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THE SUPPLY CHAIN STRATEGY IN ELECTRONIC VOTING BUSINESS OF PT INTI (PERSERO)

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ABSTRACT
PT Industri Telekomunikasi Indonesia (Persero) or INTI confronted two critical challenges in its electronic voting (e-voting) business for Village Head Elections (Pilkades) beginning in 2013. The company maintained a minimal market share of only 1-19% during the 2013-2016 period, primarily attributable to its limited role as a single-component supplier of ID Readers within the seven-device e-voting ecosystem. This challenge was compounded by an extensive production lead time of three months for the ID Reader, resulting from complete dependence on manufacturing and assembly processes in China. This research employs a case study methodology to analyze and propose supply chain strategy solutions, focusing on two strategic interventions: product bundling through comprehensive end-to-end e-voting solutions, and supply chain restructuring via localization of ID Reader casing production while maintaining electronic component imports from China, complemented by optimized regional procurement processes. The implementation from 2017 to 2020 demonstrated transformative outcomes, with market share surging to 94% and maintaining stability. Financial performance showed remarkable improvement, culminating in net profit reaching IDR 5.86 billion by 2020. Operational efficiencies achieved included reduction of ID Reader production lead time from 90 to 30 days and a 50% decrease in Cost of Goods Sold. The study concludes that the integrated approach of product bundling and strategic supply chain optimization effectively enhanced revenue generation, market dominance, and profitability, providing a replicable model for similar technology implementations in developing markets.

Key words: Supply Chain; Electronic Voting; Product Bundling; Lead Time; PT INTI;

INTRODUCTION

When we talked about telecommunication industry in Indonesia, we cannot leave PT Industri Telekomunikasi Indonesia (Persero) / Inti as a big player in the business for the last 46 years. Inti is a state-owned enterprise where hundred percent of the share belongs to government, when the company formed, it given responsibility from government of Indonesia to be manufacturer and system integrator in telecommunication industry along with Telkom, at the beginning of telecommunication infrastructure deployment in 1966 government of Indonesia create National Telecommunication Companywith business focus in manufacturing and report to Ministry of Transportation, in the end of 1974 government change the name to its existing name which is PT Industri Telekomunikasi Indonesia (Persero) under Ministry of State-Owned Enterprise. In 1989 to 2002 Inti change the status several times, Inti once included in the strategic industry group and became the subsidiary of PT Bahana Pakarya Industri Strategis (Persero), within this time range, Inti still focus in manufacturing. The growth in technology ecosystem made the industry growth even bigger, in the early 2002 Inti with Telkom deploy the biggest telecommunication infrastructure (telephone central) in Indonesia, rolling out from west to east.

Manufacturing of telecommunication device and equipment is not an easy task to do at that time, Inti do join development and business partnership with Germany technology owner, Siemens (now Nokia Siemens Network). Inti take part in manufacturing desk telephone that fit into a table to manufacturing central telecommunication with the size of a building. Within this time, it includes installation service also test and commissioning of cellular telecommunications networks. This job also includes CME (Civil, Mechanical and Electrical), service OSP (Out Site Plant). The job is easy for Inti at that time until the economic crisis struck in 1998, it changed economic and political nationally. Then, the focus of company changed from manufacturing to system integrator. In 2020, Inti has four main portfolios called MMDS that stand for.

1. Manufacturing and Assembly
2. Managed Service and Repair
3. Digital Service
4. System Integrator

In manufacturing and assembly, Inti has a subsidiary company that running project in fibre optic manufacture, this company has production rate around 2.000.000-meter fibre optic cable in a year. In managed service and repair portfolio the main project is handling NTE (Network Terminal Equipment) and STB (Set Top Box) of Telkom, the basic process is to maintain NTE and STB device that installed in Telkom's customers so that the devices is 'always on' and working. With the insight of digital transformation in Indonesia, Inti develop its capability in Digital Service area, including software development and digital implementation both for government and private

sectors. The last portfolio is System Integrator, the focus of this portfolio is to deploy and manage nation-wide project for example social media monitoring project for Ministry of Communication and Information in 2019.

Indonesia is a democratic republic with the President is both of head of state and head of government. There is a political turnover event happened in 1998 that change the democratic life in Indonesia including election process and procedure. Indonesia has several elections for its people. The elections from the biggest to the lowest scope are Presidential Election (once in five years), Governor Election (once in five years), Mayor or Regent Election (once in five years) and village head election (once in six years). Inti and Agency for Assessment and Application of Technology (BPPT) develop electronic voting solution to improve digitalize the process of Election in Indonesia. One of the implementation is in head of village election since 2013.

The market size in head of village election (Pilkades) business is huge, based on Central Agency of Statistic in 2020 there are 75.436 villages in Indonesia. Those villages held the election every 6 years, with certain condition, villages in a district will divided into 3 phases of election every two years in every district so that there will be no chaos of shift leader. Based on this there is a huge potential for Inti to focus on this business. Electronic voting for Pilkades, use some hardware and software.

With huge business potential mentioned before, there are two problem faced by Inti in 2013. The first problem is, Inti only supply ID Reader to the system.

Table 1. Electronic voting market in 2013 to 2016

	Year			
Electronic Voting Data	2013	2014	2015	2016
Villages Number	11	95	300	231
Sales of ID Reader	110.000.000	400.000.000	200.000.000	250.000.000
Net Profit ID Reader (30%)	33.000.000	120.000.000	60.000.000	75.000.000
Market Size of evoting	583.000.000	5.035.000.000	15.900.000.000	12.243.000.000
Market Share of Inti (%)	19%	8%	1%	2%

In the table above, we can see with only ID Reader sales, Inti only get 19% of the market in 2013, it decreases in 2014 with only 8%, the number getting significantly decrease in 2015 and 2016 with the share is 1% and 2%, this happened because at that time the use of ID Reader is not mandatory so that in 2015 Inti only sell 20 ID reader devices and 25 ID reader devices in 2015. Please see graph below.

The second problem is the lead time of ID Reader production is too long, it takes 3 months to produce it in China factory. In order to solve two problems mentioned above, Inti should develop new strategy in supply chain management so the business will give maximum revenue and profit.

METHOD

This study employs a qualitative business analysis approach, focusing on the exploration of supply chain issues and strategic solutions within PT INTI's electronic voting (e-voting) business. The methodological steps include:

Literature review

"Supply chain management is the management of interconnection of organizations that relate to each other through upstream and downstream linkages between the processes that produce value to the ultimate consumer in the form of products and services" (Slack, Chambers and Johnston, 2007).

"SCM as the design, planning, execution, control and monitoring of supply chain activities with the objective of creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand and measuring performance globally" (The APICS Dictionary).

Root Cause Analysis

Based on business issues above, there are two problem:

1. The revenue is not maximum.

This problem occurred because Inti did not take the business end to end, Inti only take specific device, which is ID Reader, Inti ignore the other part of the system. Inti need to find sales and operation scheme to solve this problem.

2. The lead time of ID Reader is too long compared with demand needs.

This problem happened because Inti subcontracting all parts of ID Reader to China factories, the lead time is too long in the assembly part, because the electronic part and plastic case part is a separate company. The problem also occurred in import mechanism.

RESULTS AND DISCUSSION

Product Bundling

In order to maximize the sales revenue and market share, in 2017 Inti proposed a strategic solution to BPPT to handle and providing all the devices end to end. To attract user interest, Inti provide product bundling, in customer point of view it will ease the procurement process into one time process only. This strategic initiative gives maximum share to Inti and the ability to forecast the demand more precisely, to forecast demand, Inti develop a time plan to be follow by every parties, Inti, Local Government (customer) and BPPT. The time plan shown below. (this reduces the Bullwhip effect on demand).

Table 2. Time plan for evoting

Activity	Description	Duration (day)
A	Consulting with BPPT	2
B	Electronic voting socialization to stakeholders	3
C	Drafting & Signing business contract	15
D	Procurement Process	90
E	Training of operators	7
F	Commissioning and Testing	4
G	Certification	2
H	Election day implementation	1

In the first plan implementation shown above there is a room for improvement in point D. The cause of procurement process is up to 90 days is because the ID Reader production takes too long. To minimize this Inti did the following.

Supply Chain Management Strategy

To solve the duration issue, in 2017 Inti take the casing part of ID Reader to be produce locally through its subsidiary, PT Inti Pindad Mitra Sejati (IPMS) with has capability in plastic production with precast moulding. This change of subcontractor from China to Local, decrease the lead time from 90 days to 30 days in total. Inti only subcon the electronic part because it faster to be produce in China compared to Indonesia regarding the part availability and price. This supply strategy also improves the cost of good sold for ID Reader from IDR 7.000.000 to IDR 3.500.000, it decreases the COGS 50% of the existing one due to the import price and assembly process to be done twice in China. The lead time problem of ID Reader is solved, and Inti gain more profit based on this supply chain strategy.

Electronic voting is a complete system consist of 7 devices, in order to maximize the process, Inti did source the common devices in nearby city to the district of Pilkades event. For example, Inti did purchase Personal Computer and Laptop in Palembang, South Sumatera to fulfil the purchase of Banyuasin and Musi Rawas. This action needed to reduce the cost of shipment and inventory. This inventory normally provided by user; Inti will used it as the place for commissioning the system. The reduce of shipment and inventory bring more profit for Inti

CONCLUSION

Based on the proposed solution mentioned above, Inti can maximize the market share, improve the supply chain process, improve profit through supply chain strategy and help the government to plan the election more efficient. The synchronization of supply and demand help Inti to maximize its business in Evoting. The improvement of market share is up to 94% and stable from 2017 to 2019 can be shown below.

Table 3. Electronic voting market in 2017 to 2020

	Year			
Electronic Voting Data	2017	2018	2019	2020
Villages Number	158	284	213	293
Sales of Inti in Evoting Business	7.900.000.000	14.200.000.000	10.650.000.000	14.650.000.000
Net Profit of Evoting system (40%)	3.160.000.000	5.680.000.000	4.260.000.000	5.860.000.000

Market Size total of Evoting	8.374.000.000	15.052.000.000	11.289.000.000	15.529.000.000
Market Share of Inti (%)	94%	94%	94%	94%

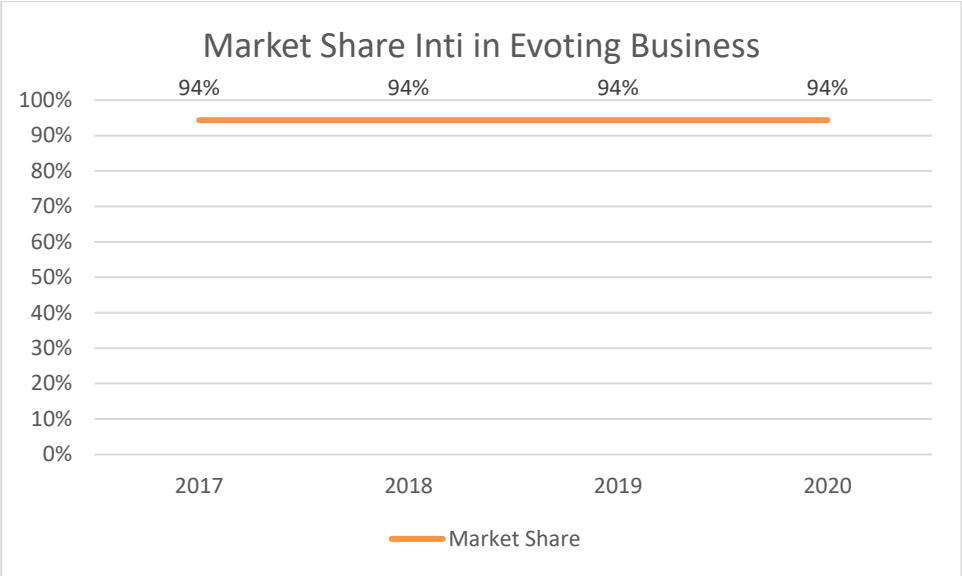

Figure 1. Market Share Inti in Evoting Business

The implementation of supply chain management strategy also improves the profit of Inti in 2017 to 2020 in compared with before the implementation as shown in graph below.

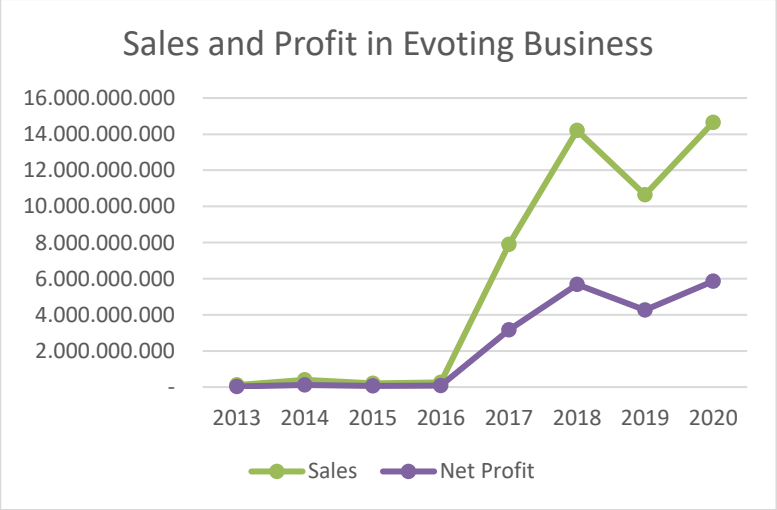

Figure 2. Sales and Profit in Evoting Business

The right choice of supplier, the right place of warehouse and the right demand forecasting and planning, significantly improve Inti's business performance in Evoting business. The peak of sales happened in 2020 with the sales is IDR 14,65 billion and IDR 5,86 billion in Profit.

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