A Case Study on Improving Business to Business Warranty Returns Warehouse Dock to Receipt Throughput Time In Sustaining Customers Satisfaction

By

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Abbreviation Definition

1) APAC : Asia Pacific
2) ASMO : Americas Sales & Marketing Organization
3) B-to-B : Business to Business
4) CRAM : Customer Returns Account Manager
5) EMEA : Europe, Middle East and Africa
6) LOG : Logistics Organization Group
7) PSS : Post Sales Support
8) IJKK : Intech Japan Kabushiki Kaisha
9) OLAP : Online Analytical Processing
10) PRC : People's Republic of China
11) RL : Reverser Logistics
12) RMA : Returns Material Authorization
13) RPM : Returns Product Management

Abstrak

Pengeluar-pengeluar utama di dalam pelbagai industri memberi tumpuan kepada memperbaiki proses *reverse* logistik untuk mendapatkan semula hasil pendapatan dan mengekalkan pelanggan. Waranti memain peranan yang penting dalam keseluruhan procses rantaian bekalan. Ianya menambahkan nilai dan mutu perkhidmatan sejerusnya meningkatkan serta mengekalkan kesetiaan pelangan.

Projek pengurusan kajian kes meneliti secara mendalam proses *reverse* logistik, mengkaji cabaran-cabaran proses waranti yang dihadapi oleh bahagian *reverse* logistik di sebuah syarikat semikonduktor terkenal di dunia. Divisyen *Post Sales Support (PSS)* adalah satu fungsi dalam rantaian bekalan Intech. PSS telah memainkan peranan penting kepada kemajuan yang dicapai dalam menyediakan penyelesaian *reverse* logistik untuk Intech dan pelanggannya.

Laporan ini bertujuan untuk menganalisis aduan pelanggan strategik yang berkaitan dengan kelewatan pengeluaran kredit RMA yang berpunca dari salah satu sektor proses yang menyebabkan masalah ini. Oleh itu, kajian kes ini adalah bertujuan untuk mengenal pasti dan menangani punca sebenar yang menyebabkan penangguhan *dock to receipt* di gudang RMA Pulau Pinang. Ia juga adalah bagi memperbaiki dan meningkatkan prestasi masa pemprosesan untuk *dock to receipt*.

Projek pengurusan analisis kes menggunakan empat peralatan analisis iaitu Analisis Proses Aliran, Analisis Punca dan Kesan dan Analisis 5 *Whys* untuk mengenal pasti punca sebenar kes. Terdapat empat strategi dan cadangan untuk mengoptimumkan proses dan penambahbaikan berterusan dalam menangani jurang proses dock to receipt.

Abstract

Leading manufacturers in various industries are focusing on improving the reverse logistics process in order to recapture revenue and retain customers. Warranty returns plays a vital role in the entire supply chain network. It delivers value by enhancing higher levels of customer loyalty & retention.

The management project case study takes a vertical look at reverse logistics, examining the warranty returns challenges faced by the reverse logistics division in a well-known semiconductor corporation. The Post Sales Support (PSS) division is a function within the organization's supply chain and has been instrumental to the progress achieved in delivering reverse logistics solutions for Intech and its customers.

The purpose of this report was to analyze the strategic customer complaint related to delay of the RMA credit issuance due to one of process sectors that caused the problem. Hence, the case study is aiming to identify and address true root causes that caused dock to receipt delayed at the Penang RMA warehouse. It is also to improve and enhance the dock to receipt performance throughput time.

The management project case analysis uses three analysis tools that are the Process Flow Analysis, Cause and Effect Analysis and 5 Whys Analysis to identify the case issue true root causes. There are four strategies and recommendations for process optimization and continuous improvement in addressing the dock to receipt process gaps.

Executive Summary

The Post Sales Support (PSS) is a division within the supply chain of Intech. This division manages the warranty returns from the world's largest semiconductor manufacturer's customers across the globe. The PSS is a customer centric organization which is proud of the improvements that have been achieved in delighting the customers in reverse logistics solutions.

Warranty returns is also known as Reverse Logistics (RL). It plays an important role in an organization's entire supply chain network. Customers may return product to manufacturers due to various reasons, such as the product does not meet the quality and specification, the product is defective within the warranty period or there is excess inventory and other reasons.

In today's competitive business environment, the ability of reverse logistics to serve an increasingly demanding customer becomes more and more difficult and challenging. The case study problem involves the dock to receipt delay at the Penang RMA warehouse which caused the business to business customer uneasy and furious due to their RMA credit was not credited at the stipulated time.

Based on the issue scenario discussed above that faced by the APAC & PRC GLR team, the case study research objectives are to identify the true root causes of dock to receipt delayed at the Penang RMA warehouse and attempt to solve the issue by improve and enhance the RMA shipment dock to receipt performance throughput time.

Data was collected the direct customer throughput time online analysis process (OLAP) cube and PSS return product management authorization credit indicator report. Data were analyzed case issues. Beside that interviews and on-site visit were conducted together with the process owners to have a better understanding about the process flow. The case study uses the process flow identification, cause and effect analysis and five whys analysis are the analysis tools that can lead to sustained improvement of processes through greater communication, understanding and systematic problem solving. Process flow identification was drawn during the on-site observation to have a better understanding if the entire dock to receipt process at the Penang RMA warehouse. Cause and effect reveal six potential root causes. The causes were further analyzed using 5 Whys analysis to peel off the issue symptom to identify the true root cause.

There were four true root causes are identified, namely incompleteness of return address information, poor resource planning, lack of tool and process automation and lack of collaboration.

After taking into the consideration of the case analysis, four recommendations were proposed. The recommendations are to ensure complete and accurate return address, advanced forecasting and planning, automate docking process and embrace collaboration. There were 8 action items being identified and to be accomplished by the process owners based on these four proposed recommendations. Each action item has been assigned an owner with due date as the project accomplishment deliverables measurement which documented in the Lean A3 template.

To summarize, warranty plays a vital role in the entire supply chain network. The practice of PSS to track and measure reverse logistics throughput time at all the sectors right from the RMA returns authorized by the customer to the credit issuance for the customer is the right approach, so that delays in the process can be triggered for prompt actions to be taken. Through the efficient execution of service, customer-centric supply chain focuses on what customers really care about and agile reverse logistics solutions, these help organizations to accelerate business growth by elevating brand loyalty, increasing customer retention and satisfaction, and boosting revenue. All in all, the PSS reverse logistics solutions deliver values by providing higher levels of customer loyalty & retention and strengthen the brand of Intech.

1.0 Introduction

Today, most of the best of class manufacturing organizations have created their own warranty returns service organizations and are realizing the importance of managing warranty returns efficiently. There are considerable monetary values attached to warranty returns cycles in particular the loss of customer loyalty of an unsatisfied customer because of delay in warranty returns of faulty product. This loss can be easily associated with loss of business revenue, market share and translated into other financial numbers. Therefore, it is important that manufacturer handles warranty returns in an effective manner in order to enhance the brand reputation, sustain and strengthen customer's relationship and also to minimize warranty returns associated costs and risks.

There is no exception for Intech Corporation, the world's largest semiconductor manufacturer leading in computer, networking & communications products which has its own warranty returns service organization to manage the returns from its customers across the globe. So who manages warranty returns from the reverse logistics perspective for Intech? It is the Post Sales Support, a division of Corporate Planning and Logistics Group of Intech's supply chain structure.

The management project case is written to describe the warranty returns service provided by Intech to the business to business customers (B-to-B) through its warranty returns service division, the Post Sales Support (PSS). The case issue is focus on the

issue faced by Asia Pacific and People Republic of China Post Sales Support (APAC & PRC PSS) team which is related to Penang RMA warehouse dock to receipt throughput time delay challenge.

1.1 The PSS RMA Warranty Returns for Credit Performance Metrics

According to Peter Drucker, a management consultant quoted, "If you can't measure it, you can't manage it". At Intech, the Post Sales Support division has established a metric to measure performance of RMA returns for credit which named as the Call to Credit. This performance metric is measured with a stretch goal of 19 days throughput time as shown by Table 1.1.

Table 1.1: RMA for Credit Warranty Returns Sectors and Throughput Time

RMA for Credit Warranty Returns Sectors	**Throughput time (Days)**
1) RMA is requested until authorizes (**Call to Order**)	2 days
2) Customer until RMA collected by forwarder (**Notify to Collect**)	5 days
3) RMA is collected by forwarder until shipped to Intech **(Collect to Ship**)	6 days
4) RMA is dock at warehouse until receives in system (**Dock to Receipt**)	4 days
5) Credit is issued to customers (**Receipt to Credit**)	2 days
Call to Credit	**19 days**

Source: PSS Warranty Policies

What does the Call to Credit metric means to the customer and PSS? The Call to Credit is a standard measurement goal to better understand how to service customers from an end-to-end perspective. This metric is used by PSS to measure and gauge the warranty service performance provided to all customers across the globe. The APAC & PRC team has communicated this standard performance measurement goal to all the B-to-B customers in the region of APAC and PRC. This performance metric is to monitor and ensure seamless execution of RMA returns, right from the RMA order issuance till the customer received their RMA credit. This means that within or less than 19 days, the customer shall expect to receive their RMA credit. Once the RMA credit is credited to B-to-B customer, they can utilize the credit for the purpose of repeat purchases from Intech for similar product and other alternate products.

As shown in above table 1.1, the end-to-end Call to Credit throughput time can drill down into details which consist of five sub sectors that made up the total 19 days throughput time computation. The breakdowns are: 2 days of call to order; 5 days of notify to collect; 6 days of collect to ship; 4 days of dock to receipt and finally 2 days of receipt to credit. All these sub sectors are interlinked with each other.

1.2 Problem Statement

In the biweekly meeting, Mr. G, the RMA front-end contact center senior agent flagged up customer's escalating issues to APAC & PRC front-end team and CRAM team. Mr. K, who is the CRAM and sponsor for RMA back-end is recognized that in the workweek 32 (Intech working calendar), four of the strategic B-to-B customers have escalated to Mr. G, raising their concerns about their RMA return which was not credited within the stipulated throughput time of 19 days.

Mr. G pointed out to Mr. K that he suspected the customer complaint of RMA returns which was not credited was caused by the delay of dock to receipt at Penang RMA warehouse. He further disclosed his ambiguity with the weekly Penang RMA warehouse dock to receipt performance report for workweek 42 (Intech's workweek calendar), which is a consolidated report from both FedEx's Master File and Unissued Credit Report.

The weekly performance report indicates there were 116 RMA orders which have been picked up by FedEx (appointed forwarder for RMA shipment) from a total of thirty B-to-B strategic customers, which were successfully delivered to the Penang RMA warehouse. Out of these 116 RMA orders, there were 4 RMAs from 4 strategic customers which were being delayed in dock to receipt. The dock to receipt throughput

time being delayed between 5 days to 10 days compared to service level agreement throughput time of 4 days.

Because of the dock to receipt delay, this has caused the receipt to credit not being able to be carried out. Subsequently, the customers did not receive their RMA credit as per the stipulated throughput time. The potential impact of this delay may cause the customers not able to close the RMA credit timely with their internal finance department. As a result, the customers are not able to utilize the RMA credit timely for repeat purchase which is likely to impact the quarter sales revenue and customer satisfactory level.

In fact, the B-to-B customers are the ones that contribute to the most revenue generation through continuity of repeat purchases via up selling and cross selling. Hence, it is vital to sustain with these B-to-B customers in particular the strategic customers as their sale revenues are huge and impactful. “It costs five to ten times as much to get a new customer as it costs to keep an existing customer” (Gummesson, 1999)

Assuming that one of the unsatisfied strategic customers, who is contributing 2% of sale revenue intends to discontinue purchase from Intech due to sour business relationship caused by flaw warranty returns process. Intech has been a USD $50

billion net revenue corporation for the past 3 financial years, 2011-2013 (Intech Corporate Overview Report, 2014). What will be the profound impact to Intech's revenue if the customer opts to other alternate supplier? Intech is at risk of USD $1 billion loss in revenue!

Furthermore, Intech is aggressively targeting on the new business markets on top of its traditional dominant PC market share. The new business markets are tablet and mobile, wearable and Internet of Things (IoT) to strengthen its market share in these market segments, calling the latter "Intech's next big business". For example, Intech is having a strong strategic partnership with one of the current Taiwan strategic customers in the tablet and smartphone businesses.

Therefore, it is important that PSS proactively listens to and addresses the concerns voiced up by these unsatisfied customers. If not, Intech may at risk of losing of these B-to-B customers due to product warranty returns shortcomings. Ironically, maintaining the top notch warranty returns service level in order to sustain these strategic customers and at the same time to gain new customers are the top priorities for the support divisions like PSS.

Based on the issue scenario discussed above that faced by the APAC & PRC GLR team, the case study research questions (refer Appendix 1 - The Management Project Case study Research Plan) focus and address the case issues from the following perspectives:

1) What is the real root causes of dock to receipt delayed at the Penang RMA warehouse?

2) How to improve and enhance the RMA shipment dock to receipt performance throughput time?

2.0 Industry Background

Traditionally, the manufacturing and servicing industry focus heavily on how to improve the forward logistics, for example reduce cycle time for product innovation, shorten time to market and improve in order fulfill rate. This leads to forward supply chain visibility to become an important factor which the customer evaluates before choosing a manufacturing and servicing provider as a supplier of choice.

However, the key to a successful supply chain within today's competitive business environment is no longer only planning on how to distribute your product, but how to bring back customer returns. As the competitions get intensifying, the paradigm is shifting gradually whereby the warranty returns are becoming a competitive edge for today's business sustainability.

In business, the customers may return product to manufacturers due to various reasons, such as the product does not meet the quality and specification, the product is defective within the warranty period or there is excess inventory and other reasons. In the supply chain world, warranty returns is also known as Reverse Logistics (RL). It plays an important role in an organization's entire supply chain network.

The function of reverse logistics is to facilitate customers who like to return their purchase items and to satisfy the customers in the return cycle. The Reverse Logistics Executive Council defines reverse logistics as "The process of moving goods from their typical final destination to another point, for the purpose of capturing value otherwise unavailable, or for the proper disposal of the products." And De Brito further suggested the term of Reverse Logistics in the frame of supply chain management and stresses that not only the reverse streams should be considered, but also the integration with the forward streams, a closed loop supply chain or a more embrace term like simply loop supply chain or supply chain loop (De Brito et al. 2002).

Warranty returns is deemed as the protection and guarantee for the customers, sellers and manufacturers. It also symbolizes the quality level of the product based on the return rate. The purpose of a warranty is to provide comfort to the other party of the contract that a state of affairs will be legally binding. Thus, the warranty policies T&Cs are explicitly the customer's rights and entitlements. Therefore, manufacturer like Intech needs to ensure the warranty policies and programs are competitive and align to support business growth strategies while balancing costs and customer requirements. By implementing an effective reverse logistics program, it can help and offer the OEM company opportunities to identify problem areas and patterns of defects, minimize the amount of returns a company receives via RMA avoidance.

In recognizing the importance of warranty returns to an organization's entire supply chain in sustaining customer satisfaction and customer retention, most of the best of class manufacturing organizations have an established warranty returns service organization The signifying organizations are likewise Hewlett Packard, Dell, IBM, and so forth to name a few of them.

Figure 2.1 shows the Technology sector of computer industry's warranty claims & accrual rates from 2003-2010. In the early 2003 and 2004, both the warranty claims & accrual rates were higher in the range between 3.2% and 4.0% as a percentage of hardware revenue.

Technology Sector of Computer Industry
Warranty Claims & Accrual Rates, 2003-2010

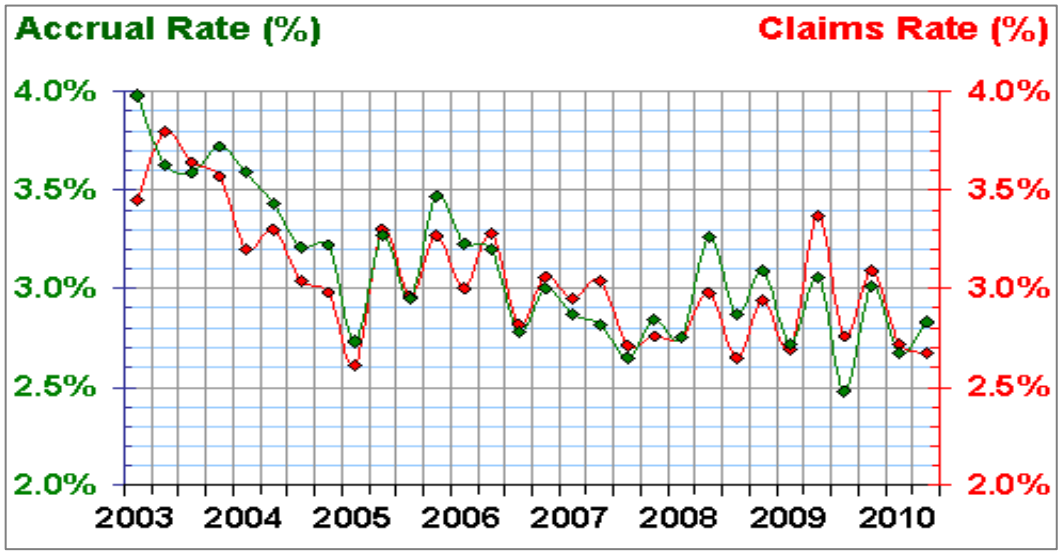

Figure 2.1: Computer Industry Warranty Claims & Accrual Rates, 2003-2010
Source: Warranty Week Newsletter, September 16, 2010

The situation changed when the computer manufacturers started to recognize the importance of reverse logistics add value to business competitive advantages. For example, Hewlett-Packard, Dell and other manufacturers began to focus intensely on warranty costs, waste, fraud, and the efficiency of the warranty returns process. As a result, the rates began to fall for the past six years from 2005 to 2010, as shown by figure 2. Both the claims and accrual rates are kept in the range between 2.5% and 3.5% of sales revenue which was about 0.5 to 1.0 % lower as compared to 2003 and 2004 (Warranty Week SEC Data, 2010).

In the technology sector, Intech is the world's leading semiconductor manufacturer. The company is a notable leader in computing innovation. The company designs and builds the essential technologies that serve as the foundation for the world's computing devices. This semiconductor company (a USD $50 billion revenue company) has achieved 25 plus consecutive years of positive net income and was named by Interbrand as one of the Top "Ten Most Valuable Brands in the World" (Interbrand, 2013). Currently, Intech listed as Rank 47 of "Fortune's World's Most Admired Companies" (Fortune, 2014).

Intech has recognized that focused delivery of customer value through a well-executed supply chain strategy can greatly impact business results. The semiconductor company, which is ranked among the Top 10 supply chain companies by the Gartner Supply Chain Top 25. Intech ranked number 8 in 2014, number 5 in 2013 and number 7 in 2012

(Gartner, 2014). The Gartner Supply Chain Top 25 identifies the companies that best exemplify the demand-driven ideal for today's supply chain and document their best practices. The ranking score is based on a combination of the peer and Gartner opinion, return on assets (ROA), inventory turns and 3 year revenue growth (Gartner, 2014).

3.0 Company Background

The history of company can be traced back to 1968, with the company headquartered in Santa Clara, California. Today, Intech is the leading manufacturer of computer, networking & communications products. It has 170 sites and presence in 66 countries with about 105,000 employees worldwide (Intech Corporate Overview Report, 2014).

In order to better understand the "voice of the customer" Intech implemented a Customer Excellent Program survey over a decade ago. The Customer Excellent Program survey is a structured process for obtaining feedback through an annual survey According to 2013 annual Customer Excellent Program survey conducted by Walker, a B-to-B customer intelligence consulting firm. From the survey, the customer verbatim indicates that Intech's product returns service is "World Class" and is the highest rated service Intech provides in the eyes of customers (Intech's Customer Excellent Program Survey, 2013).

3.1 Intech Corporation Vison and Mission

The corporation vision statement is "When it comes to smart and connected devices, Intech is the BEST". Over the years, Intech has established a strong heritage of innovation which continues to expand the reach and promise of computing in advancing the ways people work and live.

3.2 About Post Sales Support (PSS)

Post Sales Support is a function within Intech's Supply Chain. PSS is a division of Customer Fulfillment Planning & Logistics Group within Manufacturing and Technology Group. This division is chartered to deliver reverse logistics solutions for Intech and its customers. PSS has been instrumental to the progress achieved in delivering reverse logistics solutions for Intech and its customers. PSS provides support for all Intech products to over 20,000 customers across more than 100 countries worldwide. One of PSS's main value propositions is delivering customer excellence to ensure we build on brand loyalty and retention (Post Sales Support Overview Report, 2014).

The Post Sales Support is a customer centric organization which is proud of the improvements that have been achieved in delighting the customers in reverse logistics solutions which include of customer services, warranty entitlement, returns management, information systems, asset recovery and recycling. According 2011 benchmarking report conducted by Bain & Company, a management consulting firm, PSS's service delivery exceeds competitive and highly regarded by customers. The RMA credit throughput time outperforms competition (Bain Benchmarking Report, 2011).

3.2.1 PSS's Mission

The Mission of PSS is pledge to "Be the reverse logistics service solutions and service provider of preference for both Business Units (internal customers) and Intech's customers (external customers)". This mission statement is congruent well the Intech's supply chain vision that is to "Delivering Intech's sustainable future through the best supply chain solutions".

3.2.2 The Organizational Structure

The Post Sales Support is a division within the organizational structure of Corporate Planning and Logistics Group. The Corporate Planning and Logistics Group is chartered for Intech's overall supply chain functions in terms of planning and logistics (both forward and backward) perspectives.

The Corporate Planning and Logistics Group is headed by the leadership of vice president of Manufacturing and Technology Group cum general manager of Corporate Planning and Logistics Group and is roll under Manufacturing and Technology Group.

Under the leadership of senior vice president, Manufacturing and Technology Group is chartered for Intech's overall technologies and manufacturing prospect. It is one of the main functional groups within the Intech Corporation as illustrated by Figure 3.1.

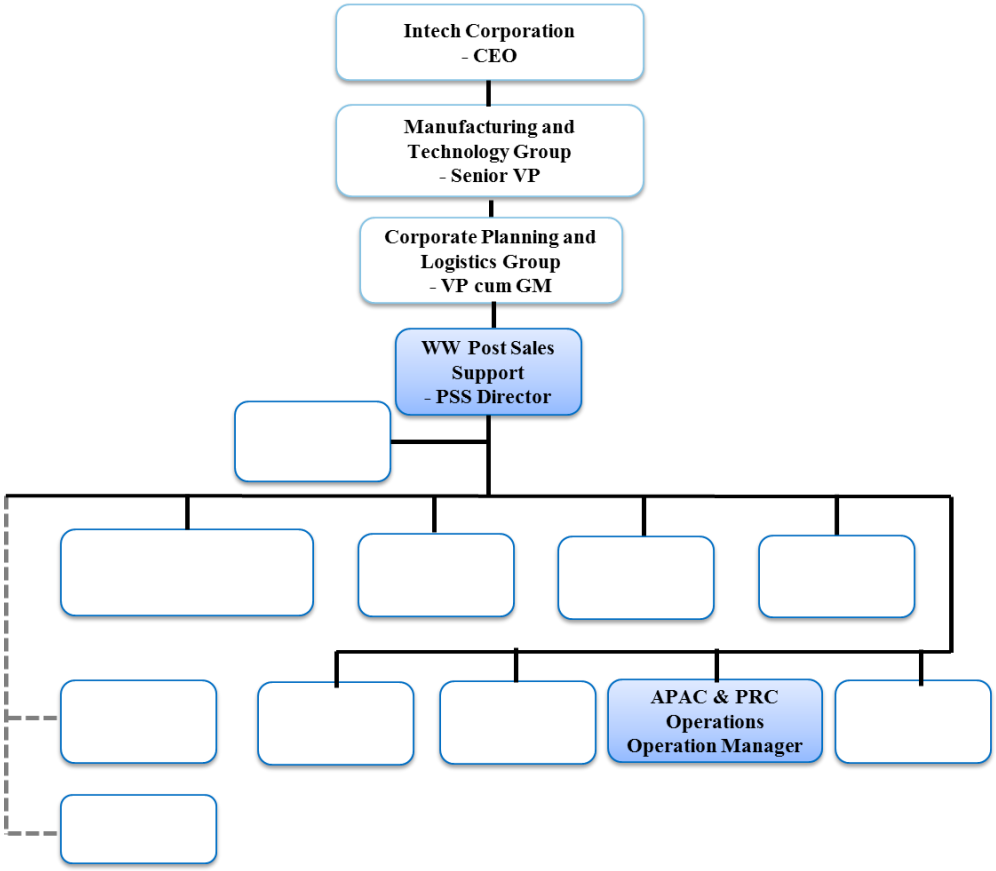

Figure 3.1: Manufacturing and Technology Group**,** Corporate Planning and Logistics Group and Post Sales Support Organization Structure
Source: PSS SharePoint

The Post Sales Support (PSS) encompasses organizations which spread across five geographies as shown by Figure 3.2.

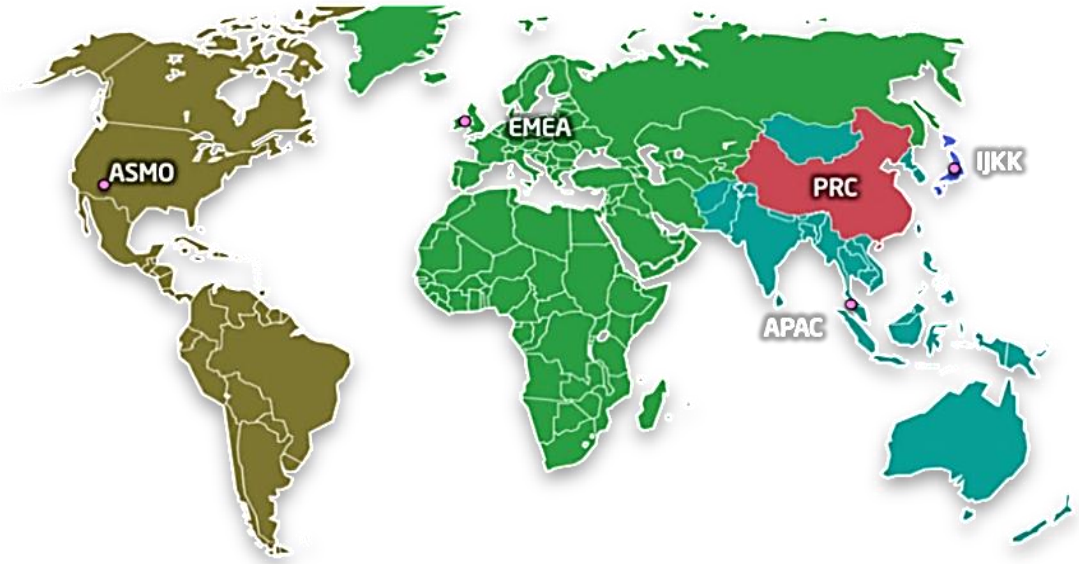

Figure 3.2: Post Sales Support Networks
Source: PSS Overview 2014 Report

These geographies are based on sales regions namely; Asia Pacific (APAC) & People's Republic of China (PRC), Americas Sales & Marketing Organization (ASMO), Europe, Middle East and Africa (EMEA) and Intech Japan Kabushiki Kaisha (IJKK). With this globally dispersed and strategically located organization networks, it aims to support key strategic customers across the globe.

3.2.3 APAC & PRC PSS Operations Organization Structure

APAC & PRC PSS Operations Organization is the geographical function group within the Post Sales Support (PSS). The organization consists of the Front-end group, Back-end group, Engineering Support group and Strategic group as depicted by Figure 3.3.

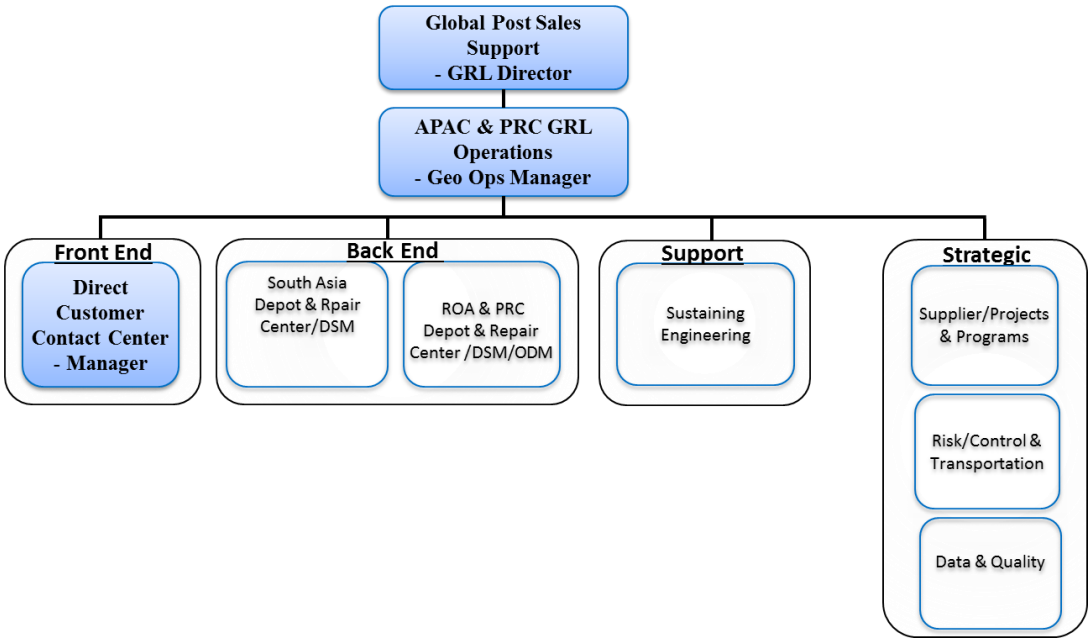

Figure 3.3: APAC & PRC PSS Operations Organization Structure
Source: PSS Overview 2014 Report

The APAC & PRC PSS Direct Customer Returns Centre is the front-end group that manages all the direct customers warranty returns. Meanwhile, the Back-end group is divided into two teams that are the South Asia (India, Pakistan and Sri Lanka) team and The Rest of Asia and PRC team. This group is chartered to handle the indirect customer warranty returns, third party logistics warehouse and repairing activities. And the

Engineering group provides the sustaining engineering and testing. Lastly, the Strategic group provides the business solutions in terms of supplier management, risk & control and quality and data respectively.

3.2.4 APAC & PRC PSS Direct Customer Contact Center Organization Structure

The APAC & PRC PSS Direct Customer Returns Service Centre which is based in Penang is chartered to provide the warranty return to Intech's direct customers within APAC & PRC region. The group is led by the Front-end Direct Customer Contact Centre Manager. There are a total of seven Customer Returns Account Manager (CRAM) and are reporting to APAC & PRC Contact Centre Manager as illustrates by Figure 3.4.

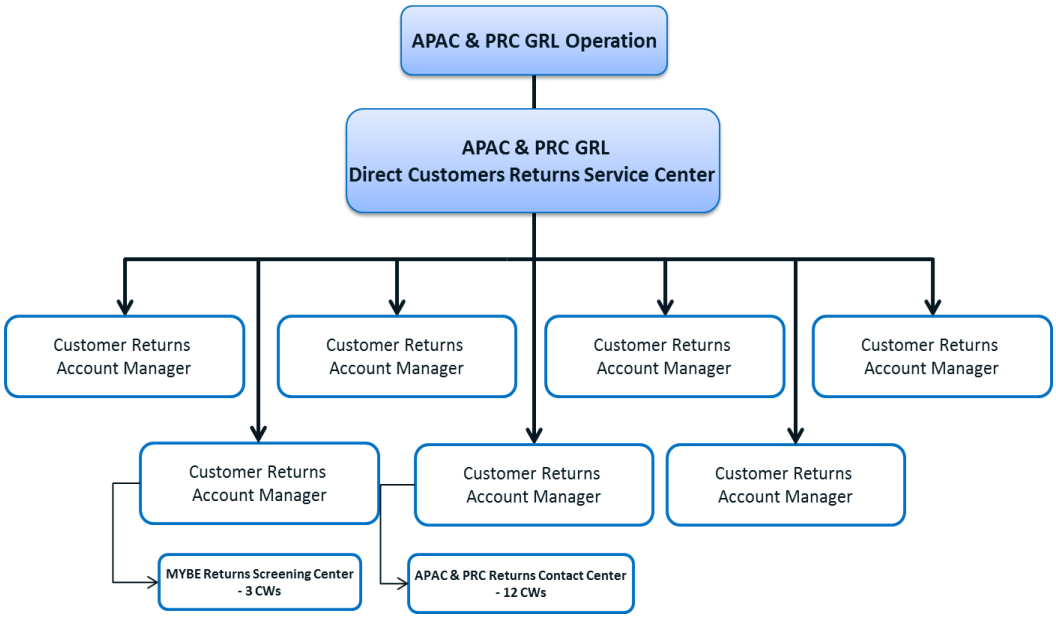

Figure 3.4: Direct Customer (B-to-B) Returns Contact Center Organization
Source: PSS Overview 2014 Report

The CRAMs are being assigned to manage business to business direct customer accounts by nature of customer types which consist of multinational corporation, original design manufacturer, original equipment manufacturer & Distributor across the APAC & PRC regions. In addition, 2 of the CRAMs are also the sponsor and responsible for outsourced RMA front-end contact center and RMA back-end receiving and screening.

3.2.5 Business to Business Customer Warranty Service Offerings

There are four categories of warranty service to the B-to-B customers as following:

i) Technical In-Warranty Returns

These are the returns of defective on arrival or defective product which has failed within the product's warranty period. Customer may contact the Customer Returns Account Manager (CRAM) for assistance or they may apply online via Electronic Service Request. The technical warranty returns consist of i) Technical in-warranty Return Material Authorization (RMA) returns for credit ii) Product quality recall returns for credit and iii) Direct Returns Authorization returns for repair/exchange.

ii) Administrative RMA Returns

These are the non-technical returns due to an administrative error made by Intech. It may consist of either of the errors below such as duplicate order, over shipment, wrong destination, wrong product, wrong shipping date and in transit shipment damage and others. The customer contacts the CRAM to assist in non-technical administrative returns for credit.

iii) Exceptional RMA Returns

These are the returns from customer due to discretionary exceptional case on business call. The customer needs to engage with the customer business analyst for exceptional returns request. The exceptional returns are subject to product's Business Unit and Product Marketing Business Planning group approval who are managing and owning the customer business account. Approval is granted before the customer returns the stock rotation for credit.

iv) Stock Rotation RMA Returns

These are the quarterly non-technical returns authorized by Intech to the approved distributor who has ordered too much of a particular Intech product which resulted in excess inventory. The distributor utilizes the Intech stock rotation program which PSS

manages to return the excess product. The distributor submits their stock rotation request via Electronic Service Request based on the quarterly entitle allowance and returns the product for credit. The distributor then uses this credit to purchase alternative Intech products. The returned inventory is put back into finished goods and then sold to other Intech customers contributing to revenue stream.

4.0 Case Issue

Face to face discussions have been conducted with Mr. K, who is the customer returns account manager and RMA back-end sponsor from the Post Sales Support (PSS) Division, Ms. N, who is the RMA warehouse coordinator from the Logistics Organization Group (LOG) and Mr. R, who is the FedEx in-house service agent to understand the case issue and to have more detail information regarding the delay of RMA shipment dock and receipt at the Penang RMA warehouse.

4.1 RMA Call to Credit Throughput Time

Accordingly to Mr. K, the APAC & PRC RMA team is conducting a biweekly meeting attended by the CRAM and the RMA frond-end agents. In the meeting, the team reviews the RMA shipment status and RMA Call to Credit throughput time in goal performance indictor.

The RMA Call to Credit 19 days throughput time is a service level stretch goal which PSS established with all direct customers as the measurement of service performance. The throughput time trigger clock starts right from the RMA order issuance, collect and ship to Penang RMA warehouse to perform dock and receipt into Returns Product Management (RPM) system (a web based tool used as the system of record in managing customers returning product for credit or repair). Upon verifying and testing

the units to confirm these are valid returns and genuine units, RPM system will interface with SAP system to issue credit for customer and the throughput time clock will then end. Figure 4.1 shows the whole RMA call to credit process flow and its throughput time.

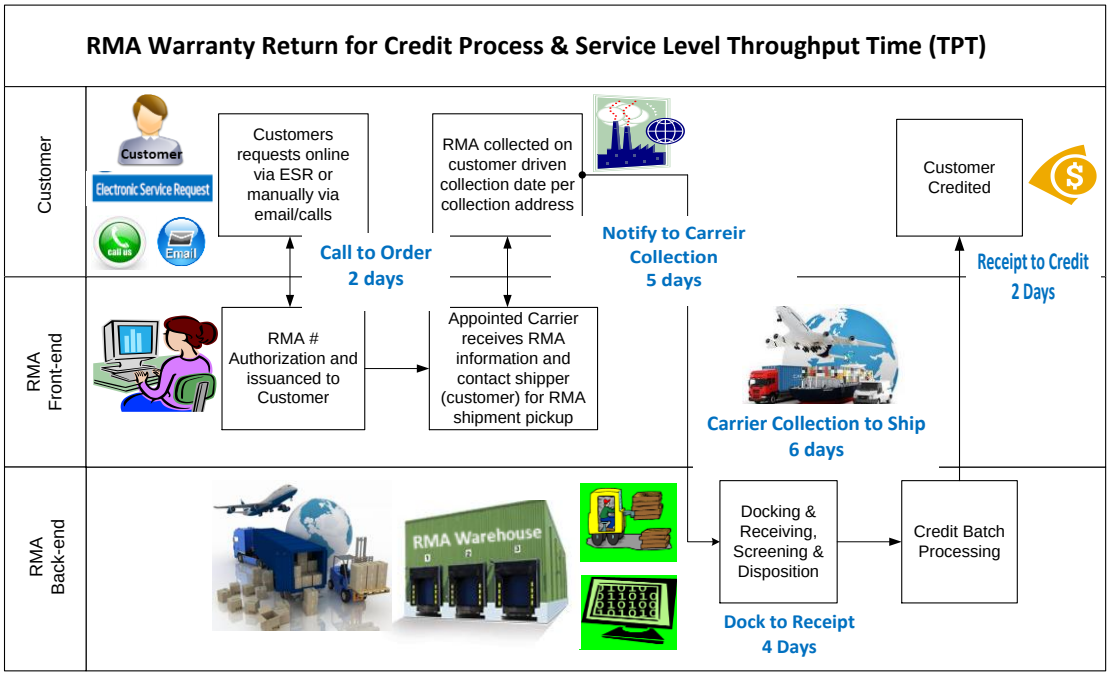

Figure 4.1: RMA Process Flow & Service Level Agreement Throughput Time
Source: PSS Warranty Policies

All the sectors along the Call to Credit are interlinked and any jerk of delay in one of process may impact the following process throughput time and causes the domino effect on the end-to-end Call to Credit throughput time performance of 19 days as shown by Figure 4.2.