as (Blocher et al., 2019):

1. Identifying the most profitable customers

2. Managing costs to serve each customer

3. Introducing a new product or service

4. Discontinuing unprofitable products, services, or customers

5. Shifting customer purchasing patterns toward product lines or services with higher margins

6. Providing discounts to customers with low cost-to-serve to increase sales volume.

7. Deciding on the type of after-sales service to provide.

Customer profitability was obtained after identifying customer cost analysis combined with customer revenue analysis, which can provide relevant information regarding the profit contribution generated by each customer. According to van Raaij (2005), customer profitability analysis

Table 1. Customer Profitability Evaluation by Hope & Player (2012)

Strategic ?	Significant ?	Profitable ?	Customer Type	% Sales	Profit sales	Strategy
Yes	Yes	Yes	"A"	20%	150%	These are the customers you need to keep at all costs. Pour resources into them.
Yes	Yes	No	"B"	20%	-20%	Work on the profitability problem through a mix of pricing, service, delivery, etc.
Yes	No	Yes	"C"	10%	20%	Consider other channels to reduce costs. If business is low but potential is high, work hard to increase
Yes	No	No	"D"	5%	-5%	Being strategic is not enough. Try other ways to improve scale and profit. Otherwise, exit leaving a way back in
No	Yes	Yes	"E"	10%	10%	If customer does not fit your value proposition, don't provide any special attention. If the customer demands special offers, then exit.
No	Yes	No	"F"	20%	-40%	This is the real test. Size is not enough. Exit fast before your profits are drained even further
No	No	Yes	"G"	5%	5%	Your long-term profits lie with strategic and significant customers. Spin off to a distributor
No	No	No	"H"	10%	-20%	These are easy. Just say goodbye

Source: Hope & Player (2012)

can be used as a tool for developing corporate strategy by providing revenue management by setting selling prices to customers and cost management can be accomplished by efficiently managing customer service, cost, risk management can be accomplished by reviewing each customer's characteristics and generating actions that must be taken to achieve the objectives and/or mitigate future exposures, and strategic positioning by classifying customers as profitable, break-even, or unprofitable. Hope & Player (2012) provide guidelines for evaluating and establishing customer profitability strategies, which are detailed in Table 1.

Using the evaluation in the table 1, the following strategies for analyzing valuable customers should be implemented:

1. Classifying customers and customer groups as strategic, significant, and profitable based on factors such as region, lifestyle, age, and so on.

2. Do not rely solely on the profits shown in customer profitability reports. This also dispels the myth that customers who do not generate profits are undesirable. It also does not concentrate solely on customers who are currently profitable.
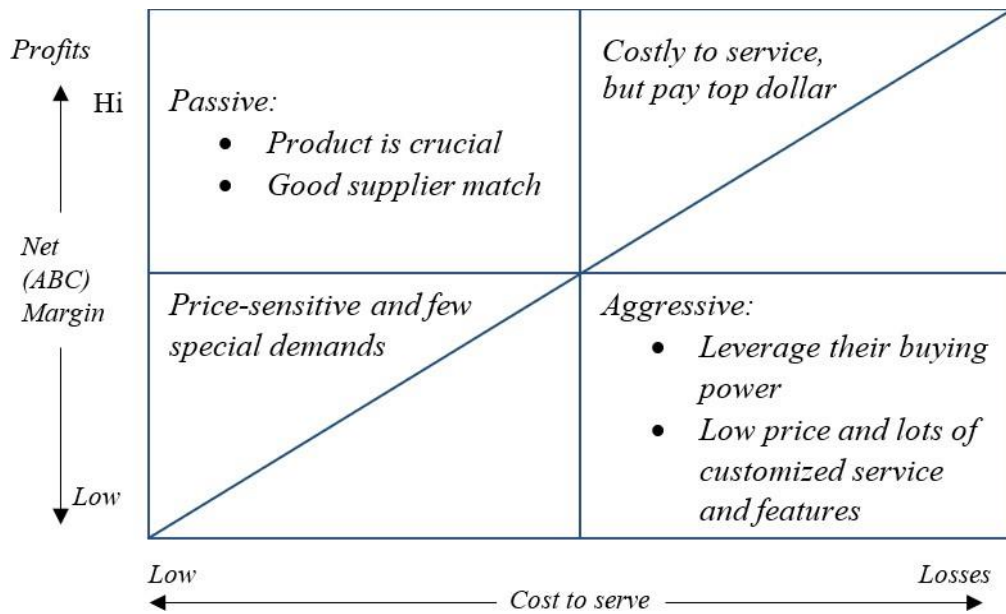
Figure 2. Customer Profitability Analysis

Source: Atkinson et al. (2012)

3. Stop rewarding sales people for exceeding sales targets.

Atkinson et al (2012, p. 254) describe a graph to understand the characteristics of customers owned based on each customer's contribution using ABC as depicted in Figure 2.

According to the figure 2, net profit from customer obtained by the difference between profit on products sold (Y-axis) and customer service fees (X-axis), also known as MSDA costs. Figure above shows the four customer's characteristics are as follows:

1. Customers in the upper-left hand quadrant do not require a high level of service but provide large profits. Companies must keep these customers by providing complete support so that competitors do not seize this market

2. Customers in the lower-left hand quadrant are those who require low service costs but also provide low profits. Customers in this area generally want low prices and are not loyal because they are price sensitive. As a result, if the company wants to keep these customers, it is better to offer numerous discounts if the service fees are also low.

3. Customers in the upper-right hand quadrant have characteristics that necessitate high service costs while also

contributing high profits to the company. Customers with such characteristics should be retained and fully supported by the company.

4. Customers in the lower-right hand quadrant have customer characteristics that necessitate high service but provide a low profit contribution to the company. Customers in this category expect steep discounts as well as personalized service and technical support. The company should devise a strategy to convert these customers into more profitable customers within a specific time frame. However, if the trend of customers in this area becomes increasingly unprofitable, the company may decide to drop these customers.

METHOD

This research was conducted using a case study research strategy and mixed-methods research approach. According to Yin (2018), the case study research strategy is appropriate for answering "why" and "how" research questions and focusing in depth on contemporary phenomena. The case study method is used to formulate all the comprehensive information of the company A in costing model using TDABC. The mixed-methods research approach is used by using multiple research instruments (interview, documentation, and observation) to collect the data while simultaneously processing quantitative and qualitative data to obtain more in-depth facts. Thus, this method aligns with the study objectives that aims to implement TDABC analysis in calculating customer's profitability and to formulate the right strategy to increase the profitability by customers.

Data in this research consists of primary data and secondary data. The primary data is obtained directly from the main resources such as information about business processes, customer information, product characteristics sold, marketing programs offered, contracts related to customer service activities. First, the instrument used to collect those data, is documentation. Documentation is carried out in company documents such as entity business process guidance, product introduction, Standard Operating Procedures (SOP), presentation materials from each related division. Information from the documentation review will be used as a basis for building the TDABC model and then the data will be triangulated through interviews. The interview

used in this research is a semi-method structured. It allows researchers to obtain data that is in accordance with the indicators prepared before and at the same time try to open questions to get more in-depth information during the interview process takes place (Moore, 2006). The respondent consists of manager of sales and branch operation, manager of marketing, manager of material management, manager of human resources, and manager of finance and accounting.

The other primary data collected is time needed for performing each activity. That data was obtained by interview then it will be triangulated by passive observation. Meanwhile, secondary data in this study comes from financial data in the form of sales and operational costs during 2021. The all data collected will be analyzed by constructing explanations for the cases studied.

The first step in this study was to divide financial data into two categories: costs of serving customers and costs of not serving customers. The cost of non-serving customers would be excluded from this study. Financial data on customer service costs would be processed alongside qualitative data using the TDABC concept. The second stage involved assigning each customer's direct cost

of serving customers and allocating TDABC's indirect cost of serving customers to each customer categorized as big customers. After calculating all costs associated with serving customers, the data will be analyzed using descriptive analysis to obtain descriptive information about service activities for each customer. In addition, customer profitability analysis will be conducted using concepts from Atkinson et al. (2012) and from Hope & Player (2012).

RESULTS AND DISCUSSION
The implementation of TDABC

Based on the TDABC concept by Kaplan & Anderson (2007), the stages of TDABC implementation at company A are depicted in Figure 3.

According to Figure 3, the first step of implementation of Time-Driven Activity Based Costing (TDABC) to calculate customer profitability is identify the relevant activities. In company A, there are 22 activities related to serving big customers divided into 15 office activities, 6 warehouse activities and 1 delivery activity. The concept of TDABC assumes that every activity performed will consume resources. To allocate the indirect costs, a key driver is needed as a resource cost driver. Based on the similar cause- and-effect (or benefit received) relationship
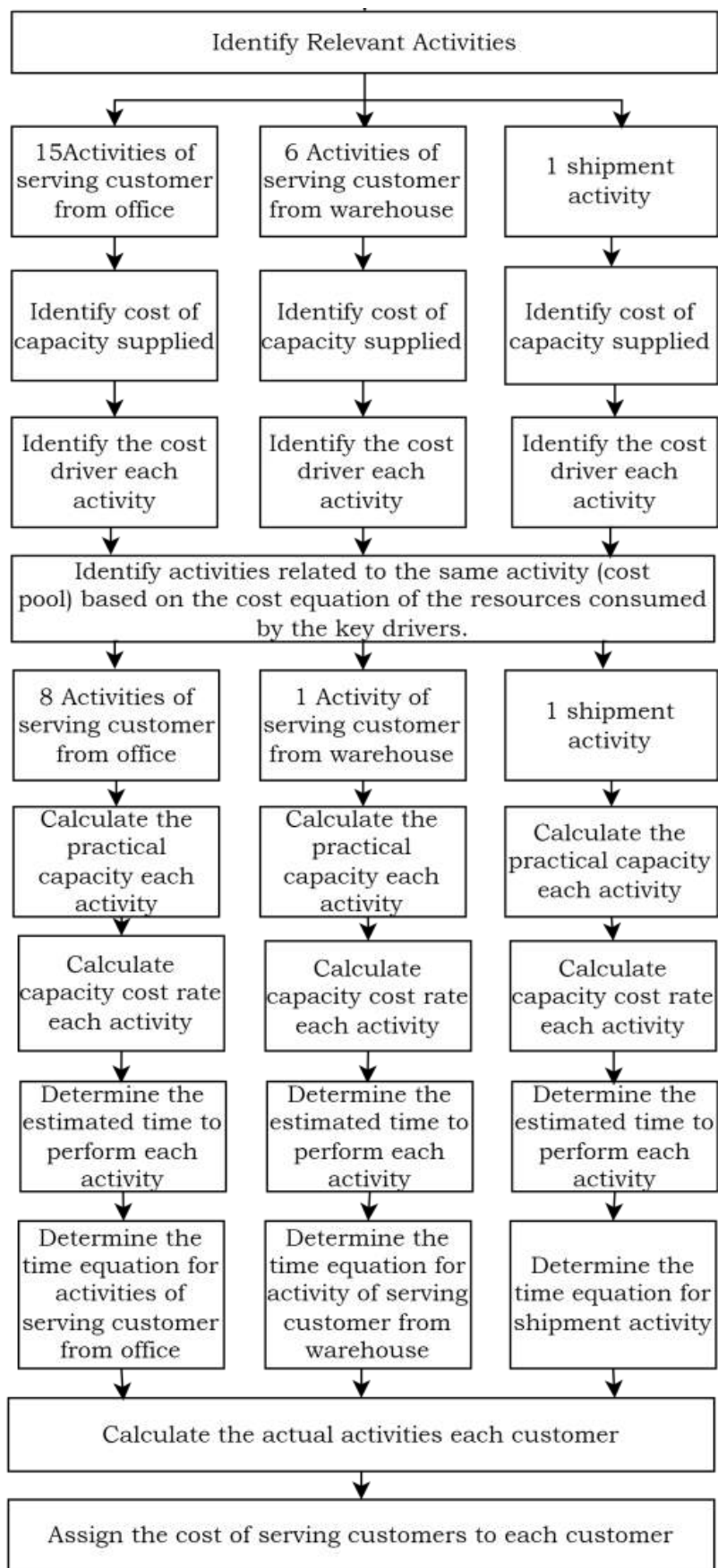
Figure 3. The Stages of TDABC Implementation
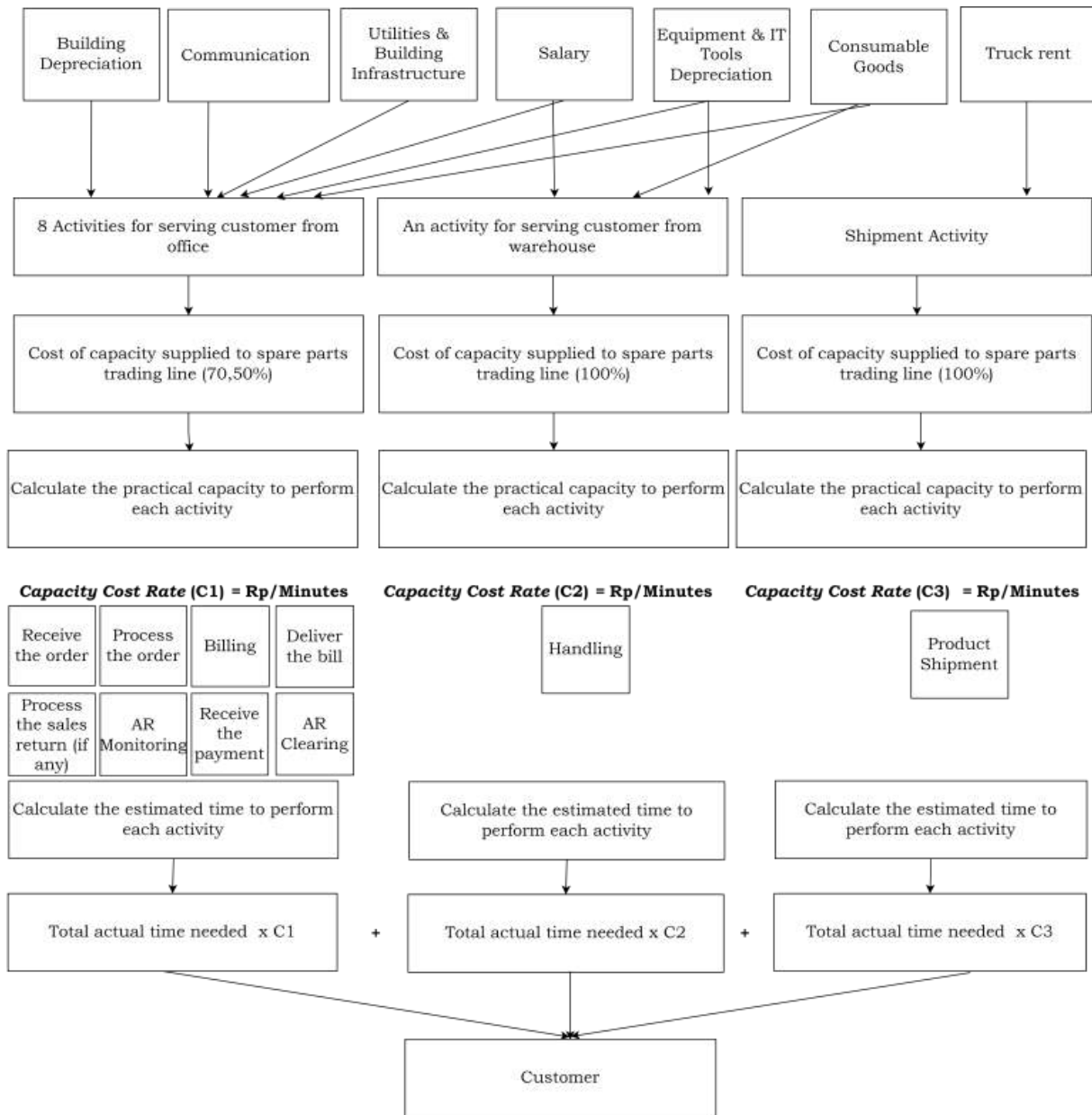
Figure 4. Cost of Capacity Supplied Identification

between the costs and the key driver, it can be considered the same cost pool (Bhimani et al., 2019). According to homogeneous cost pools, the 22 activities for serving customers from the office have been simplified into 8 activities, 6 activities for serving customers from the warehouse have been simplified into 1 activity. Each

relevant activity consumes some resources are visualize in Figure 4.

Figure 4 illustrates that the resources used for activities of serving customers in the office, activities of serving customer in the warehouse, and shipping activities consist of human resources and physical resources.

Table 2. Cost of Capacity Supplied for Activities of Serving Customer in the Office

No	Cost of Resources Consumption	Amount (in Million IDR)		
		Cost of Serving Customer	Cost of Non-Serving Customer	Operational Cost
1	Salary: sales	31.671	13.252	44.923
2	Salary: AR monitoring staff, AR supervisor, administration & billing, dan warehouse staff	11.714	182.015	193.728
3	Salary: administration & billing, tax admin, AR Admin, treasury	8.726	17.197	25.923
4	Smartphone communication	339	142	480
5	Tools (Laptop, Printer, Projector & Monitor), Building and Facilities	2.031	20.648	22.679
6	IT Infrastructure (Network, ERP Support, Online Communication)	1.320	4.394	5.714
7	License user ERP	1.354	2.270	3.624
8	Supplies & Consumable Goods	956	4.757	5.714
9	Utilities	834	4.482	5.316
		58.944	249.157	308.101

Source: Company A (2021)

Identify Cost of Capacity Supplied

The next step to build a costing model using TDABC after identifying relevant activity is to identify the cost of capacity supplied for each activity. Based on the resources consumed in each activity (Figure 4), the cost of capacity supplied in three main activities as follows:

Cost of Capacity Supplied - Activities of Serving Customer in the Office

Based on the financial data of Company A, Table 2 depicts the resources supplied for activities of serving customer in the office. Based on Table 2, it can be concluded that total cost of serving customers in the office amounting to Rp 58,943.55 million which is19.1% from the total cost of general ledger account that is used to record the cost for serving customers in company A.

There are two steps to allocate cost of capacity supplied into eight activities of serving customers in the office. It consists of allocation cost from human resources and allocation cost from physical resources. First, cost arising from human resources will be allocated into eight activities, as depict in Table 3.

According to the allocation based on the Table 3 above, the manpower cost of capacity supplied allocation to sub-activities are depict in Table 4. According to Table 4, it can be concluded that the activity that generates the highest cost of serving customers comes from account receivable monitoring activities with Rp 14,021 or 27% of total cost from human resources. After allocating the cost of capacity supplied from human resources, the next stage allocates the cost of capacity supplied from

Table 3. Manpower Resources Allocation to Activities of Serving Customers in the Office

Activities of Serving Customer in the Office	Manpower									
	AB	S	AR-MS	CS	Opr. SPV	AR SPV	TA	AR Admin	T	WS
Receiving orders from customers		20%	20%	10%	10%	10%				
Processing order from customers	50%	5%								
Billing to customers	45%	5%					80%			
Sending billing document to customers	3%	10%						30%		
Processing sales return from customers (if any)	2%	2%		2%				10%		15%
Account receivable monitoring		20%	80%	50%	30%	30%				
Processing payment from customers		20%							30%	
Account receivables clearing		18%		38%				60%		
	100%	100%	100%	100%	40%	40%	80%	100%	30%	15%

AB=Admin & Billing; S=Sales; AR-MS=Account Receivable Monitoring Staff; TA= Tax Admin; T=Treasury; WS= Warehouse Staff
Source: Company A (2021)

Table 4. Manpower Cost Allocation to Activities of Serving Customers in the Office

Activities of Serving Customer in the Office	Manpower Cost (in Million IDR)										
	AB	S	AR-MS	CS	Opr. SPV	AR SPV	TA	AR Admin	T	WS	Total Cost
Receiving orders from customers	-	6.334,21	1.149,57	153,51	731,65	42,16	-	-	-	-	8.411,10
Processing order from customers	4.734,50	1.583,55	-	-	-	-	-	-	-	-	6.318,05
Billing to customers	4.261,05	1.583,55	-	-	-	-	155,10	-	-	-	5.999,70
Sending billing document to customers	284,07	3.167,10	-	-	-	-	-	86,08	-	-	3.537,25
Processing sales return from customers (if any)	189,38	633,42	-	30,70	-	-	-	28,69	-	119,71	1.001,91
Account receivable monitoring	-	6.334,21	4.598,29	767,57	2.194,95	126,48	-	-	-	-	14.021,49
Processing payment from customers	-	6.334,21	-	-	-	-	-	-	30,24	-	6.364,45
Account receivables clearing	-	5.700,79	-	583,35	-	-	-	172,16	-	-	6.456,30
	9.468,99	31.671,03	5.747,87	1.535,14	2.926,60	168,64	155,10	286,94	30,24	119,71	52.110,25

AB=Admin & Billing; S=Sales; AR-MS=Account Receivable Monitoring Staff; TA= Tax Admin; T=Treasury; WS= Warehouse Staff
Source: Company A (2021

physical resources based on contribution into each activity (Table 5). According to the contribution consumption resources on the Table 5, the cost arising from physical resources will be allocated into eight activities as depicted in Table 6.

According to Table 6 above, it can be concluded that the activity that generates the highest cost of serving customer comes from account receivable monitoring activities with Rp 1,804 or 26,4% of total cost from physical resources consumption. As a result, the total cost of all capacity

Table 5. Physical Resources Allocation for Activities of Serving Customers in the Office

Activities of Serving Customer in the Office	IT Equipment			Building & Infstructure			Supplies & Consumable Goods
	Smartphone Communication	Office Communication	IT Tools & Infrastructure	Building Depreciation	Office Infrastructure	Utilities	
Receiving orders from customers	30%	11%	11%	11%	11%	11%	0%
Processing order from customers	0%	8%	8%	8%	8%	8%	60%
Billing to customers	0%	20%	20%	20%	20%	20%	0%
Sending billing document to customers	20%	0%	0%	0%	0%	0%	5%
Processing sales return from customers (if any)	0%	5%	5%	5%	5%	5%	0%
Account receivable monitoring	0%	32%	32%	32%	32%	32%	5%
Processing payment from customers	50%	8%	8%	8%	8%	8%	10%
Account receivables *clearing*		18%	18%	18%	18%	18%	20%
	100%	100%	100%	100%	100%	100%	100%

Table 6. Physical Cost Allocation to Activities of Serving Customers in the Office

Activities of Serving Customer in the Office	Tangible Resources (in Million IDR)							
	Smartphone Communication	Office Communication	IT Tools & Infrastructure	Building Depreciation	Office Infrastructure	Utilities	Supplies & Consumable Goods	Total Cost
Receiving orders from customers	101,57	139,53	195,73	142,68	19,53	88,16	-	687,20
Processing order from customers	-	109,63	153,78	112,10	15,35	69,27	573,82	1.033,95
Billing to customers	-	259,12	363,49	264,97	36,28	163,73	-	1.087,60
Sending billing document to customers	67,71	-	-	-	-	-	47,82	115,53
Processing sales return from customers (if any)	-	61,79	86,68	63,19	8,65	39,04	-	259,35
Account receivable monitoring	-	418,58	587,18	428,03	58,60	264,49	47,82	1.804,70
Processing payment from customers	169,28	99,66	139,80	101,91	13,95	62,97	95,64	683,22
Account receivables *clearing*	-	231,22	324,35	236,44	32,37	146,10	191,27	1.161,74
	338,56	1.319,53	1.851,01	1.349,31	184,74	833,79	956,36	6.833,30

Table 7. Cost of Capacity Supplied for Activities of Serving Customers in the Office

Activities of Serving Customer in the Office	Manpower	Tangible Resources	Total Cost/ Activity
Receiving orders from customers	8.411,10	687,20	9.098,30
Processing order from customers	6.318,05	1.033,95	7.352,00
Billing to customers	5.999,70	1.087,60	7.087,29
Sending billing document to customers	3.537,25	115,53	3.652,78
Processing sales return from customers (if any)	1.001,91	259,35	1.261,26
Account receivable monitoring	14.021,49	1.804,70	15.826,20
Processing payment from customers	6.364,45	683,22	7.047,68
Account receivables *clearing*	6.456,30	1.161,74	7.618,04
	52.110,25	6.833,30	58.943,55

supplied for activities in the office involving serving customers are shown in Table 7.

According to Table 7 above, it can be concluded that the total cost of capacity supplied for serving customers in the office amounts to Rp 58,943.55. The total costs for the eight activities are the same as illustrated in Table 2. After calculating the cost of capacity supplied for activities of serving customer in the office, the next step is calculating the cost of capacity supplied for activities in the warehouse.

Cost of Capacity Supplied - Activities of Serving Customer in the Warehouse

Based on the financial data of Company A, the following are the resources supplied for activities of

serving customer in the warehouse (Table 8). According to the cost illustrated in Table 8, it can be concluded that the cost arising from warehouse activities fully dedicated to serving customers amounts to Rp 37,768.62.

Cost of Capacity Supplied – Activities of Shipment

The last serving customers activities of Company A are shipment. Based on the financial data of Company A, the following are the resources supplied for shipment activities as follows (Table 9). According to Table 9, it can be concluded that total cost of shipment activities amounting to Rp 4,252.11.

Calculate the Practical Capacity and Capacity Cost Rate

After identifying and allocating the cost of capacity supplied into each relevant activity, the next step implementation of TDABC to calculate customer's profitability is calculate the practical capacity and its rate for each activity of serving customers. Because of the three main activities of serving customers in company A, then it needs to identify practical capacity for each three activities as follows.

Practical Capacity and Capacity Cost Rate of Serving Customers Activities in the Office

Implementation TDABC to calculate customer's profitability in company A using labor hour. Actual labor hours worked in 2021 were used to calculate the office's practical capability for customer serving activities. Based on interview and passive observation. The practical capacities for each activity of serving customers in the office as follows (Table 10). According to the practical capacity on Table 10, the capacity cost rate calculation of serving customers activities in the office as follows (Table 11).

According to the data shown in Table 11, the capacity cost rate for eight activities is Rp 27,995.62 per minute, with payment processing accounting for the highest capacity cost rate at Rp 4,396.27 per minute and order processing accounting for the lowest capacity cost rate at Rp 2,327.08 per minute.

Practical Capacity and Capacity Cost Rate of Serving Customers Activities in the Warehouse

Actual labor hours worked in 2021 were used to calculate the warehouse's practical capability for customer service operations. The practical capacity for 2021 was

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Table 8. Cost of Capacity Supplied for Activities of Serving Customers in the Warehouse

No	Cost of Resources Consumption	Amount (in Million IDR)		
		Cost of Serving Customer	Cost of Non-Serving Customer	Operational Cost
1.	Salary	24.760,54	-	24.760,54
2.	Supplies & Consumables Goods	11.016,48	-	11.016,48
2.	Handling Equipment	546,60	-	546,60
3.	IT & Communication Tools	134,46	-	134,46
5.	Surcharge: Fuel	578,88	-	578,88
6.	Utilities	731,65	-	731,65
		37.768,62	-	37.768,62

Table 9. Cost of Capacity Supplied for Shipment Activities

No	Cost of Resources Consumption	Amount (in Million IDR)		
		Cost of Serving Cusomer	Cost of Non-Serving Cusomer	Operational Cost
1.	Shipment expenses from truck rental	4.252,11	-	4.252,11
		4.252,11	-	4.252,11

Table 10. Practical Capacity for Activities of Serving Customer in the Office

Activities of Serving Customer in the Office	Manpower (Hour)										
	Admin & Billing	Sales	AR Monitoring Staff	CS	Opr. Supervisor	AR Supervisor	Tax Admin	AR Admin	Treasury	Warehouse Staff	Total Capacity (Hour)
Receiving orders from customers	-	26.333	7.445	1.354	1.415	129	-	-	-	-	36.674
Processing order from customers	45.972	6.583	-	-	-	-	-	-	-	-	52.555
Billing to customers	41.374	6.583	-	-	-	-	2.802	-	-	-	50.760
Sending billing document to customers	2.758	13.166	-	-	-	-	-	1.523	-	-	17.447
Processing sales return from customers (if any)	1.839	2.633	-	271	-	-	-	508	-	1.107	6.357
Account receivable monitoring	-	26.333	29.779	6.768	2.213	386	-	-	-	-	65.479
Processing payment from customers	-	26.333	-	-	-	-	-	-	386	-	26.718
Account receivables clearing	-	23.699	-	5.144	-	-	-	3.046	-	-	31.889
	91.943	131.663	37.224	13.536	3.628	514	2.802	5.076	386	1.107	287.879

Table 11. Practical Capacity for Activities of Serving Customer in the Office

Activities of Serving Customer in The Office	Total Cost Supplied	Total Capacity	Cost Rate (Hour)	Cost Rate (Minutes)
Receiving orders from customers	9.098.299.374,18	36.674	248.085,14	4.134,75
Processing order from customers	7.352.002.372,17	52.555	139.892,15	2.331,54
Billing to customers	7.087.294.175,20	50.760	139.624,77	2.327,08
Sending billing document to customers	3.652.784.506,03	17.447	209.359,86	3.489,33
Processing sales return from customers (if any)	1.261.255.650,34	6.357	198.403,81	3.306,73
Account receivable monitoring	15.826.196.069,50	65.479	241.699,88	4.028,33
Processing payment from customers	7.047.675.664,53	26.718	263.776,39	4.396,27
Account receivables clearing	7.618.042.593,73	31.889	238.895,36	3.981,59
	58.943.550.405,67	287.879	1.679.737,37	27.995,62

determined by the documentation in 2021, which was 474,240 hours. Consequently, the following is the capacity cost rate for customer service operations in the warehouse (Table 12).

Practical Capacity and Capacity Cost Rate of Shipment Activities

Operating machines of truck hours during 2021 were used to calculate the practical capacity of cargo activities. The practical capacity of shipment activities for 2021 was 56,544 hours. Consequently, the following is the capacity cost rate for shipment activities (Table 13).

Determine the Estimated Time to Perform the Activity

The next step after generating the capacity cost rate for relevant activities is to determine the estimated time needed to perform relevant activity. The estimated time that will be required to perform the activity of serving customers was determined by interviews, passive observation, and documentation. Passive observation will be used to triangulate the information gotten by interviews. The estimated time related to the activity of receiving orders from both new and existing customers, order processing activities, sales return processing activities (if any),

payment receipt activities, and accounts receivable clearing activities (AR) was obtained by interview and passive observation. While the documentation approach is used to calculate the estimated time estimates for billing to customers, accounts receivable (AR) monitoring, handling activities, and delivering products to customers. Following the estimated time needed to perform each activity of serving customers as follows (Table 14).

According to the information described in the Table 14, the time equation for three activities of serving customers are as follows:

a) Activities of Serving Customers in The Office = {Receiving orders from customers} + {Processing order from customers} + {Billing to customers} + {Sending billing document to customers} + {Processing sales return from customers (if any)} + {Account receivable monitoring} + {Processing payment from customers} + {Account receivables clearing}. Thus, the pattern is: Activities of Serving Customers in The Office = {3 +(40*X1) + (20 * X2)} + {(15 * X3)} + {(55 * X4)} + {(50 * X5)} + {(35 * X6)} + {(40 * X6)} + {(35 * X6)} + {(30 * X4)}

Table 14. Estimated Time Needed to Perform Each Activity of Serving Customers

No	Activities for Serving Customer	Description	Variable	Time (Minutes)	Key Driver
		Activities for Serving Customer in The Office			
1	Receiving orders from customers	New Customers Receive and check the required administrative documents.	X1	10	Order
		Update into customer master data and grant of credit limit		30	
		Existing Customers Check the credit plafond in system and process the purchase order from customers		3	Order
		If the transaction is blocked, submit a form to open the blocked system	X2	20	
2	Processing order from customers	Process the sales order Tracing stock availability in the warehouse	X3	15	SO
3	Billing to customers	Process billing if the SPB has been received by billing admin	X4	55	Invoice
4	Sending billing document to customers	Deliver the billing and other supporting documents	X6	35	Receipt Document
5	Processing sales return from customers (if any)	Process the sales return	X5	50	SO Retur
6	Account receivable monitoring	Do AR reconciliation with customer and get the payment plan from the customer	X6	40	Receipt Document
7	Processing payment from customers	The salesperson received bank receipt reports from the treasury and contacts customers to get confirmation of bills that have been paid	X6	35	Receipt Document
8	Account receivables clearing	The salesperson submits a clearing application form to CnC, then the CnC section executes the clearing of AR in the system	X4	30	Invoice
		Activities for Serving Customer in The Warehouse			
No	Activities for Serving Customer	Description	Variabel	Time (Minutes)	Key Driver
9	Handling Activities	Carry out the process of packing - outgoing to fulfill customer orders	X7	118,68	TO
		Shipment Activities			
No	Activities for Serving Customer	Description	Variabel	Time (Minutes)	Key Driver
10	Shipment Activities	Delivery of goods to customers in accordance with the SPB brought	X8	226,20	1/10* Delivery Notes

b) Activity of Serving Customer in The Warehouse = {Handling Activities}. Thus, the pattern is:

Activity of Serving Customer in The Warehouse = {118,68 * X7}

c) Shipment Activity = {Shipment Activities}. Thus, the pattern is: Shipment Activity = {226,20 * X8}

Calculate The Actual Activities Each Big Customers

The last stage implementing TDABC to calculate big customer's profitability in company A is calculate the actual driver for each activity of serving customers. Based on the documentation of transaction documents in 2021, the actual driver for serving activities of big customers is as follows (Table 15).

Based on the figure above, the total receipt of orders from big customers during 2021 was 134,737 orders. Receiving orders includes several activities previously carried out, starting from sales inquiries, quotations, to receiving PO documents from customers. During 2021, the highest number of orders received came from customer B with 58,974 orders, while the lowest comes from customer G with 261 orders.

Total all cost of serving customers incurred in 2021 amounting to Rp 55,210,274,193 with details of cost of serving customers in the office of Rp 26,481,501,252, cost of serving customers in the warehouse of Rp. 25,937,593,749 and product shipment costs to customers of Rp

2,791,179,193. The capacity used for serving customers who is called as big customers as follows (Table 16).

Customer Profitability Analysis Using Time-Driven Activity-Based Costing (TDABC)

Customer profitability is determined by deducting sales from customers along with all serving costs to customers, both directly traceable and non-directly traceable to customer. TDABC's role is to calculate all customer service costs that cannot be directly traced to the customers and to obtain the customer's net profit. The following are the results of calculating big customer profitability using TDABC.

According to Figure 5, it demonstrates that the biggest contribution in revenue does not necessarily generate the greatest profit for the company. During 2021, company A's customers who are offered the priority service level "as called big customers" contribute profit. However, the fact shows that customer A, the biggest revenue contributor, only managed to earn the second-lowest profit of 13.56%. Meanwhile, the customers who contributed the highest profit to the company were customer H at 32.88% by generating revenue for the last three of 2.24%.

Table 15. Actual Activities from Big Customers

No	Activities of Serving Customer	A Driver	B Driver	C Driver	D Driver	E Driver	F Driver	G Driver	H Driver	I Driver	J Driver
	Receiving orders from customers										
1	Receive order from customers	9.391	58.974	27.493	23.974	5.197	459	261	7.289	881	818
	Process open blocking system	-	-	27.493	23.974	5.197	-	261	7.289	881	818
	Receive order from new customers	-	-	-	-	-	-	-	-	-	-
2	Processing order from customers	9.398	58.976	27.503	23.978	5.197	459	261	7.289	883	818
3	Billing to customers	14.469	4.091	1.491	24.026	5.280	986	408	611	856	857
4	Sending billing document to customers	-	1.019	245	1.192	540	64	58	127	188	251
5	Processing sales return from customers (if any)	3	9	1	5	1	-	-	1	3	1
6	Account receivable monitoring	-	1.019	245	1.192	540	64	58	611	188	251
7	Processing payment from customers	211	115	50	34	16	31	12	12	11	65
8	Account receivables clearing	14.711	4.854	1.550	23.173	6.611	1.535	422	637	1067	1048
9	Handling Activity	15.329	74.281	30.349	24240	5720	1094	434	8.101	4136	972
10	Shipment Activity	-	40.880	25.538	22.328	5.715	-	-	494	1521	961

Tabel 16. Total Capacity Used to Perform Activities of Serving Big Customers

Practical Capacity	Activities of Serving Customers		
	Office	Warehouse	Shipment
Capacity supplied	58.944	37.769	4.252
Used capacity for big customers	26.482	25.938	2.762
% Actual capacity used by big customers	44,93%	68,67%	64,96%

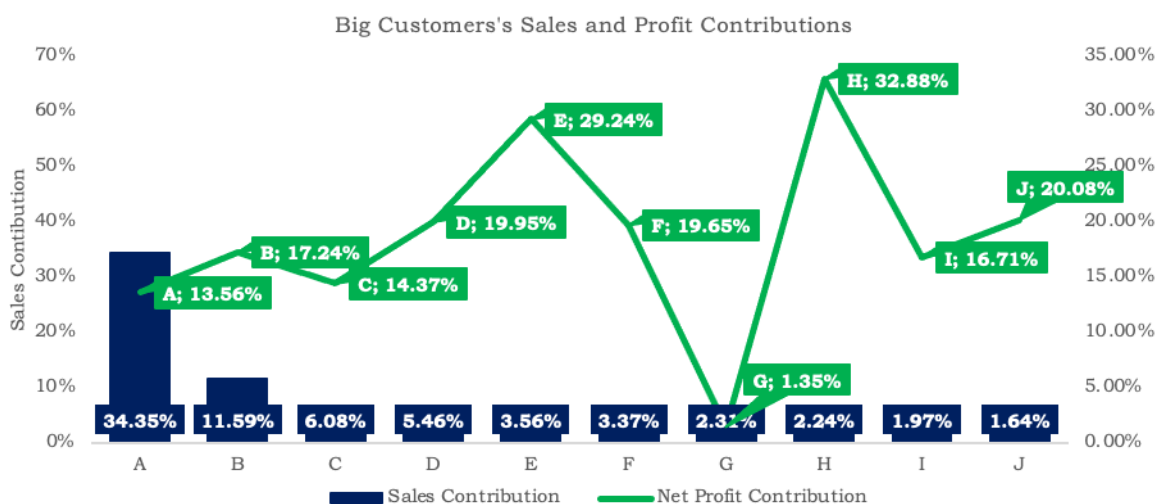**Figure 5. Sales and Profit Contributions by Big Customers**

One of the factors causing the difference in the net profit of each big customer was the difference in the gross margin of products purchased in 2021. Based on the information obtained through interviews, these differences can be seen from several factors when dealing with transactions with customers. One of these differences can be seen from

the proportion of products purchased by big customers in 2021. Company A positions its products into high-profit products and low-profit products. Based on the history of purchasing transactions in 2021, the composition of products purchased by big customers is described as follows (Figure 6).

Based on Figure 6, customers who often make purchases of products with low-profit features are customer A, customer B, customer F, customer G, and customer J. Among the five customers, customer A and customer G show the portion purchasing products in the low-profit category is more dominant than products in the high-profit category during transactions the entity. Customer A as the main contributor to entity tends to purchase low-profit products for 71.55% of the total transactions made in 2021. Meanwhile, customer G for 97.98% of all purchases in 2021.

Customers who often make purchases for products that are positioned as high-profit products are customer C, customer D, customer E, customer H, and customer I. Among the five customers, customer I is a customer with a purchase transaction for products that are in the high-profit product category for 97.82% of all purchases made in 2021, followed

by customer C of 81.18% of the total transactions purchased in 2021, customer H with 79.29% customer D of 73.16%, and the last one is customer E with a purchase portion of 70.95% of all purchase transactions made in 2021.

Besides the characteristics of the product purchased, the differences of gross profit can be caused by contract price agreements with customers, purchasing facilities such as discounts or rebates. Based on the information contained in Appendix 11, customers who have purchased facilities in the form of discount is customer A. Meanwhile, customers who receive purchase facilities in the form of rebate are customer C with a total of 9% of sales and customer D reaches 2% of sales. The impact of this facility is to reduce the gross profit margin of customers A, C, and D. The next factor that affects the gross profit margin of each big customer is the type of order during 2021, non-standard product orders will incur additional costs such as installation and assembly costs. Based on the information contained in Appendix 11, customer A is a customer with a high number of orders for non-standard product types with installation and assembly costs compared to other customers.
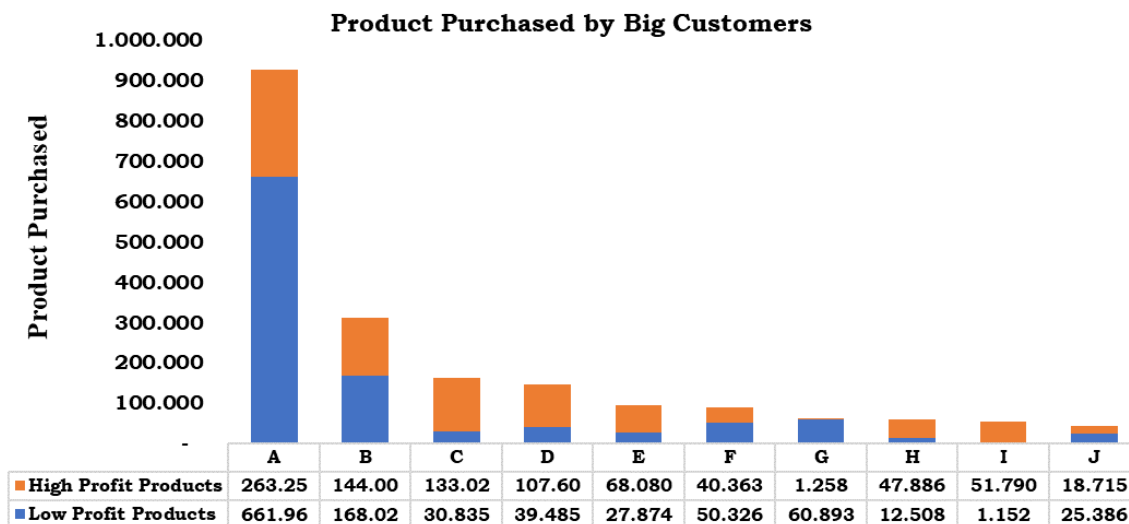
Figure 6. Product Purchased by Big Customers

Table 17. Customer Profitability Evaluation by Hope & Player (2012)

Customer	Strategic?	Significant?	Profitable?	Customer Type	% Sales	Net profit
A	Yes	No	Yes	"C"	34,35%	13,56%
B	Yes	No	Yes	"C"	11,59%	17,24%
C	Yes	No	Yes	"C"	6,08%	14,37%
D	Yes	Yes	Yes	"A"	5,46%	19,95%
E	Yes	Yes	Yes	"A"	3,56%	29,24%
F	Yes	No	Yes	"C"	3,37%	19,65%
G	No	No	Yes	"G"	2,31%	1,35%
H	Yes	No	Yes	"C"	2,24%	32,88%
I	Yes	No	Yes	"C"	1,97%	16,71%
J	Yes	No	Yes	"C"	1,64%	20,08%
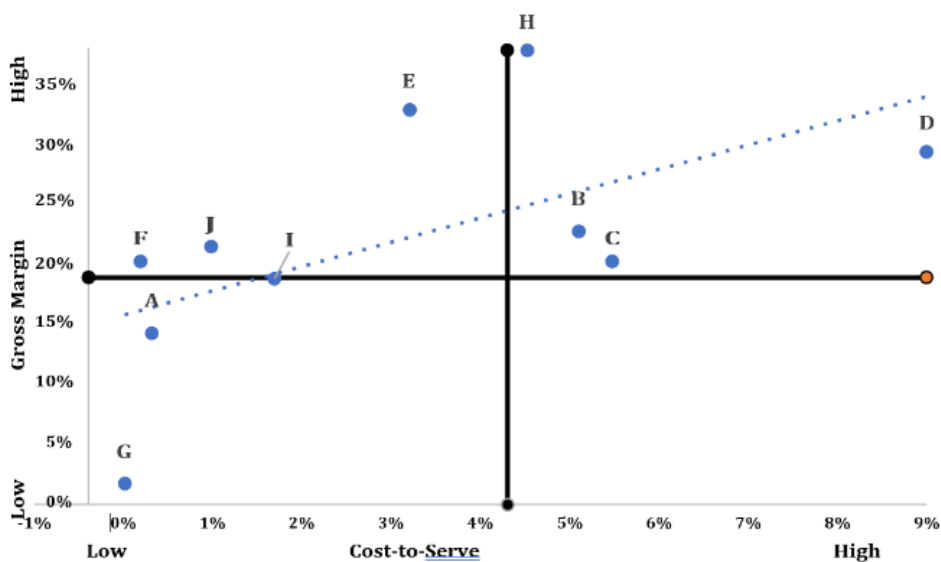
Figure 7. Customer Characteristics Analysis

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The highest cost of serving customers, the entity's profit is decreased by the high cost of serving the customer. According to Appendix 11, customer D requires the highest serving cost at 9.39% of revenues. Meanwhile, Customer G has the lowest serving cost with 0.41% of sales. The highest cost of serving customers came from handling activities. Hope & Player (2012) provides guidance to evaluate customer profitability by three indicators that are strategic, significant, and profitable. A significant indicator explains that these customers provide opportunities to get new customers. Significant is used to evaluate how significant the sales contribution given by customers. The contribution of sales is said to be significant if the value of the sales contribution by each customer is above the value of the median, 3.46%. In addition, significant parameters also assess the given value to the entity. Big customers are said to have significant value if the resulting net profit margin value is above the median value, 18.45%. While the profitable indicators are used to assess the net profit margin contributed by each big customer. Following the table 17 of customer profitability evaluation by Hope & Player (2012).

Based on the information in Table 17, there are three types of customers according to Hope and Player (2012) such as type "A" customers, type "C" customers, and type "G" customers. Customers with type "A" are customers who need to be maintained by giving top priority to all service resources that can be provided by company A because they contribute short-term profits and guarantee long-term sustainability. Type "C" customers are customers that should be maintained and managed but need to be considered for continuous improvement such as reducing service costs, but if the potential of these customers is high, the company can work hard to increase customer profitability. Meanwhile, "G" type customers are customers who do not need to get top service priority. Atkinson et al. (2012) illustrates the customer characteristics based on gross profit margin and net profit as shown in Figure 7.

Figure 7 above shows four customer types. The upper-left quadrant is with customers who have high gross profit margins at a low service cost. According to Atkinson et al. (2012), it is important to keep the customers that fit these criteria away from competitors. This support involves maximizing all the entity's

resources to be ready to compete in tough competition. The customers E, F, and J are all seated in this quadrant. According to their purchase histories in 2021, customer F and J mostly bought products in low-profit categories, but the resulting gross profit margin is still rather high (see Figure 5). On the other hand, Customer E mostly bought products from the high profit-product category. Therefore, the strategy that can be applied to maximize profitability is to engage in intense competition to become their sole supplier. This can be started by studying market needs for products that have not yet been provided by company A. Following the analysis, company A might consider developing its product portfolio to address market demands for products it hasn't yet been able to meet. The upper-right-hand quadrant with customers who have the highest gross profit margin but the highest service cost. Atkinson et al. (2012) stated that companies can incur a lot of costs for transportation, technical support, and services because the high gross profit margin on the products sold to these customers still covers the service costs. This quadrant is filled with customers B, C, D, and H. Based on the data in Appendix 11, those customers tend to buy products in a high-profit product category.

Meanwhile, high service costs are caused by services for complex orders that are processed in 2021 such as order processing activities, handling activities in the warehouse, and shipment activities. Therefore, the strategy that can be applied to maximize profitability could be done by continuous improvement. Appendix. 11 shows that customers C and D have a special purchase agreement in the form of rebates. To maximize profitability, company A can evaluate the effectiveness of rebates. On the other hand, customers B, C, and D have complex serving activities that cause the serving cost to be higher than others. A company should reduce costs by using e-documents, open the closest support point, change the shipment term.

The lower-left-hand quadrant with customers who have a low gross profit margin and service cost. On the other hand, these customers have price-sensitive characteristics. According to Atkinson et al. (2012), the entity can employ a strategy to boost customer sales in this quadrant by offering discounts. Customers A, G, and I are the customers of company A who fill this quadrant. Based on the history of purchases in 2021, those customers tend to buy products in a low-profit category. Additionally, customer A, who is the

main contributor of revenue, has a particular price contract that indicates sensitivity to the price of the goods purchased. Company A would evaluate the effectiveness of a special price agreement. On the other hand, company A can work hard to boost the sales of customer I with products in the high-profit category by offering discounts.

CONCLUSION, IMPLICATION AND LIMITATION

TDABC can be well-implemented at distributor companies to calculate customer profitability. Based on the customer profitability analysis by Hope & Player (2012) dan by Atkinson et al. (2012), it can be concluded that big customers, who are contributor the top ten highest income and have the priority service provided by the company, were not the highest profit contributors to company A in 2021. However, only customer G does not guarantee to generate long- term value because it doesn't fit with the strategic indicator by Hope & Player (2012). On the other hand, customer characteristic analysis using Atkinson et al (2012) proposes the customer who has the service priority is a customer in the upper- left-hand quadrant which are customers E, F, and J. Meanwhile, the customers who must be evaluated periodically are

customers A, C, and D by evaluating the special price agreement reducing cost can be applied to customers B, C, D, and H, and not providing the service priority.

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Appendix

APPENDIX 1. Calculation of the cost of serving – Customer A

No	Activities of Serving Customer	Customer A			
		Driver	Estimated Time	Rate/ Mnt	Total Cost
1	**Receiving orders from customers**				
	Receive order from customersProcess open	9.391	3	4.135	116.488.379
	blocking system	-	-	-	-
	Receive order from new customers	-	-	-	-
2	**Processing order from customers**	9.398	15	2.332	328.676.604
3	**Billing to customers**	14.469	55	2.327	1.851.878.208
4	**Sending billing document to customers**	-	-	-	-
5	**Processing sales return from customers (if any)**	3	50	3.307	496.010
6	**Account receivable monitoring**	-	40	4.028	-
7	**Processing payment from customers**	211	35	4.396	32.466.477
8	**Account receivables clearing**	14.711	30	3.982	1.757.194.843
9	**Handling Activity**	15.329	119	1.327	2.414.715.374
10	**Shipment Activity**	-	-	-	-
	GRAND TOTAL				**6.501.915.894**

Source: Company A (2021).

APPENDIX 2. Calculation of the cost of serving – Customer B

No	Activities of Serving Customer	Customer B			
		Driver	Estimated Time	*Rate/ Mnt*	Total Cost
1	**Receiving orders from customers**				
	Receive order from customers	58.974	3	4.135	731.528.664
	Process open blocking system	-	-	-	-
	Receive order from new customers	-	-	-	-
2	**Processing order from customers**	58.976	15	2.332	2.062.569.844
3	**Billing to customers**	4.091	55	2.327	523.604.516
4	**Sending billing document to customers**	1.019	35	3.489	124.446.991
5	**Processing sales return from customers (if any)**	9	50	3.307	1.488.029
6	**Account receivable monitoring**	1.019	40	4.028	164.194.787
7	**Processing payment from customers**	115	35	4.396	17.694.999
8	**Account receivables clearing**	4.854	30	3.982	579.799.046
9	**Handling Activity**	74.281	119	1.327	11.701.185.509
10	**Shipment Activity**	40.880	22,62	1.253,33	1.158.964.884
	GRAND TOTAL				**17.065.477.271**

Source: Company A (2021).

APPENDIX 3. Calculation of the cost of serving – Customer C

No	Activities of Serving Customer	Customer C			
		Driver	Estimated Time	Rate/Mnt	Total Cost
1	Receiving orders from customers				
	Receive order from customersProcess open	27.493	3	4.135	341.030.243
	blocking system	27.493	20	4.135	2.273.534.953
	Receive order from new customers	-	-	-	-
2	Processing order from customers	27.503	15	2.332	961.863.443
3	Billing to customers	1.491	55	2.327	190.832.152
4	Sending billing document to customers	245	35	3.489	29.921.014
5	Processing sales return from customers (if any)	1	50	3.307	165.337
6	Account receivable monitoring	245	40	4.028	39.477.648
7	Processing payment from customers	50	35	4.396	7.693.478
8	Account receivables clearing	1.550	30	3.982	185.143.906
9	Handling Activity	30.349	119	1327	4.780.755.227
10	Shipment Activity	25.538	22,62	1.253,33	724.012.848
GRAND TOTAL					9.534.430.248

Source: Company A (2021).

APPENDIX 4. Calculation of the cost of serving – Customer D

No	Activities of Serving Customer	Customer D			
		Driver	Estimated Time	Rate/Mnt	Total Cost
1	Receiving orders from customers				
	Receive order from customers Process	23.974	3	4.135	297.379.662
	open blocking system	23.974	20	4.135	1.982.531.080
	Receive order from new customers	-	-	-	-
2	Processing order from customers	23.978	15	2.332	838.583.487
3	Billing to customers	24.026	55	2.327	3.075.072.625
4	Sending billing document to customers	1.192	35	3.489	145.574.891
5	Processing sales return from customers (if any)	5	50	3.307	826.683
6	Account receivable monitoring	1.192	40	4.028	192.070.840
7	Processing payment from customers	34	35	4.396	5.231.565
8	Account receivables clearing	23.173	30	3.982	2.767.961.125
9	Handling Activity	24240	119	1327	3.818.429.164
10	Shipment Activity	22.328	22,62	1.253,33	633.008.022
GRAND TOTAL					13.756.669.143

Source: Company A (2021).

APPENDIX 5. Calculation of the cost of serving – Customer E

No	Activities of Serving Customer	Customer E			
		Driver	Estimated Time	Rate/ Mnt	Total Cost
1	Receiving orders from customers				
	Receive order from customersProcess open blocking system	5.197 5.197	3 20	4.135 4.135	64.464.925 429.766.164
	Receive order from new customers	-	-	-	-
2	Processing order from customers	5.197	15	2.332	181.754.875
3	Billing to customers	5.280	55	2.327	675.783.878
4	Sending billing document to customers	540	35	3.489	65.948.357
5	Processing sales return from customers (if any)	1	50	3.307	165.337
6	Account receivable monitoring	540	40	4.028	87.011.958
7	Processing payment from customers	16	35	4.396	2.461.913
8	Account receivables clearing	6.611	30	3.982	789.668.623
9	Handling Activity	5720	119	1327	901.048.466,15
10	Shipment Activity	5.715	22,62	1.253,33	162.022.610
	GRAND TOTAL				**3.360.097.105**

Source: Company A (2021).

APPENDIX 6. Calculation of the cost of serving – Customer F

No	Activities of Serving Customer	Customer F			
		Driver	Estimated Time	Rate/ Mnt	Total Cost
1	Receiving orders from customers				
	Receive order from customersProcess open blocking system	459 -	3 -	4.135 -	5.693.554 -
	Receive order from new customers	-	-	-	-
2	Processing order from customers	459	15	2.332	16.052.624
3	Billing to customers	986	55	2.327	126.197.520
4	Sending billing document to customers	64	35	3.489	7.816.102
5	Processing sales return from customers (if any)	-	50	3.307	-
6	Account receivable monitoring	64	40	4.028	10.312.528
7	Processing payment from customers	31	35	4.396	4.769.956
8	Account receivables clearing	1.535	30	3.982	183.352.191
9	Handling Activity	1094	119	1327	172.333.395
10	Shipment Activity	-	-	-	-
	GRAND TOTAL				**526.527.871**

Source: Company A (2021).

APPENDIX 7. Calculation of the cost of serving – Customer G

No	Activities of Serving Customer	Customer G			
		Driver	Estimated Time	*Rate/ Mnt*	Total Cost
1	**Receiving orders from customers**				
	Receive order from customersProcess open blocking system	261	3	4.135	3.237.511
		261	20	4.135	21.583.408
	Receive order from new customers	-	-	-	-
2	**Processing order from customers**	261	15	2.332	9.127.963
3	**Billing to customers**	408	55	2.327	52.219.663
4	**Sending billing document to customers**	58	35	3.489	7.083.342
5	**Processing sales return from customers (if any)**	-	50	3.307	-
6	**Account receivable monitoring**	58	40	4.028	9.345.729
7	**Processing payment from customers**	12	35	4.396	1.846.435
8	**Account receivables clearing**	422	30	3.982	50.406.922
9	**Handling Activity**	434	119	1327	68.366.265
10	**Shipment Activity**	-	-	-	-
GRAND TOTAL					**223.217.237**

Source: Company A (2021).

APPENDIX 8. Calculation of the cost of serving – Customer H

No	Activities of Serving Customer	Customer H			
		Driver	Estimated Time	*Rate/ Mnt*	Total Cost
1	**Receiving orders from customers**				
	Receive order from customersProcess open blocking system	7.289	3	4.135	90.414.631
		7.289	20	4.135	602.764.205
	Receive order from new customers	-	-	-	-
2	**Processing order from customers**	7.289	15	2.332	254.918.468
3	**Billing to customers**	611	55	2.327	78.201.506
4	**Sending billing document to customers**	127	35	3.489	15.510.076
5	**Processing sales return from customers (if any)**	1	50	3.307	165.337
6	**Account receivable monitoring**	611	40	4.028	98.452.419
7	**Processing payment from customers**	12	35	4.396	1.846.435
8	**Account receivables clearing**	637	30	3.982	76.088.173
9	**Handling Activity**	8.101	119	1.327	1.276.117.766
10	**Shipment Activity**	494	23	1.253	14.005.104
GRAND TOTAL					**2.508.484.120**

Source: Company A (2021).

APPENDIX 9. Calculation of the cost of serving – Customer I

No	Activities of Serving Customer	Customer I			
		Driver	Estimated Time	*Rate/ Mnt*	Total Cost
1	**Receiving orders from customers**				
	Receive order from customersProcess open blocking	881	3	4135	10.928.151
	system	881	20	4135	72.854.337
	Receive order from new customers	-	-	-	-
2	**Processing order from customers**	883	15	2332	30.881.192
3	**Billing to customers**	856	55	2327	109.558.901
4	**Sending billing document to customers**	188	35	3489	22.959.798
5	**Processing sales return from customers (if any)**	3	50	3307	496.010
6	**Account receivable monitoring**	188	40	4028	30.293.052
7	**Processing payment from customers**	11	35	4396	1.692.565
8	**Account receivables clearing**	1067	30	3982	127.450.676
9	**Handling Activity**	4136	119	1327	651.527.352
10	**Shipment Activity**	1521	22,6	1.253	43.120.978
	GRAND TOTAL				**1.101.763.013**

Source: Company A (2021).

APPENDIX 10. Calculation of the cost of serving – Customer J

No	Activities of Serving Customer	Customer J		
		Estimated Time	*Rate/ Mnt*	Total Cost
1	**Receiving orders from customers**			
	Receive order from customers	3	4135	10.146.682
	Process open blocking system	20	4135	67.644.549
	Receive order from new customers	-		-
2	**Processing order from customers**	15	2332	28.607.944
3	**Billing to customers**	55	2327	109.686.891
4	**Sending billing document to customers**	35	3489	30.653.773
5	**Processing sales return from customers (if any)**	50	3307	165.337
6	**Account receivable monitoring**	40	4028	40.444.447
7	**Processing payment from customers**	35	4396	10.001.521
8	**Account receivables clearing**	30	3982	125.181.170
9	**Handling Activity**	119	1327	153.115.229
10	**Shipment Activity**	23	1.253	27.244.747
	GRAND TOTAL			**602.892.291**

Source: Company A (2021).

APPENDIX 11. Calculation of Customer Profitability

Description	Customer A	Customer B	Customer C	Customer D	Customer E	Customer F	Customer G	Customer H	Customer I	Customer J
Sales (Including sales return)	937.720.406.592	312.037.702.236	163.858.700.488	147.094.624.038	95.953.861.680	90.689.585.946	62.151.667.524	60.393.790.882	52.941.644.734	44.100.335.640
(-) Sales discount	- 12.501.514.452	-	-	-	-	-	-	-	-	-
Net sales	**925.218.892.140**	**312.037.702.236**	**163.858.700.488**	**147.094.624.038**	**95.953.861.680**	**90.689.585.946**	**62.151.667.524**	**60.393.790.882**	**52.941.644.734**	**44.100.335.640**
Cost of serving customers										
Customer Unit - Cost Level :										
Cost of Good Solf	- 780.076.131.747	- 234.176.629.627	- 115.891.135.688	- 92.704.813.893	- 59.769.200.858	- 72.169.606.029	- 55.507.966.466	- 35.722.763.480	- 42.432.701.791	- 33.885.233.935
Cost of Assembly & Installation for Non-Standard Products	- 3.310.800.000	- 98.000.000	-	- 249.200.000	- 464.200.000	-	-	- 53.200.000	- 246.000.000	- 49.000.000
Incentives sales for the certain product sold	- 9.825.615.744	- 6.829.448.085	- 640.962.213	- 8.685.623.336	- 4.204.459.796	- 170.157.575	- 5.550.569.335	- 1.789.916.786	- 312.577.920	- 704.239.050
Rebate			- 14.156.569.056	- 2.293.916.954						
Total Customer Unit - Cost Level	- **793.212.547.491**	- **241.104.077.712**	- **130.688.666.957**	- **103.933.554.183**	- **64.437.860.654**	- **72.339.763.604**	- **61.058.535.802**	- **37.565.880.266**	- **42.991.279.711**	- **34.638.472.985**
Gross Profit	*132.006.344.650*	*70.933.624.524*	*33.170.033.531*	*43.161.069.855*	*31.516.001.026*	*18.349.822.342*	*1.093.131.722*	*22.827.910.616*	*9.950.365.023*	*9.461.862.656*
Gross Profit Margin	*14,27%*	*22,73%*	*20,24%*	*29,34%*	*32,84%*	*20,23%*	*1,76%*	*37,80%*	*18,79%*	*21,46%*
Customer Batch - Cost Level :										
Activities of Serving Customer	- 164.338.302									
Receiving orders from customers	- 116.488.379	- 731.528.664	- 2.614.565.196	- 2.279.910.742	- 494.231.089	- 5.693.554	- 24.820.919	- 693.178.835	- 83.782.488	- 77.791.232
Processing order from customers	- 328.676.604	- 2.062.569.844	- 961.863.443	- 838.583.487	- 181.754.875	- 16.052.624	- 9.127.963	- 254.918.468	- 30.881.192	- 28.607.944
Billing to customers	- 1.851.878.208	- 523.604.516	- 190.832.152	- 3.075.072.625	- 675.783.878	- 126.197.520	- 52.219.663	- 78.201.506	- 109.558.901	- 109.686.891
Sending billing document to customers	-	- 124.446.991	- 29.921.014	- 145.574.891	- 65.948.357	- 7.816.102	- 7.083.342	- 15.510.076	- 22.959.798	- 30.653.773
Processing sales return from customers (if any)	- 496.010	- 1.488.029	- 165.337	- 826.683	- 165.337	-	-	- 165.337	- 496.010	- 165.337
Account receivable monitoring	-	- 164.194.787	- 39.477.648	- 192.070.840	- 87.011.958	- 10.312.528	- 9.345.729	- 98.452.419	- 30.293.052	- 40.444.447
Processing payment from customers	- 32.466.477	- 17.694.999	- 7.693.478	- 5.231.565	- 2.461.913	- 4.769.956	- 1.846.435	- 1.846.435	- 1.692.565	- 10.001.521
Account receivables *clearing*	- 1.757.194.843	- 579.799.046	- 185.143.906	- 2.767.961.125	- 789.668.623	- 183.352.191	- 50.406.922	- 76.088.173	- 127.450.676	- 125.181.170
Handling activities	- 2.414.715.374	- 11.701.185.509	- 4.780.755.227	- 3.818.429.164	- 901.048.466	- 172.333.395	- 68.366.265	- 1.276.117.766	- 651.527.352	- 153.115.229
Shipment activities	-	- 1.158.964.884	- 724.012.848	- 633.008.022	- 162.022.610	-	- 28.800.000	- 14.005.104	- 43.120.978	- 27.244.747
Total Customer Batch - Cost Level	- **6.501.915.894**	- **17.065.477.271**	- **9.534.430.248**	- **13.756.669.143**	- **3.360.097.105**	- **526.527.871**	- **252.017.237**	- **2.508.484.120**	- **1.101.763.013**	- **602.892.291**
	-0,70%	-5,47%	-5,82%	-9,35%	-3,50%	-0,58%	-0,41%	-4,15%	-2,08%	-1,37%
Customer Sustaining Cost Level										
Representation cost	- 21.718.200	- 12.660.000	- 61.821.360	- 11.154.300	- 6.829.000	-	-	- 14.700.000	-	- 3.203.788
Entertainment cost	- 35.733.680	- 59.986.400	- 21.311.196	- 3.444.000	- 20.497.400	-	-	- 162.600.000	-	-
Training Program	-	-	-	-	- 28.571.428	-	-	-	-	-
Factory visit	-	-	-	-	-	-	-	-	-	-
Annual Meeting	-	-	-	-	-	-	-	-	-	-
Customer Gathering	-	-	-	-	-	-	-	- 285.000.000	-	-
Support Customer	- 7.872.600	-	-	- 40.763.000	- 39.168.900	-	-	-	-	-
Total Customer Sustaining Cost L	- **65.324.480**	- **72.646.400**	- **83.132.556**	- **55.361.300**	- **95.066.728**	-	-	- **462.300.000**	-	- **3.203.788**
Profit per Customer	**125.439.104.275**	**53.795.500.853**	**23.552.470.727**	**29.349.039.412**	**28.060.837.193**	**17.823.294.471**	**841.114.486**	**19.857.126.496**	**8.848.602.010**	**8.855.766.576**
Net Profit Margin	*13,56%*	*17,24%*	*14,37%*	*19,95%*	*29,24%*	*19,65%*	*1,35%*	*32,88%*	*16,71%*	*20,08%*