Designing an Effective Business Transformation Plan for Vehicle Repair Workshop

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วัตถุประสงค์ในการทำงานวิจัยเล่มนี้ เพื่อที่จะออกแบบและพัฒนาแผนการเปลี่ยนแปลงของธุรกิจอู่ซ่อมรถยนต์ให้เป็นไปอย่างมีประสิทธิภาพในสภาวะการแข่งขันในปัจจุบัน งานวิจัยเล่มนี้จะเป็นคู่มือแนะนำและให้ข้อมูลเชิงลึกเกี่ยวกับวิธีการปรับเปลี่ยนธุรกิจอู่ซ่อมรถในมุมมองของการบริหารการจัดการ โดยการออกแบบกระบวนการทางธุรกิจใหม่เพื่อที่จะปรับปรุงในเรื่องของความพึงพอใจของลูกค้า ในงานวิจัยเล่มนี้ การวางแผนในการปรับเปลี่ยนธุรกิจสามารถแบ่งออกเป็น 5 ขั้นตอน 1)เริ่มก่อตั้งโครงการและทีมงาน 2) ทำความเข้าใจเกี่ยวกับสถานการณ์ปัจจุบันของธุรกิจ 3) วางวิสัยทัศน์ของธุรกิจในอนาคต 4) แนะนำกระบวนการใหม่ที่เหมาะสมกับธุรกิจนี้ 5) ตรวจสอบผลกระทบที่เกิดขึ้นจากกระบวนการการดำเนินงาน สำหรับการวิเคราะห์ปัจจัยภายใน ข้อมูลที่ได้ ได้จาก ตัวอย่างลูกค้ารวมกับการสัมภาษณ์ของผู้บริหารระดับสูงและพนักงาน ซึ่งช่วยในการตอกย้ำถึงความเข้าใจของสมาชิกที่เกี่ยวข้องในเรื่องของธุรกิจและข้อบกพร่องขององค์กร ในการวิเคราะห์สภาพแวดล้อมทางธุรกิจนั้น เครื่องมือที่ใช้จะประกอบไปด้วย SWOT, Porter’s 5 forces, customer consumption and PESTEL

นอกจากนี้ ในปัจจุบัน กระบวนการ As-is ได้นำมาใช้ในกระบวนการวิเคราะห์เพื่อที่จะระบุสาเหตุของปัญหาที่เกิดขึ้น ใน แต่ละกระบวนการที่ทำการวิเคราะห์รวมถึงกระบวนการย่อยในกระบวนการนั้นๆด้วย ส่วนปัญหาที่เกิดขึ้นจากการวิจัยสามารถแบ่งออกเป็น 4 ปัญหาหลัก คือ จาก คน, กระบวนการ, นโยบาย, และระบบ อันที่จริงแล้ว คำแนะนี่ได้นำเสนอในงานวิจัยเกี่ยวกับการปรับเปลี่ยนธุรกิจใหม่ สามารถนำไปใช้เป็นกระบวนการหลักในการแก้ไขปัญหา ต่อมาเป็นการวางแผนให้เหมาะสมกับความรับผิดชอบในแต่ละฝ่าย สุดท้ายคือการกำหนดแนวคิดและวิเคราะห์ถึงผลกระทบที่เป็นไปได้ต่อธุรกิจ เพื่อที่จะสามารถวางแผนและตั้งรับกับสิ่งใหม่ที่จะเกิดขึ้นกับธุรกิจในอนาคต

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EE HOONG LIEW: Designing an Effective Business Transformation Plan for Vehicle Repair Workshop. ADVISOR: ASSOC. PROF. PAVEENA CHAOVALITWONGSE, Ph.D., 205 pp.

The main purpose of this thesis is to design and develop an effective business transformation plan for a vehicle repair workshop that operates in a competitive situation. This research will conceptually provide insight and guidance on how to transform a traditional vehicle repairs business from a management standpoint, especially by re-engineering the existing business processes in order to improve customer satisfaction. In this thesis, the principles of transformation planning can be divided into five major steps, which are 1) Initiating a research project team, 2) Understanding the current state, 3) Visioning the future of the company, 4) Creation of new business processes, 5) Determine the impact upon business performance. Regarding the internal analysis, data from customer samples and interviews with the company's executives and staffs, it reinforces the related members to understand the capabilities and deficiencies of the business. In order to perform environmental analysis, SWOT, Porter's 5 forces, lean consumption map and PESTLE analysis will be utilised.

Besides that, the current or As-Is process is analysed in order to identify the root cause of each problem in each sub-process. Those issues are categorised into four elements, such as People, Process, Policy, and System. Indeed, high-level recommendations of the new process will be the key priorities to solve each issue and the newly proposed of the process design will be called as To-Be process. Ultimately, determining the future impacts upon the business performance and validation of the conceptual transformation plan are the best possibilities to understand the future of the business performance.

Department:	Regional Centre for Manufacturing Systems Engineering	Student's Signature .....
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CHAPTER 1

INTRODUCTION

1.1. Background of the Research

To run a traditional automotive repair business in this decade, none of us could actually predict or guarantee the future of the business. Obviously, sustainable elements that actually constituted the success of automotive repair business are still mysterious in this case, especially the needs to survive in this competitive business world. As is known to all in the development of automotive repair industry, automotive mechanics or "car fanatics" generally are passionate to establish automotive repair businesses, due to some sort of fundamental mechanical abilities or knowledge of repairing a car. For this reason, this phenomenon can happen in everywhere, as can be seen from the street, most of the traditional vehicle repair workshops are privately owned, and subsequently the business will inherit by the next generation.

In recent years, most of the people may have heard of some downsides from automotive repair businesses, especially those are extremely cost oriented, dishonest and unethically handling the automotive waste and oily residue, autonomously operates based on any assumptions or past experiences. In reality, these kinds of automotive repair businesses have been rooted there for so many years. Indeed, it was continually influencing towards the community. However, until now, customers are still unable to see any changes to the above business in today's fast moving environment. Subjected to this phenomenon, automotive technicians are more likely to behave as ***"fire-fighters"*** in order to solve the urgency situation, and even work late to carry out extra boisterous repairs work, that is to say in operation perspective, vehicle repair is always not right at the first time.

Particularly, traditional automotive repair business may likely to stay in the comfort zone as well as the staffs unable to see the immediate needs of change; as a result, they may facing some significant challenges that haven't been addressed, especially the retention of existing customers and reduce employees turnover. Indeed, for so many years, vehicle repair business may constantly plunge in the same revenue level, despite they furnished with vast knowledge of vehicle repairing.

Frankly speaking, a common example could always happen in traditional automotive repair workshop, is particularly when sometimes customer may ask this question, ***"Do you have another way to solve it?"*** Perhaps the only answer will be: ***"In a word "No", because that's the way we've done it for so many years".*** Indeed, these people may do the same thing repeatedly, without embracing the changes or even never looking for any improvements. For this reason, everything will be falling through the cracks and gradually forming change-resistant culture throughout the business. However, seriously, traditional business owner, starting from automotive technician are keen to focus on their repairs work. Nevertheless, they may not keep up with the times, especially without looking at the vivid changes of current vehicles model as well as the changes of customer expectations, therefore they still operating their business in the same way for so many years. Ultimately, they may fail to deliver on what they promised to their customers.

In fact, automotive repair business is still heavily involving with many organisational and administrative responsibilities. Meanwhile, automotive repair business is neither single process nor single repairs work. In reality, vehicle repair business is acted as service provider that provides a variety of vehicle repair services, for instance, diagnosing service, troubleshooting, repairing and maintaining the excellent condition for customer' vehicles. When taking all these concerns and issues into account, traditional workshop owners will start to think about: ***"Their out-of-date business model and old boys' management system"***. Finally yet importantly, the independent workshop owners knew they still have to redefine their business model or deploying any changes in their business system, in the long run, to achieve sustainable of the organisation, if not they will be forced to quit workshop business.

1.2. Statement of Problem

1.2.1. Bottlenecks of Traditional Automotive Repair Business

Alongside the background of traditional automotive repair business, in reality, the current trends may perversely affect the business prospect, such as fast paced of advanced automotive technologies, customer perception changes, and competitive business environment. According to (Kotter, 2008), the author of a book, **"A sense of urgency",** the researcher mentioned that people have a real sense of urgency could actually observe the real business opportunities as well as identify the problems behind of their business. Due to today's fast changing business environment, some traditional automotive repair business would gradually unable to survive, hence they may close down or facing acquisition from the strong competitors. Without a sense of urgency, they may not seriously pay attention to those hidden problems; therefore, deficiencies could eternally implant in the essence of their business. Besides that, customers now may have zero tolerance towards a long waiting queue and discouraged to send the damaged vehicle back to the workshop again due to the quality issues are reoccurring. Apparently, given to this sense, speed, quality and cost are the key drivers of the current business.

In the meanwhile, traditional repair business might turn into a crisis if taking all the internal issues and external influences into account. More explicitly, this crisis may lead to declining revenue level, losing their market share, poor reputation, and low customer retention. To be honest, whether they have to give up and leave this business area or they should try to turn this crisis into an opportunity by transforming their companies into a more efficiency and effective organisation is still a question mark here.

By narrowing down this subject, if everyone keeps tracking with the workshop's working flows throughout a vehicle repair business includes enabling steps or people processes, it could probably end up with a chaos condition, as can be seen from figure 1.1, a spaghetti diagram of typical vehicle repair business's shop floor.

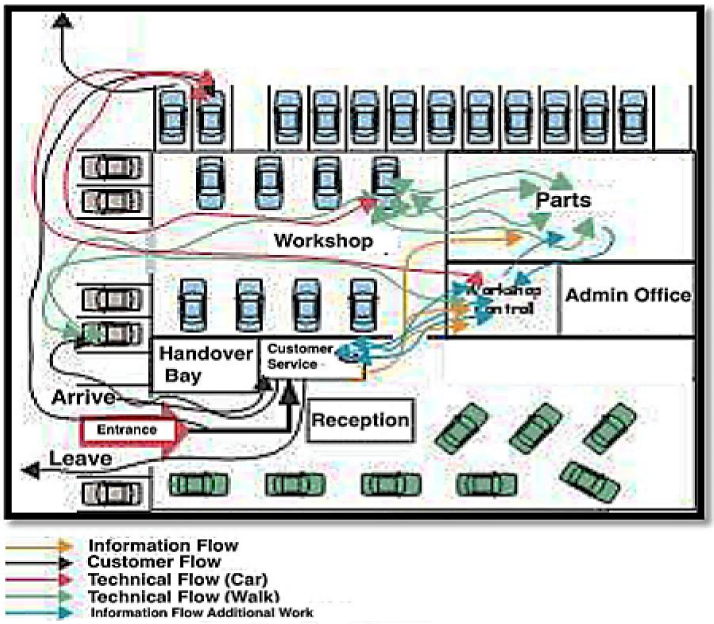


Figure 1.1: Spaghetti diagram of typical vehicle repair business's shop floor (Brunt & Kiff, 2007)

According to (Brunt & Kiff, 2007), this diagram is an example to magnifying the non-value creating activities (Waste) throughout the business processes. As can be seen, there may be some problems in the traditional business's foundation, especially when the internal processes are often wasteful. Certainly, these non-values creating activities are more likely to create multiple redundancies and duplicated work, and then this is the strong argument to demonstrate that it may dramatically affect the efficiency and effectiveness of the business. In lean perspective, none of the customers is willing to pay extra for these activities because it visibly does not create any values to them. Unsurprisingly, non-values creating activities eventually decreasing the customer satisfaction and even customers may have to suffer this awful experience.

1.2.2. Case Study

SHAW Company is the case company of this research. As well, it is a family owned traditional automotive repair workshop that has been established 27 years in Kuala Lumpur, Malaysia. In earlier times, SHAW Company established a dedicated and experienced vehicle technician team. Indeed, they are specialise in repairing all kinds

of accident vehicles, spray painting, insurance handling, and comprehensive & third party insurance claims in Malaysia. Furthermore, SHAW Company multiple car repair services can be described as follow:

- **24 hours Car Towing**
- **Engine/Oil Services**
- **Repairing all kinds of accident vehicles**
- **Spray painting**
- **Breakdown service**
- **Comprehensive & Third Party Insurance Claims**

To be sure, SHAW Company's owner has managed the vehicle repair business in a similar way for more than 20 years. Throughout these years, the owner started to find out that this vehicle repair business has been constantly under pressure due to the shift of business environment; especially, the strong competition came from the dealer network's auto body shop as well as the increasingly complexity of the today's vehicle technology. Likewise, the business profit margin was seriously declining and the business owner struggled for a long time in order to retain the existing customers. Moreover, he never thinks about invest more money into his business to attract new customers or expand his business into a new dealer's auto body shop.

Alongside the external changes in the market, those facts continuously triggered the owner to think about to turn this crisis into opportunity by changing the ways he operates the business, at the same time, transforming case company into a more customer-centric organisation. Initially, this business owner never understands what customer essentially want, and then he still reluctant to change the ways they doing business.

With a sense of urgency, he started to conversation with his previous customers in order to know the reasons behind of why some of the previous customers are more willing to spend their money in dealer's auto body shop. Surprisingly, most of the customers were complaining that they wasted a lot of time to wait for case company's vehicle delivery, solved quality problems reoccur, inconveniences to resend their

vehicles back and so on. At the same time, case company's business owner started to address the internal problems, and he obviously discovered many operation issues on the shop floor. For example, employees spent extra time and more effort for re-working cars, redundant paperwork, missing tools, excessive use of equipment and plenty of unused spare parts, and gloomily incentivizing his customers for unsolved quality problems. At this point, he could not believe that his internal problems could seriously cause his customer to waste time, effort or even losing money to revisit the workshop.

From the elaboration above, this case study could be an interesting topic for academic research. Therefore, this research could help the business executives to review the big picture of case company's business, especially by analysing the current state of case company, in terms of current business environment, customer consumption, stakeholders and the existing vehicle repair processes. In this case, re-engineering the existing processes and refocusing the customer values could be the most effective and cheapest way to eliminate the waste and improve the customer satisfaction in order to be sustainable in this business development. Indeed, this thesis would act as a transformation plan that conceptually provides guidance and ideas from management standpoint on how to transform traditional vehicle repair business. Through applying appropriate lean principles and change management philosophy, this thesis could help to design an effective business transformation plan, meanwhile, introducing a conceptual business transformation roadmap is a research deliverable of this thesis.

1.3. Objective of the Research

The objective of this research is to conceptually design an effective business transformation plan for a vehicle repair workshop by utilising Lean thinking and change management viewpoint in an appropriate way of managing the transition of workshop business in order to transform the vehicle repair workshop into a more efficient and effective organization that can achieve sustainability in a competitive environment.

1.4. Scope of the Research

The scope of the research will be described as follow:

- This study is only conducted in the environment of Kuala Lumpur in Malaysia, and SHAW Limited Company is the case company of this research.
- This research emphasises on the conceptual context of designing an effective business transformation plan for a vehicle repair workshop from the managerial perspective. Business transformation plan is valuable at management standpoint, which provides some thoughts on organisational change and execution guidance for restructuring the business processes to shift an organisation from a current state to a future ideal state.
- Subjected to the lean thinking and change management viewpoint, these paradigms will be carried out to support the case company executives that allows them to understand the context for change and the importance of customer values based on lean perspective.
- To propose the recommendations of a new process design, a gap analysis, a root-cause analysis, brainstorming sessions and online researching will be carried in this research in order to identify the feasibility of each technique and process proposed.
- This research mainly focuses on the normal accident vehicle repair service process flow and it does not cover the comprehensive detail of each repairing steps or other specialised repairing services and any other special cases. All sub-process will be mapped by using Microsoft Visio software.

1.5. Research Procedure

The following topics will be included:

1. Describe a traditional business model of vehicle repair business.
2. Identify the current state of case company by using situation analysis.
    - Determine the current business environment that influences the vehicle repair industry by using SWOT and PESTLE analysis.
    - Understand all specify values and requirements from involved stakeholders, starting from the Voice of the customer, owner and

employees thru interviewing the owner, managers, suppliers and employees.

- Study and observe the vehicle repair business processes by walking thru each step
- Identify the business performance by evaluating the customer sample data
- Identify the root cause of internal problems, especially for non-value creating activities within the business.
- Sketch a customer consumption map in order to understand what the customer experience is during the vehicle repair journey; especially they need to repair an accident vehicle.

3. Literature review on concepts, viewpoints, and solutions that related to the relevance between lean thinking and change management, enterprise transformation, business transformation planning, and transformation roadmap from the managerial perspective.
    - Choose a holistic framework to develop an effective business transformation plan for the case study.
    - Study the difference between change management and transformation in order to understand each implication and application to sustain the business transformation.
    - Study the implication and application of lean thinking rather than just focusing on lean toolkits and techniques.
    - Redesign the existing vehicle repair process based on some recommendations of real life models, philosophy, techniques and tools that practically could improve the repair process.

4. Identify the opportunities throughout each business sub-processes in order to deliver more values for the customer.
    - Focus on the business processes by using value stream perspective to diagnose the current business processes.

- Propose appropriate tools and technology techniques that standardised the predictable work and preventing the variation in the business.
- Use a gap analysis to identify the feasibility of each new recommendation of the process.
- Creating a future state process mapping for case company in order to ensure the stability and flow within the business.

1.6. Data Collection

In order to understand the current state of SHAW Company's business environment, the existing vehicle repair processes and specify value and requirements from the stakeholders, the proposed methodology consist of:

- Data Collection: Two types of data will be gathered for this research.
  - Primary sources:
    - Interview with SHAW Limited's top executives, related employees and suppliers.
    - Measure the customer fulfilment by studying a customer sample in order to know the facts of the repair service performance and customer value.
  - Secondary sources:
    - Literature research that involves reviewing the relevant trends and information of different vehicle repair workshop from different countries.
    - Reading materials include book, magazine, journal publications, from the online database, and etc.

1.7. Expected Benefits

1. Provide guidance and insights on how to transform the traditional service business conceptually from the managerial perspective.
2. Establish an effective business transformation plan for vehicle repair workshop by applying appropriate lean thinking and change management philosophy in restructuring the existing business processes.
3. Formulate some practical framework for identifying waste of the business process from the eyes of a customer; for example, understand the customer journey in vehicle repair processes.
4. Gain an understanding of the appropriate tools and techniques that applicable to vehicle repair business.
5. Introduce a conceptual business transformation roadmap for vehicle repair workshop.

CHAPTER 2

LITERATURE SURVEY AND THEORITICAL CONSIDERATION

2.1. Literature Survey

Originally, the main objective of this dissertation is to design a business transformation plan for a Malaysian vehicle repair business; remarkably, thru executing the ideas of Lean in the way of conceptually designing the vehicle repair processes and leading the change from the top management standpoint. Definitely, the dissertation will come up with a logical conceptual business transformation plan as well as a good understanding of business transformation-related theories, so that it could help to transform the essence of traditional vehicle repair business and pursue the transition into a more efficient and effective organisation in the future.

Therefore, there are three major parts in this chapter, (1) some related literature will be reviewed in the first place, and then it helps to describe the related theories in terms of business transformation, and followed by enterprise transformation concept, change management and Lean thinking. (2) Another section will explain the primary concept of vehicle repair business and the fundamental of vehicle repair's service processes, for instance, exploring the fundamental of service components and the value proposition of a vehicle repair business. (3) In order to academically and conceptually design a business transformation plan, a theorised discussion eventually used to outlining appropriate strategies, models and concepts to express the paradigms of business transformation for vehicle repair businesses from its current state to desired future state.

2.1.1. Introduction of Business Transformation

Given the great amount of research on business transformation, there are many available supporting resources, such as the number of books, published articles, online journals and even the industry's speculations on the subject, which eventually

constituted the business transformation perspective from different views. Although it may be true, business transformation perspective could be a simple and finite definition. However, there is always a hidden problem due to large numbers of reviews from the industry and academic side. This is because large numbers of reviews could easily lead to a chaos, especially when most of the people do not know which elements actually constitute the concept of business transformation.

As back to the origin of business transformation, (Hema Prem, 2007) claimed that the term ***"Business transformation"*** has been widely accepted or used by the industry in the late 90s and early 2000s, especially when the role of information technology IT started to boom. From the article of (Hema Prem, 2007), the article stated that the firms do not need to be "rocket science" in order to achieve business transformation; as also claimed that different strategies or approaches could bring the entire impacts differently. Meanwhile, (Hema Prem, 2007) argued that the word ***"transformation"*** closely related to these few terms in the past: ***"Change"***, ***"Exponential results"*** and so on. In the midst of confusion, those wordings can be easily found or randomly used in the certain context. Convincingly, (Hema Prem, 2007) has surveyed about 90 firms been undertook transformation, and studied how those organisations defining the term of business transformation. As compelling evidence, it has been indicated by (Hema Prem, 2007), the previous statement could practically explain that these terms are associated with ambiguous definitions, and so, the executives may not know the true difference between in these two terms: ***"change"*** versus ***"transformation"***.

2.1.2. Concept of Business Transformation

When comes to the anatomy of business transformation concept, most of the executives may seriously confuse and awkward, especially when this perspective can be explained in different extents, such as business and information management reviews, system re-engineering disciplines, enterprise transformation case studies material and so on. As a recent article that has been published in Harvard Business Review HBR by (Ashkenas, 2015), and titled as ***"We still don't know the difference between change and transformation"*** has pointed out that: until now, many people still do not know the perspective and implication in between of these two wordings:

"change" and ***"transformation"***. Although HBR published Professor Kotter's classic article, ***"Why Transformation Efforts fail"*** for almost ten years.

Forthwith, this related literature presents that today many business leaders do not believe that these terms are not same, rather, they actually still on the learning path to manage the change (Ashkenas, 2015). Frankly speaking, a low success rate of change implementation in today's business world is another compelling evidence to show that many business leaders still struggle with transformation at this moment. For further reading, (Ashkenas, 2015) also shared his thoughts on HBR as concerns why change management also needs to change, despite this discipline has been recognised for so many years. As can be seen from here, it's enough to prove that this industry expert has an absolute experience to define the meaningful perspective of business transformation. To sum up the meaningful thoughts and examples into a big picture, which reprinted from the (Ashkenas, 2015)'s HBR article, Table 2.1 used to show a summary of the difference between ***"Change***" and ***"Transformation***".

	Change	**Transformation**
Philosophy	Change management	Trans-disciplinary
Reference point	Past & Current state	Constraint of the past & future state
Focus area	Any functional area of business	Entire business
Scope	• Implementing finite initiatives across specific parts of the organisation • Executing a well-defined shift in the way things work (Improve the past)	• Focus on a portfolio of interdependence and intersecting initiatives • Reinvent the organisation • Discover a new or revised business model based on a vision
Difficulty	Medium	High
Risk	Medium	High

Table 2.1: Differences between Change and Transformation

Based on Table 2.1, the researcher describes the word "change" is originated from the change management theory, as implied, the basic aim of a change is intended to improve the way of things work in the past (Ashkenas, 2015). At the same time, the researcher's first message is particularly clear: change process is solely implementing finite initiatives in a specific department or the entire organisation, for instance, integrating some specialists or maybe introduce a new system for a single function of

a department, importantly focus on execution (Ashkenas, 2015). Besides that, the article also cited some good examples with respect to successful change efforts, and elaborated that those executions were particularly carrying a range of clear scopes and primarily focused on change management principles and tools. As (Ashkenas, 2015) argued, change management work could be tediously hassle; however, he does believe that nowadays executives more familiar with knowledge of the organisational change and understand the context of change could create a better future for the business. As a result, it is enough to prove that change management work would be less risky if everything planned accordingly with well-defined objectives.

On the other hand, this article tried to explain that business transformation is holistically focusing on a larger scale for business context and requires a portfolio of mutually intersecting initiatives. As is known to all, according to re-engineering perspective, business transformation is a different level's perception of change; therefore, it requires a high-level thinking, wider business scope as well as leverages the gains of change efforts.

Subsequently, the ultimate aim of business transformation, according to (Ashkenas, 2015):

- Reinvent the organisation
- Discover on how a new or revised business model fit with a vision of the future

From (Ashkenas, 2015)'s article, it clearly shows that once an organisation is triggered by the external factors or an intense competitive environment, perhaps the company may able to see the troubles approaching. Under the context for transformation, it would allow the company envisioning the future of business and try to discover 'a new, logical and appropriate business model' to promote a radical shift on the entire business operation for delivering competitive products or services in order to stay sustainable in the market. As given a great example, change management could play its own role for executing a number of finite initiatives accordingly; yet, the vital aim of transformation is to reinvent the entire business in order to look different for the future. Regards to the further discussion, the work of (Ashkenas,

2015) reflected that business transformation could be a very risky mission. For this reason, none can actually predict the outcome of business transformation; therefore, the researcher concluded that transformation is still an iterative, breakthrough, experimental process (Ashkenas, 2015). In fact, business transformation is much more unpredictable and may be failed if a decision is gone wrong; therefore, transformation wasn't guaranteed any success even though equipped with great management skills (Ashkenas, 2015).

In other words, business transformation is still in the midst of uncertainty; as (Ashkenas, 2015) strongly emphasised, until now, there is still a lack of adequate information in regarding of ***"how to facilitate a transformation"***. Given the comprehensive discussion above, in essence, it clearly explains the concept difference between change and transformation perspective from a professional foresight. Obviously, the discussion above ultimately mitigates the confusion of these terms, which allows the readers to understand the principles and application of each concept in a wider business context. Besides that, the characteristics and models of business transformation are relatively important to explain why and how transformation happens, therefore the theories and well-defined models of business transformation will be discussed in the upcoming section.

2.1.3. Characteristics of Business Transformation

From section above, business transformation concept is not a 'term' that convening a range of definition or adoption of some tools to improve the way business operates, yet it defined as a holistic perspective to reinvent the entire organization; as a matter of fact, numerous researches have been carried out into the development of business transformation's perspective and characteristics. Within this spectrum, as HBR stated, Professor J.P Kotter is one of the leading professors who formerly worked on the business transformation discipline and introduced the "*knowledge of organizational change"*. Notably, Professor Kotter successfully completed a great number of studies on the global large-scale organizations such as Ford Motors, General Motors, and British Airways; those companies successfully carried different large-scale change efforts to transforming themselves into a strong powerhouse (Kotter, 1995).

Notably with respect to one of Professor Kotter's renowned study, titled as ***"Leading Change: Why Transformation Efforts fail",*** he amazingly revealed his thoughts, experience and observations to outline a comprehensive sum of critical success factors that helps to create a definitive and sensible direction for business transformation (Kotter, 1995). Correspondingly, Professor Kotter also claims that the executives always underestimate the needs for change, somehow willing to stay in a comfort zone without looking hard at the competitive situation of a market environment; therefore, it eventually creates an uncertainty and crisis for the business. At the same time, the study discussed that if a company could reinvent itself and fundamentally change to cope with the external environment, perhaps it could be sustainable over a long term (Kotter, 1995).

Interestingly, (Kotter, 1995)'s study expressed that ***"Everything in the article is made to sound a bit too simplistic";*** as a matter of fact, successful change efforts or a real transformation definitely require a substantial length of time and go through a series of phases, at the end, it usually end up with confusion and full of surprises. In addition, the first sentence from editor's note of the article: ***"Perhaps the ultimate test of a business leader: Guiding Change"***; significantly, this momentous sentence convinced that leadership is a key driver for business transformation (Kotter, 1995). Rationally, every business transformation effort can be varying with different dimensions, but at the end, the transformation may succeed, failed or eventually suspended.

Comparatively, (Prahalad & Oosterveld, 1999) also proposed an article with regards to business transformation's characteristics on MIT Sloan management review and titled as ***"Transforming internal governance: The challenge for multinational"***. Indeed, this article convincingly has demonstrated that many established multinational corporations, such as Kodak, Xerox, and Toshiba, which considered as the failure examples in the competitive business world. Despite these firms with the foresight to recognise the needs for change, and even though some of those companies are in the peak condition in terms of positive sides of financial, technology knowledge and technological abilities, but they also failed to meet the current trend.

Essentially, the article also mentioned that those companies formerly have undertook a series of restructuring and cost-cutting efforts in order to reduce the inefficiencies of the business; however, these so-called ***"old remedies"*** obviously failed to turn the business around, in the meantime, the competitive environment still rapidly persevered (Prahalad & Oosterveld, 1999).

Paramount to photography industry, Kodak example provides a great lesson for all well-established firms; noticeably, it showed that the rate of the competitive environment is realistically rapid, and even surpasses the pace of transforming the internal business processes. As can be seen from another industry, the previous mobile phone market leader, Nokia and Motorola have been phasing out at today's global mobile phone market. Figure 2.1 showed some established firms were undergoing a series of restructuring and retrenchment during 1991 to 1996, adopted from MIT Sloan review.

Restructuring, 1991-1996

		Number of Layoffs
AT&T	January 1996	40,000
Chemical/Chase	August 1995	12,000
Delta Airlines	April 1994	15,000
Digital Equipment	May 1994	20,000
GTE Corp.	January 1994	17,000
NYNEX	January 1994	16,800
IBM	July 1993	60,000
General Motors	December 1991	74,000

Source: A. Sloan, "The Hit Men," *Newsweek*, volume 127, 26 February 1996, pp. 44-48.

Figure 2.1: Leading firm's business restructured from the year 1991 to 1996 (Prahalad & Oosterveld, 1999)

According to (Prahalad & Oosterveld, 1999)'s article, it is not difficult to understand why the firms should overcome these challenges in order to meet their potential. As goes deeper into the concept of business transformation, (Prahalad & Oosterveld, 1999) concluded that the final aim of business transformation was not just focusing on reengineering, profit saviour and cost reduction.

As a result, (Prahalad & Oosterveld, 1999) finally proposed a set of key characteristics of business transformation as described as follows:

1. Invention of strategies and management processes
2. Involve the whole organisation
3. Truly embedded and tacit values and beliefs
4. Building a new portfolio of skills within the firm
5. Supported by new management processes and change product development, operations, performance evaluations etc.

Moreover, (McKeown & Philip, 2003) also cited that these characteristics according to (Prahalad & Oosterveld, 1999), they believed business transformation must be started by new ideas with the perception of opportunity; meanwhile, top executive should lead the perception change thru the entire organisation. Within these characteristics, (McKeown & Philip, 2003) emphasised that business transformation should begin with the whole organisation, since it's a viral business concept that embracing a wide range of competitive strategies, change models and tools in order to significantly improve the business bottom line.

On the other hand, according to a recent paper of (Anthony, 2016), the article claimed that executives actually defines the meaning of business transformation from different perspectives and eventually categorise into three different characteristics as describe as follows:

1. Operational change

- Focusing on the existing way of business operates
- Using new tools or technologies to diminish the deep-rooted problems of the business
- Facilitating tangible business impacts in terms of cost reduction and customer satisfaction improvement without changing the essence of a company

Limitation: Not sufficient for today's fast-changing business world.

2. Operational Model (Core transformation)

- Fundamentally changing the current way of business operates
- Changing the essence of an organisation

Example: **Netflix Company** using online video streaming platform to deliver own new content based on its customer preferences.

3. Strategic intention (Strategic transformation)

- Focusing on the execution of business strategic
- Changing competitive set of the company
- Strengthens company's growth and future

Example: **Apple Company** shifting from computer to consumer gadgets, **Amazon.com Company** shifting from retail to cloud computing, and so on.

With attention to characteristics above, (Anthony, 2016) claims that operational change is an immediate change process that using new tools or technologies to create a short term win in terms of tangible business impact. However, it may not fit for the long-term sustainability because it still inherited the same way of business operates, which is not sufficient for today's competitive business world. For this reason, (Anthony, 2016) advised that executives should pay more attention to focus on changing essence of the company by integrating both operational model and strategic transformation in order to create a better future of business, particularly thru innovating its existing business model and improve better product or service delivery to its customers.

In order to see this overarching concept, the discussion above clearly explains the fundamental concept and characteristics of business transformation from different management gurus. Ultimately from a conference, Muzyka eventually summarised a common definition of business transformation, that is to say, ***"Business transformation must come with fundamentally change the organisational essence that triggered an essential shift in behaviours"*** **(McKeown & Philip, 2003).**

Last but not least, (Prahalad & Oosterveld, 1999) also reminded that, during transformation, executives should prepare a transformation plan or blueprint in order to avoid any transformation failures. As study stated, prepare a detailed roadmap, in reality, is to be sure impossible, because competitive situation rapidly evolves, and then, learning often takes places through a series of business transformation processes, from external environment until the internal business governance.

2.1.4. Models of Business Transformation

As back to the real business world, the first thing to remember is 75% of top 500 global organisations been predicted to be downfallen in next decade as well as one-third of those companies may delist in the near future; convincingly, these hard facts are cited on paper of (Anthony, 2016). Besides that, (Anthony, 2016) also claimed that software technology is another latest trend that gradually threatening today's business world. From these environments, it is rightly demonstrating that executives have to understand the context of change as concerns why does organisation need to change, forecasting the latest trends in order to respond quickly to these phenomena rather than standstill in the comfort zone. At this moment, executives may still confuse about what really accounts for the core structure of transformation model. Before goes deeper into the different models of transformation, (Nightingale & Srinivasan, 2011) describes that basic idea of the change model actually comes from Lewin's change theory. According to (Lewin, 1951), the classical model of organizational change describes as follow as a three-step change process and showed in figure 2.2.

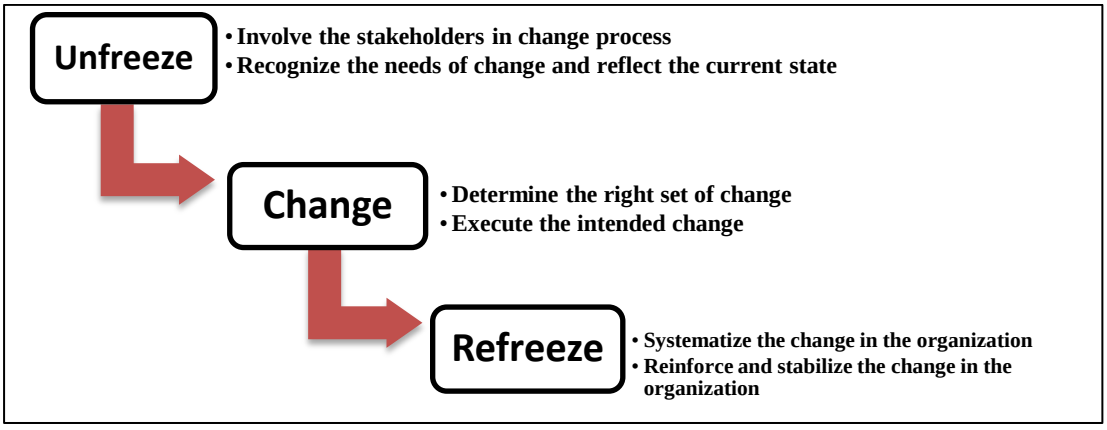


Figure 2.2: Kurt Lewin's Framework for Change (Lewin, 1951)

As can be seen from Lewin's three-step change process, this model emphasises on deep understanding for the needs of change. Subsequently, it essentially understands the entire stakeholder who involved in the change process and determines the right set of change prior to executing any intended change. Ultimately, it helps to turn a business into a more stable and systematic system that provides a greater business performance. Beyond this three-step change process, this simple model adequately provides a better foresight to identify the needs of change and motivates executives to think about the driving force that establishes a set of initiatives of change in order to fix the past and unlock the potential of the business.

After great understanding of Lewin's change process, according to (McGoff, 2012), an author or a public speaker with over 30 years of experience as a business solver and change agent, his article published on ***"Theprimes.com"*** stated that: ***"Change fixed the past, while transformation creates the future"***. From this statement, the article explains that the basic aim of change effort is to make things "faster, cheaper and better" and concerns how the existing business operates, which means that any change efforts are used to improve or mitigate the issues of the past (McGoff, 2016).

On the other side, a transformation is not imputing to the past; therefore, it should come up with an entirely new way of business operation. On the same way, the article convinces that transformation could create the future of a business; but it has, to begin with a clear understanding of the current business situation and reflect the business environment as well as understand the picture of future they desire (McGoff, 2016). Finally, (McGoff, 2016) shows basic transition diagram to show the basic business transformation model, which is shown in figure 2.3.

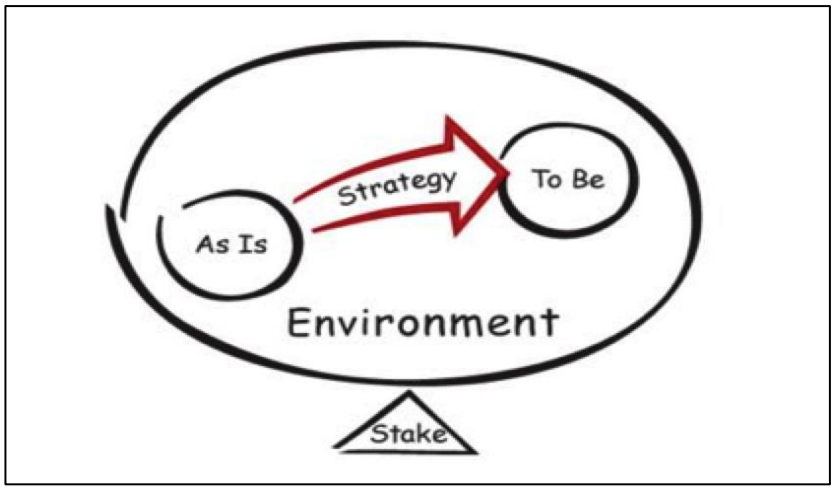


Figure 2.3: Basic Model of Transformation from (McGoff, 2016)

As can be seen from figure 2.3, basic model of transformation explained as follows:

1. **As-Is: (Current state)**
   - Understand the current situation of the business
   - Analysis and mapping the existing business processes
   - Identify the value stream of business and locate the potential issues

2. **Environment:**
   - Understand the internal and external environment of the business
   - Analysis the external factors that affecting organisation
   - Identify the business imperative and the shift happens in the last few years

3. **Stake: (People)**
   - Brainstorm all of the stakeholders
   - Identify the stakeholders who need to be involved in a change
   - Predict the impacts and response of stakeholders towards a change or transformation

4. **To Be: (Future State)**
   - Identify the desired future state they desire
   - Analysis and mapping the gap between current and future desired state
   - Document a new design of business process that helps to transform an organisation

5. **Strategy: (Vision)**
   - Recognise the benefits and danger of transformation
   - Understand the degrees of change and flavours of transformation
   - Visioning the future of the business and getting the right objectives of initiatives and values

To exploring this subject from a different perspective, (McKeown & Philip, 2003) has studied different models of business transformation and successfully defined different methodologies that help to facilitate the business transformation of the past. In the paper of (McKeown & Philip, 2003), the descriptions of each model of business transformation are described as follows:

1. Silver bullet theory for business transformation

- Singularly focus on a process, method or competitive strategy, for instance, business process re-engineering (BPR), total quality management (TQM), etc.
- An immediate approach that emphasise on short term requirement and apply a set of distinct initiatives

As can be seen from here, the key components of the silver bullet theory are probably same as (Anthony, 2016)'s idea, which is focusing on single methodology by using tool or technology to improve the business instead of innovating the entire operating system. For instance, according to (W. Davidson, 1995; W. H. Davidson, 1993), he has pursued a large number of operations improvement projects by using a single methodology: re-engineering; as he implied, business re-engineering is a key to unlock the potential of a business; however, it may not help to transform an organisation.

2. Need for an integrated approach to business transformation

- **Rationalise** the inefficiency of business operation by implementing a new system design
- **Reinvigorate** the right strategies
- **Remodel** the organization
- Support by strategic enablers (e.g. process change, information technology, etc.)

According to (McKeown & Philip, 2003), this proposed model has came from (Ghoshal & Bartlett, 1998)'s idea; as they believed in the context of corporate renewal, an integrated approach is vital to business transformation by undergoing thru a sequence transformation process, such as ***"simplification, integration and renewal"***. Furthermore, they highlighted that even with an integrated approach, an organisation may still face some crucial challenge in the transformation process, of course, and it

must be related to the human aspects, for example, the resistance to change starting from people's experience, perception, behaviour and etc.

3. Holistic model of business transformation

- **Customer alignment:** Realigning internal and external process to meet customer requirement, needs and values
- **Sequencing:** Prioritising the sequence of implementation
- **Learning:** Learning through transformation process

Essentially, (Spector, 1995) proposed this holistic business transformation model by referring to three establishing concepts, such as customer alignment, sequencing and learning. In fact, each concept carries its own knowledge, for instance, customer alignment is all about focusing the customer needs and values during a transformation; therefore, the company is advised to align its internal and external processes to meet customer's requirement. Next, executives have to learn about the key priorities of executions, and sequencing in an appropriate way. Lastly, the researcher stressed that the third concept is all about ***"learning"*** through the business transformation process that the same goes for (Prahalad & Oosterveld, 1999)'s perspective.

4. Multistage model for business transformation

- Undergo three stages of transformation process from restructuring, revitalization to renewal
- Underlined a range of interconnected components (e.g. strategies, processes, systems, structures, values, staff and skills.)
- Evolves with specific objectives, strategic focus, culture, key activities

According to the proposed model, (McKeown & Philip, 2003) identified numbers of big companies, such as General Electric, France Telecom, and Intel has been undergoing thru a multistage business transformation. As learned from these successful cases, they concluded that it is impossible to transform every aspect of an organisation in a meantime. As we known, a transformation may undergo a series of phases or steps and certainly encompassing a set of interconnecting elements in terms of strategies, systems, processes, human resource, values and etc. For this reason, (McKeown & Philip, 2003) have summarised related literature and case study material; finally, they also presented a multi-stage transformation model that involved

with three different stages: restructuring, revitalization and renewal, which is shown in figure 2.4.

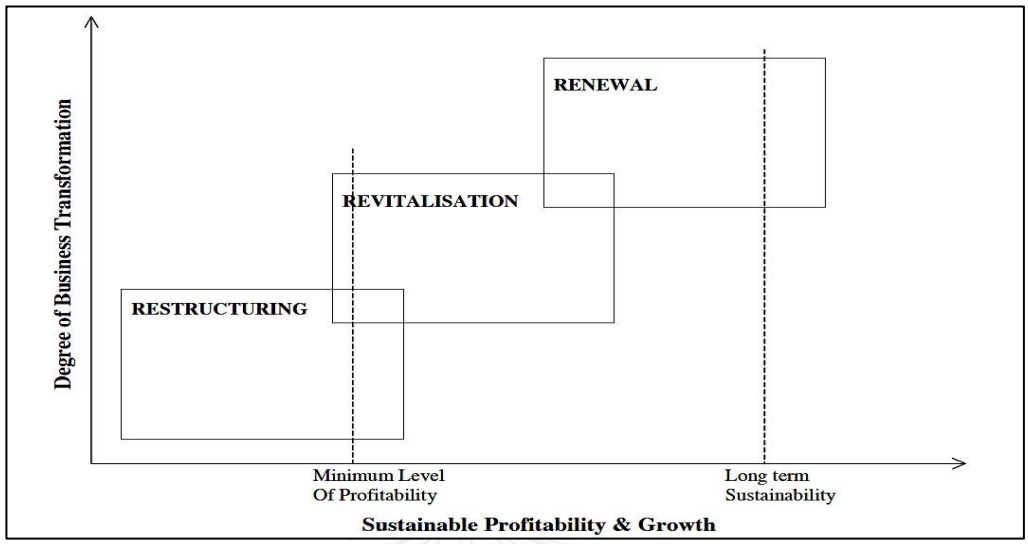


Figure 2.4: Multi-stage model for business transformation (McKeown & Philip, 2003)

Indeed, every stage of a multistage model has its own objective, strategic focus, key activities as well as culture. The descriptions of each stage are described as follows:

1) **Restructuring:** The main objective of the first stage is trying to achieve the minimum limit of profitability; therefore, its aim to optimise the business operations within a range of key activities, such as fixing the business processes, downsizing the product portfolio and etc. Regarding culture aspect, this proposed idea usually started from the top executive of an organisation.

2) **Revitalization:** Objective of this stage is to enhance the profitability; indeed, it started to focus on the customer side by improving the service and delivery. As a result, the key activities are used to renew the company vision and cultivating its core competencies in order to improve the competitive of the business. In this stage, executives need to learn empower their staff and staff participation is crucial for transformation.

3) **Renewal:** The aim of this stage is to maintain the long-term sustainability; actually, this stage started to build its new business capabilities and revitalising the existing business strategy. As a result, it is more focusing on waste elimination, technology or customer knowledge as well as maintains its successful empowerment and shared learning the culture.

Besides that, (Nightingale & Srinivasan, 2011) investigated each paradigm of business transformation and proposed ***'Lean enterprise'*** transformation model in the book of ***"Beyond the lean revolution"***. Throughout the idea of Kurt Lewin, (Nightingale & Srinivasan, 2011) also revolutionised and elaborated this idea into an integrated larger scale approach, which is so-called 'Enterprise transformation'. This model incorporates four main paradigms in the business transformation, such as episodic change, continuous change, and two ***"philosophies"***: lean thinking and lean enterprise value. Figure 2.5 shows the combination of the four change paradigms constituted a model of enterprise transformation.

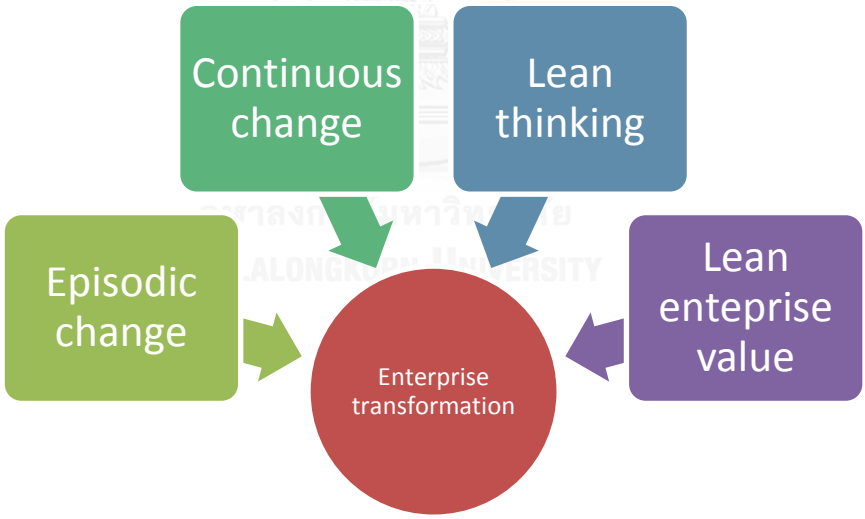


Figure 2.5: Combination of the four change paradigms constituted an idea of enterprise transformation

Furthermore, each change paradigm consists of different attributes and descriptions, which summarised on the table below.

Paradigm	Key attributes
Episodic change	• Focus on the entire organisation • Aim to change the key processes and restructure the whole organisation • Focus structural and behavioural changes • Driven by top-down approach, using few change agents
Continuous change	• Focus on specific work practices • Start with some continuous changes • Using specific change principles and application such as lean, six sigma, total quality management TQM, kaizen • Empower everyone to make the change
Lean thinking	• Derived from foundation of Toyota production system • Focus on eliminating the waste a shop flop level • Focus on customer values
Lean enterprise value	• Need to recognise the stakeholder's values

Table 2.2: Enterprise transformation that incorporate four main paradigms of change

In fact, this model is a well-established transformation model by integrating these four different paradigms. Indeed, when comes to the topic of lean, most of the people knew that the lean thinking is focusing on customer value and waste elimination, and then, radical change and continuous change have certain relations with process improvement activities. According to James Harrington (1991), the researcher has identified the needs for process improvement are crucial to all kinds of businesses, as he stated, a company shouldn't stop improving itself regardless of how their product or service provided (WMG, 2013). As known to all, the competition of the market have continually persevered, and standstill couldn't bring any success for the business, therefore the best way to being sustainable in the competition is "Improvement". Within a combination of these paradigms, enterprise transformation concluded as an integrated and holistic approach that focusing on customer values, waste elimination and process improvement.

Given the comprehensive discussion above, it clearly demonstrates the proposed models of business transformation from different perspectives. In the (McKeown & Philip, 2003)'s paper, the article mentioned, ***"Full business transformation is not rapid process"***, as implied, transformation may take a couple of years to transforming certain level for an organisation. Significantly, business transformation is presented as a logical mind-set and dominant perspective that was encouraging large-scale radical changes in wider business content. On the other side, this concept encompassing a wide range of practical models or methodologies or strategies; therefore, a company has to understand which methodologies or models are appropriate and choose the best practical efforts to improve the product or service delivery to its customer. As (Ashkenas, 2015) reminded, business transformation is still unpredictable and experimental, different model and methodologies could significantly bring different impacts to the business; however in a given sense, a company using the right model and appropriate methodologies may have a higher success rate of change implementations as well as transformation efforts.

2.2. Vehicle Repair Business

When comes to comprehend the concept of vehicle repair, at least, most of the people may have some pictures in their mind with respect to automotive repair, vehicle repair workshop, auto mechanics and so on. In fact, vehicle repair workshop is formerly known as a garage or vehicle repair shop, until now, in the United States or the United Kingdom, it may call as ***"auto collision centre"*** or ***"auto body shop"***. Indeed, vehicle repair business can be explained in different features as described as follows:

- **Key Function:** Provides vehicle repairing, paintwork repairs, towing services, specialising in vehicle modification and so on.
- **People:** Auto mechanics and electricians – manpower of vehicle repair workshop that specialises in vehicle technical knowledge and repairing skills.
- **Material:** Automotive parts from different model of vehicles
- **Equipment:** Workshop floor area with standard vehicle repair facilities, such as basic mechanic's tools and machinery setup, oil and fluid systems, electronic test equipment and so on.

2.2.1. Concept of Vehicle Repair

Generally, vehicle damages can be categorised as different levels in terms of minor, moderate or severe damages, most importantly, those damages usually caused by collisions or accidents (See figure 2.6). According to basic physics, collision typically happened when two solid objects collided, and then, they bounce off each other or stick together; undoubtedly, this is an identical scenario during vehicle collisions or accidents. The deformation of the shape of a vehicle commonly triggered by an inelastic collision impact, which resulting the deformation of the shape of a vehicle, such as scratches, dents and so on.

Figure 2.6: Examples of collision between two vehicles (insurancefraud.org)

As considering vehicle as a complete system, most typical vehicles on the streets, such as passenger sedan car, compact mini car, van, truck; each also consists of a basic automotive driving system in terms of engine, transmission, exhaust, braking system and so on. Therefore, those damages that caused by collision or accidents may affect or interrupt the key operation of vehicle driving system. Undoubtedly, this may lead to own safety and risk issues or it may cause to someone else's injuries as well. Obviously, vehicle repair business is relatively important and really accounts for the driving safety as well as maintains the excellent condition of a vehicle. With respect to different levels of severity, auto mechanics may also a require different set of repairing techniques and variety of auto parts, including a considerable length of time to repair the vehicle accordingly in order to restore the vehicle back to its original condition. Besides that, different automotive garages or vehicle repair workshop can vary the standards of vehicle repair; of course, an effective and efficient vehicle repair requires a great amount of technical knowledge and specialising skills, including the people's attitudes and talents.

2.2.2. Vehicle Repair Processes

First, the establishment of vehicle repair business in the service sector is not a brand-new idea or an interesting hot topic. As long as traffic accident happens, the involved vehicles will be sending to a vehicle repair shop for repair works. Undoubtedly, from customer's eyes, vehicle repair process could be viewed as one end-to-end process, which means that they may see that accident vehicle is an input of the repair process, while undergo through a series of repair process, the result of the repair process is a properly repaired vehicle and it shown in Figure 2.7.

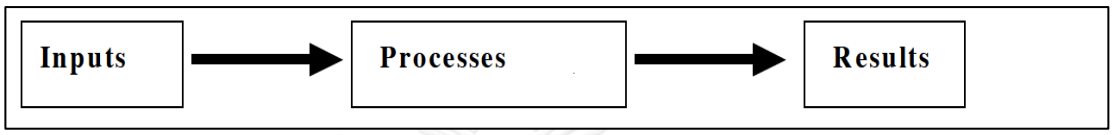


Figure 2.7: Common view of vehicle repair business process

However, from this business operation's standpoint, vehicle repair business could be view as multiple stages of vehicle repair process, from the initial point of a customer check-in, undergo a series of sequenced key activities, until the collection of a properly repaired vehicle. Figure 2.8 shows a series of sequenced key activities of vehicle repair business processes, adopted from Autobodyassurance.com.

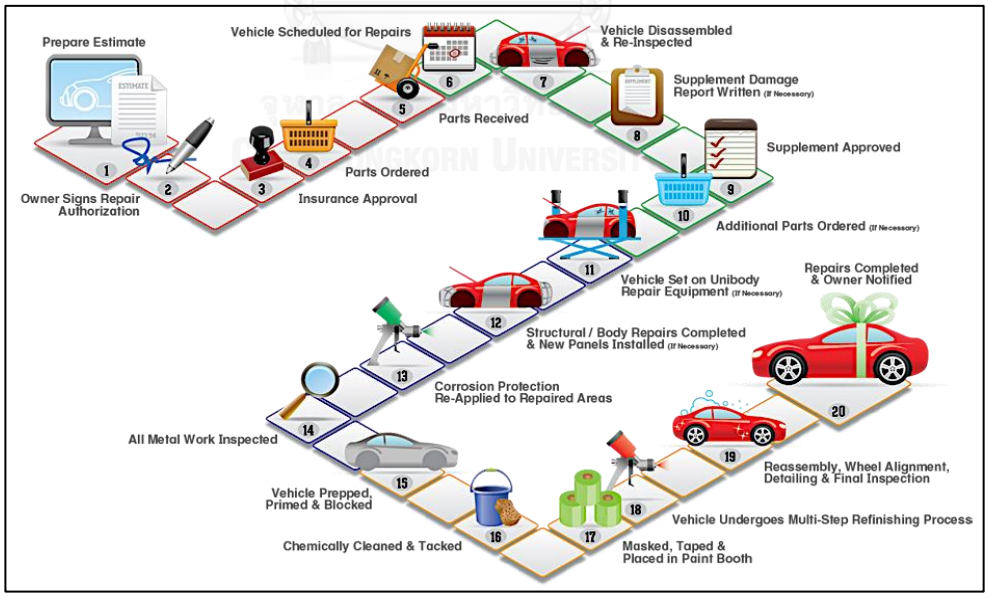


Figure 2.8: An example of common vehicle repair business process (ASSURANCE, 2015)

Indeed, a common vehicle repair process may look like a production in an Auto body shop; however, this process is not purely sequential. This is because of the vehicle repair process may include many sub-processes or tasks, such as some routine activities or some non-standard activities that not frequently happens. Furthermore, some of the key activities may perform or repeat at the same time as well as some activities may wait for other activities along the repair process. Besides that, Figure 2.8 is just demonstrating the key activities of the backend of vehicle repair business; in reality, there is much more front office workload in the repair process, such as paperwork, phone calls, customer greeting, part ordering, contact insurers and so on.

2.2.3. Service Delivery Model of Vehicle Repair Business

Beyond the handling of vehicle repair, as considering vehicle repair business processes as a complete service delivery system, vehicle repair business is delivering a combination of ***"vehicle care"*** and ***"customer care"*** services to its customers. Although it may sound a bit fuzzy, in terms of operation perspective, vehicle repair business has its own operation to ***"process"*** the customer. As can be seen from the vehicle repair process, each key activity may have its own objective and strategies focus as well as it may use and manages plenty of inputs to facilitate the repair operation. Figure 2.9 shows the how the service provided and received by the customer when using a workshop of vehicle repair.

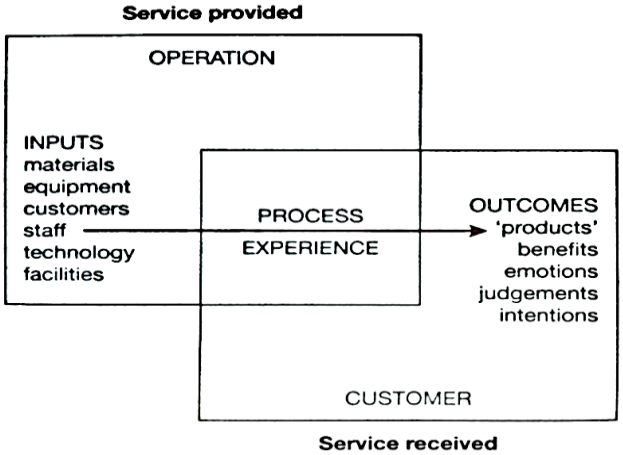


Figure 2.9: Service provided and received (Johnston & Clark, 2008)

According to customer-dominant logic perspective, service provided could be viewed as an operation that consists of a process or numerous business activities along with number of inputs; according to (Johnston & Clark, 2008), customer experience is the key result of service provided, meanwhile, service outcomes are divided into five categories, such as 'products', benefits, emotions, judgments and intentions. Each description of each service outcome is described as follows:

- **Products:** Primary functional output of a service, such as the food or drinks that served by a restaurant.
- **Benefits:** Values of the product or experience of a service
- **Emotions:** Customer's feeling or emotions when experiencing a service
- **Judgments:** Assessment based on the service outcomes
- **Intentions:** Intention to repurchase, complain or recommend to others

It is important to note that the primary function of vehicle repair business is offering a variety of vehicle repairing services. Therefore, in terms of value proposition, a customer may perceive the values of 'product', such as the vehicle mobility. Furthermore, a customer may also gain from the particular repair service, because the key benefit of using a workshop of vehicle repair is to restore the accident vehicle back to its original condition as well as prolong the lifespan of the vehicle. In this case, the customer's experience can be unique and different; therefore, hopefully, most of the customers may experience an efficient and effective vehicle repair services, so that they could feel at ease or hassle-free in spite of confronting the troubles from a traffic accident, evidently, vehicle repair business is much crucial for the public society.

2.2.4. Current Trends that impact Automotive Repair Industry

2.2.4.1. Intense Competition

Business Statistics - Collision Repair Shops

SURVEY YEAR	1995	1998	2001	2004	2007	2013
Number of Businesses*	45,882	46,427	44,532	44,736	43,535	40,488
Number of Technicians*			178,400	176,500	179,000	173,200
Years in Business	17.3	20.7	21.6	25.7	27.5	29.5
Average Square Feet	5,761	6,537	8,269	9,008	10,034	13,524
Average Number Employees	6.1	7.2	7.7	7.9	8.4	13.3
More than 6 Technicians	20.4%	25.3%	29.7%	32.2%	32.6%	55.9%
Percent of Small Shops	44.3%	35.4%	28.0%	22.4%	14.3%	8.7%
Percent of Large Shops	40.4%	41.0%	45.9%	43.3%	48.6%	24.8%
Percent of Super Shops	15.3%	23.6%	26.1%	34.4%	37.1%	66.5%

* Courtesy of CollisionWeek

This survey was conducted by the Collision Repair Education Foundation.

Figure 2.10: Business statistics of Collision Repair industry in the United States (foundation, 2013)

According to the recent snapshot of collision repair industry in the United States, most of the people can notice that the numbers of automotive repair businesses were intensely decreasing in the United States over the past two decades (foundation, 2013). However, the interesting part of this business statistics is about the number of super shops was sharply increasing while the number of small shops was extremely declining. This phenomenon clearly indicated that the intense competition in this industry over the past two decades as well as the strong consolidation of the corporate-owned automotive workshop would take over the remaining of traditional automobile repair workshops in the future. There is an article from Award Winning Collision Industry Magazine, Fender Bender, explained about consolidation trends in this industry pressured many independent automotive workshop owners to exit their vehicle repair businesses in the United States (Marx, 2014). In fact, this phenomenon could happen in any countries around the world either in developed countries or in developing countries.

2.2.4.2. Better Quality of Today's Vehicles

According to 2013 U.S. Vehicle Dependability Study by J.D Power Associates, the research showed that the overall vehicle dependability has been improved; this is reflecting the better quality of today's vehicles (ASSOCIATES, 2013). The result is again indicating today's vehicles have better in quality and reliability so that latest vehicles require less repair service especially for routine maintenance. As a result, this result is significantly impacting automotive repair businesses because they have to repair or service more vehicles to maintain the profitability of automotive workshop for each day. Vehicle repair works can be time-consuming and very complicated because each repair orders may be different as well as there are lots of different customers' request. For example, customers usually would like to send their damaged vehicles to an automotive workshop for repairing but they could request workshop claim advisor to handle their insurance claims as well in order to receive the appropriate compensation for repairing their cars. This is because not all the customers are "Car fanatics", therefore they may not know about the damages of the vehicles and the actual procedures of an accident claim.

2.2.4.3. Customer Power

According to Porters Five forces, when a customer has more information or knowledge regarding a product or services, they would have a greater power for bargaining (Porter, 2008). Due to the current development of technology communication, nowadays customer can easily obtain any information from the Internet, and eventually, select their desirable and trustable automotive workshop for maintaining or repairing their vehicles without any restriction. Significantly, this scenario is influencing the automotive repair businesses, which means that the business owners have to provide better values in order to retain its existing customers. At the same time, according to the author of Loyalty Myth, they mentioned that acquiring a new customer would cost five times more than to retain an existing customer (Keiningham, Vavra, Aksoy, & Wallard, 2005). Indeed, the business could not be survived if they unable to keep a close connection with customers and neglected the customers' point of view. Competitively, automotive repair workshops

need to offer the best value for their customers in order to win the deal. Therefore, they have to understand the best values from their customer's eyes. The **values** from the customers 'eyes were described by (Brunt & Kiff, 2007) as follows:

- **Quality & Delivery: "Right First time", "On Time".**
- **Conveniences: "Distance", "Time".**
- **Service: "How customers are treated", "Information", "Care".**
- **Cost: Acceptable price**

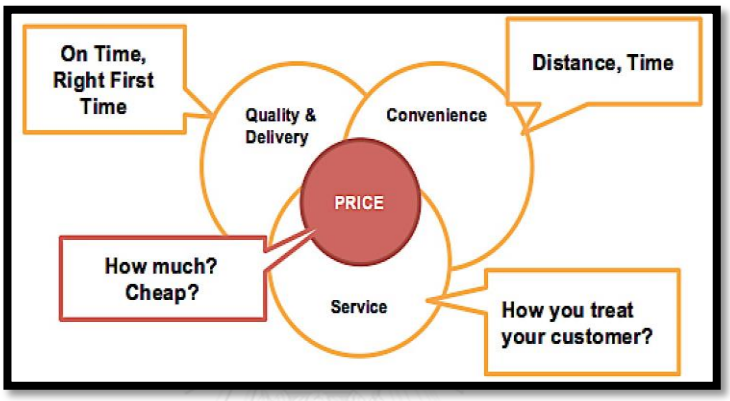


Figure 2.11: The values from the customers' eyes

2.2.4.4. The Impact of Vehicle Technology Advancement

In terms of vehicle technology development, Auto manufacturers also dramatically increased the product variety and shortening the product life cycles of Auto market. This is because most of the automotive manufacturers eagerly stand out amidst in the intense competition by produce more and more innovative products with future technological aspect especially for improving fuel efficiency. One of the best examples in recent years is about the young generations are much interested in buying a hybrid electric car which impressively reduces the fuel consumption. Competitively, Auto manufacturers are constantly bringing more technologies that are new in vehicle development whether it is for safety purpose, entertainment purpose or just simply a pure innovation. In fact, vehicle manufacturers are responsively fulfilling their customer demand with the latest technological application. However, this phenomenon creates a massive impact on vehicle repair business. For example, in recent years most of the prestigious European car manufacturers were adopting

automated electronic technology and gadget for its modern car's automotive applications. Obviously, this is intensely increasing the complexity of the new vehicle models and reinforcing the ***"Cost of complexity"*** for traditional automotive repair businesses because the prominent elements in today's vehicles might increase the difficulty of repair processes and repairers required better understanding for new components, which totally creates liability for the vehicle repair business. Lastly, there is a good example that demonstrated by Award Winning Collision Industry Magazine, Fender Bender; about the technology of Electronic Stability Control (ESC) in today's vehicles, significantly impacting the repair process as well as it might be a potential threat if the repairers are not familiar with the components (JOHNSON, 2011a).

Obviously, competing with the corporate owned dealer's body shop, intensifying customer expectations, and modern information technology were creeping into today's automotive repair business, which generated an uncertainty for the vehicle repair business organisation between the mix ingredients of opportunities and threats (Brunt & Kiff, 2007).

2.3. Theoretical Consideration

2.3.1. Transformation Planning

Recalling back from (Prahalad & Oosterveld, 1999)'s statement, preparing a transformation plan is an essential step for executing any transformation efforts. Amusingly, General Dwight Dr. Eisenhower stated that: ***"Typical plans are useless; however planning is essential and planning builds in flexibility"*** (WMG, 2013). With this in mind, the previous statement obviously implies that planning process is a critical starting point with respect to any tasks or projects; in this case, the same goes for business transformation topic. Frankly speaking, in a business context, people may start to think about strategic planning at the first place; conversely, according to (Nightingale & Srinivasan, 2011) transformation planning process assumes that strategic planning needs to be done beforehand. That is to say, that, transformation

planning is not a strategically focused planning, but it is more focusing on the determination of changes.

In order to understand how transformation planning process actually works, (Nightingale & Srinivasan, 2011) has developed a lean enterprise transformation roadmap to guide the executives in a concrete way of understanding the transformation efforts as well as allows them to understand, articulate and holistically reflect the entire organisation to develop a transformation plan. The lean enterprise transformation roadmap is shown in figure 2.12. Though there are many planning techniques available, in this thesis, the focus will be limited to the 'Planning cycle' of the enterprise transformation roadmap, which encompasses of four key activities, such as:

- Understanding the current state of enterprise
- Envisioning and designing the future enterprise
- Aligning the enterprise infrastructure
- Creating the transformation plan to achieve the future vision

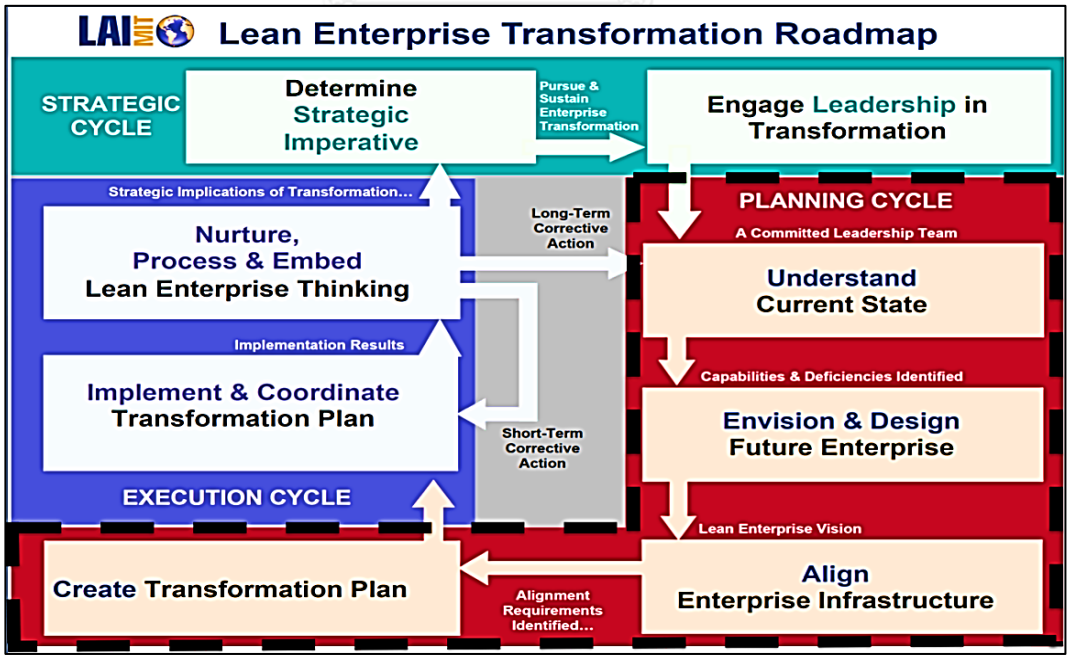


Figure 2.12: A Lean enterprise transformation roadmap (Nightingale & Srinivasan, 2011)

The objective of this thesis is to design a transformation plan for a vehicle repair workshop, despite the plan might be inappropriate in the future. On the contrary, the planning process allow the executives to understand the current state of the business primarily, and then, envisioning and designing the future of the business, so that they could collect sufficient information to align the enterprise infrastructure as well as create a sensible transformation plan for executing the business transformation in the future. Furthermore, this proposed transformation roadmap is a concrete guidance that has been researched by those researchers, based on real life experience in many sectors; therefore, it is enough to prove that this roadmap is a systematic and holistic approach to allow the executives to see the big picture of a business.

Finally as (Nightingale & Srinivasan, 2011) claimed, most of the time, executives enjoyed dealing with the future problem rather than gained a holistic understanding of current state. Henceforth, they may overlooking the deep troubles and subsequently lead to a failure of transformation; despite they may have a set of clear strategic objectives.

2.3.2. Lean Philosophy and Application

Generally speaking, when comes to the term of “Lean”, most of the people may be obsessed with the greatest successful example of Japanese automobile manufacturer’s efficient system, the “Toyota Production System”. Indeed, this term inspired many organisations to believe that “Lean thinking” is a powerful customer-focused process to minimising the waste and provides better values to its customers. Figure 2.13 illustrates the key comparison among lean thinking, craft and mass production techniques, adopted from Lean enterprise value.

	Craft	Mass Production	Lean Thinking
Focus	Task	Product	Customer
Operation	Single items	Batch and queue	Synchronized flow and pull
Overall Aim	Mastery of craft	Reduce cost and increase efficiency	Eliminate waste and add value
Quality	Integration (part of the craft)	Inspection (a second stage after production)	Inclusion (built in by design and methods)
Business Strategy	Customization	Economies of scale and automation	Flexibility and adaptability
Improvement	Master-driven continuous improvement	Expert-driven periodic improvement	Worker-driven continuous improvement

Figure 2.13: Key comparisons among Lean Thinking, Craft and Mass production techniques (Lewis, 2012)

As can be seen from the business world, many companies started to adopt lean perspective and apply with a mixture of lean tools and techniques in order to improve certain parts or entire operation of an organisation. Fascinatingly, from an industry survey, it revealed that in the year 2007, almost 70 per cent of companies in the United States were utilising lean principles as their improvement program (J. R. LIKER, M, 2013). However, this survey also reported that only 24 percent of responding companies have been successfully achieved impressive results after adopted lean as business improvement methodology, meanwhile, three out of four of those companies were failed to make any remarkable progress (J. Liker & Rother, 2013; J. R. LIKER, M, 2013). For this reason, there are many publications or journals tried to investigate the key reasons for the failures of lean efforts.

As is known to all, the first thing to remember is when studying the knowledge of Lean, most of the people may learn about the five classical Lean principles and concept of “Muda”, the “Seven waste”, which can be easily found from any operation management books. The basic five principles of lean as well as the new evolved “Eight types of waste in different sectors” concept are shown below.

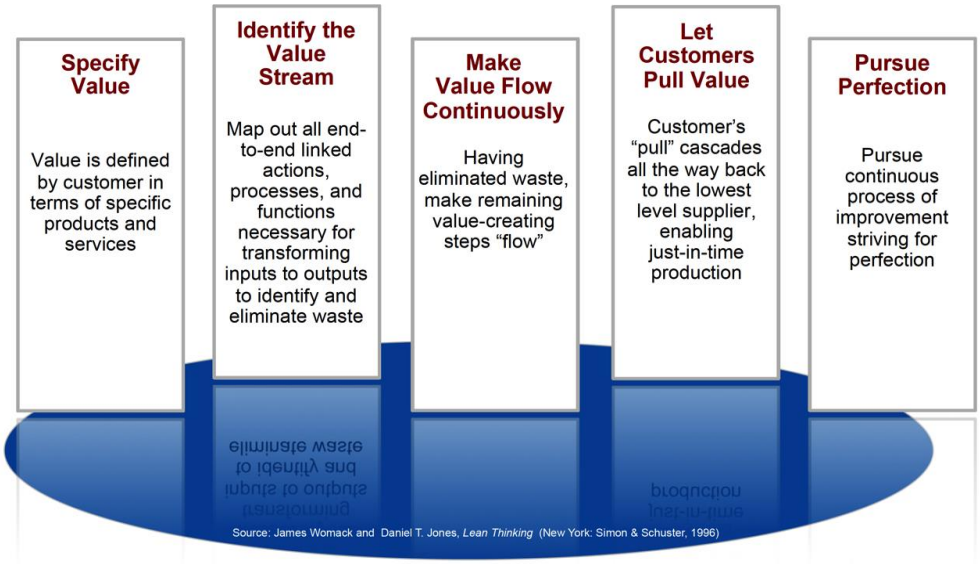


Figure 2.14: Principles of Lean, adopted from Lean thinking (Lewis, 2012)

Figure 2.15: Eight types of Waste in different sectors (REGNET, 2014)

Although this concept was widely accepted, on the other hand, (P. P. Hines, 2013) stressed that many organisations eventually failed to interpret the classical Lean principles. According to (P. Hines, 2010; P. P. Hines, 2013) 's explanation, the researcher highlighted that most of the companies applying lean techniques thru operation level without considering the context of the business needs and business environment, including any strategy deployment. Therefore, he believed that the understanding of how lean works must be improved due to the fast moving business

world (P. P. Hines, 2013). Besides that, the researcher also identified the major problems with the five Lean principles and summarised all the key reasons why lean transitions fail on the figure 2.16 (P. Hines, 2010).

1	Lack of a clear executive vision.
2	Lack of an effective communication strategy.
3	Failure to create and communicate a real sense of urgency.
4	Poor consultation with stakeholders.
5	Lack of structured methodology and project management.
6	Failure to monitor and evaluate the outcome.
7	Failure to mobilise change champions.
8	Failure to engage employees.
9	Absence of a dedicated and fully resourced implementation team.
10	Lack of sympathetic and supportive Human Resources policies.

Figure 2.16: Reasons why Lean Transitions Fail (P. Hines, 2010)

At the end, the researcher has written on his paper to prove that the classical lean principles no longer suitable applied within the context of current business needs. For the same reason, (Pay, 2008) has summarised the four main reasons whose companies fail to make any achievement thru lean as described as follows:

- Lack of senior management commitment- top management does not agree on the real impact of Lean.
- Senior management is unwilling to accept cultural change
- Lack of the right people in the right positions
- Choosing lean as a process improvement methodology without concrete process improvement program

Apart from the early lean message, there are some case studies indicated that executives would like to apply all the lean techniques and tools within an organisation or entire supply chain, eventually it ruined the entire organisation (Nightingale & Srinivasan, 2011). Furthermore, according to (Chen & Meng, 2010), the researchers also proved that most of the Chinese enterprises failed in deploying lean concepts in production because the executives overly attention to lean techniques and tools, neglecting the current operations, while expected a quick outcome from lean implementation. Additionally, (Pay, 2008) said that, ***"...Companies fail to realise lean benefits because lean transform an organisation's culture...and they don't want theirs transformed".*** That is to say, successful lean efforts are not simply a

collection of tools but this management intervention may require dramatic changes at all organisational levels and department, especially for work organisation and cultures (Sohal, 1996).

As can be seen from the above factors, as (Mishra, 2013) elaborated, lean is not all about the implementation of tools and techniques, such as Kaizen, 5S, Kanban and so on; however, it reacts as a platform to allows executives to think and focus on the value adding process, understand the value creation as well as forming a better culture. Unfortunately, there are not many concrete guidelines could help to implement lean from the managerial perspective (Mishra, 2013). Furthermore, according to (Mishra, 2013), the researcher also highlighted that ***"...for an organisation to successfully implement lean from either mass production or job shop.... requires an expertise in change management...Tools and techniques of lean."***

In another word, for an organisation to be lean, it not only requires the knowledge of lean, in fact, change management principles also very important in this case in order to address organisation's deep troubles. Obviously, this perspective could be narrow if people still focused on eliminating waste at the shop floor level without looking beyond the internal or external of a business, especially the values of stakeholder, such as values of a supplier, staff, and so on (Nightingale & Srinivasan, 2011). As a result, Lean should be viewed more as a philosophy rather than a collection of toolkits (Bhasin & Burcher, 2006).

In order to explore the connection between lean perspective and the context of transformation, first, (Nightingale & Srinivasan, 2011) claims that classical lean toolkits could be used effectively in their own ways but their scope is more likely to be limited. As insisted, application of lean tool kits could bring certain improvements; indeed, it may not change the whole business of an organisation. As (Nightingale & Srinivasan, 2011) advised, in order to achieve the full transformation, a holistic perspective is needed to adopt strategies objectives, an understanding of current state in terms of the stakeholder, process and so on, at the same time, going beyond the

lean principles to see things holistically in order to change the existing way business operates fundamentally.

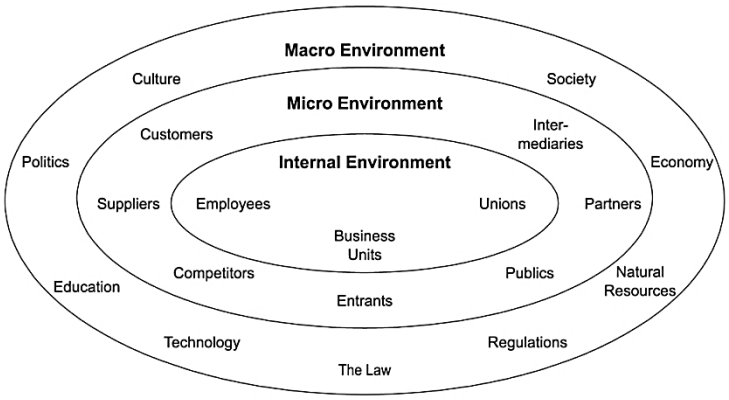
In addition, the relevant literature among transformation, change management, and even lean thinking are usually focusing on the manufacturing sector of the past. Unfortunately, there are not many relevant literature can be found that regarding the vehicle repairing industry, for instance, it's difficult to find a journal or case studies as concerning to transforming a vehicle repair business by executing lean thinking or change management principles. Perhaps there are some United States US magazines, for example, award-winning collision magazine "Fender Bender" did publish some articles about the US auto repair shop embracing change and redesigned the workflow, implementing lean tools or techniques as a way to transform or improve the business but the results are not actually documented.

2.3.3. Business Environmental Scanning

Due to the competitive market, many innovations or technologies probably could be developed in a minute or few seconds; therefore, the whole scenario would change differently in the future. Obviously, this is often happening in the business world; the environment could influence that is to say in reality, all kinds of businesses. Interestingly, those influences may directly or indirectly affect the business on the positive side as well as on the negative side. As can be seen from here, these external factors are inevitable and uncontrollable, which means that these factors utterly beyond the business control.

As mentioned earlier, these external factors can be both positively and negatively, which means that it create an uncertainty condition for a business. As a result, understanding of these external factors is significantly important in order to define which factors can positively impact a business as well as the factors negatively threatening a business at the same time.

In order to understand these situational factors, a detailed analysis of macro environment has been widely accepted by strategic practitioners, which is called as PESTLE analysis. This analysis is precisely reviewing the macro environment of a business (See figure 2.17); notably, it provides a big picture of the business as where the market currently stands.



Source: Brownlie (1991)

Figure 2.17: Macro environment diagram (Brownlie, 1995)

According to (Hough, Thompson, Strickland, & Gamble, 2008), PESTLE analysis is to identify ***"The factors and forces in a company's macro environment... Have the biggest strategy-shaping impact typically pertain to the company's immediate industry and competitive environment"***. This analysis consists of six elements and each letter of PESTLE is denoted as different factor as table below.

Acronym	Factors	Example of Environment driving forces
P	Political	Government policy, political climate,
E	Economic	Economic growth, interest rate, taxation, exchange rates
S	Social	Changing trends in lifestyle, demographic & population
T	Technology	Innovation, information technology, infrastructure
L	Legal	Legislation, employment law, health and safety
E	Environments	Green issues, pollution, sustainability

Table 2.3: Explanation of PESTLE Analysis

2.3.4. Root Cause Analysis

As is known to all, root cause analysis is a tool that usually used to identify and deal with the root cause of the regular or bottleneck problems, which is called as ***"effect"***. According to (Murman et al., 2002), this tool is a practice of lean thinking; and it used to identify the contributing factors of each problem, which is named as ***"cause"***. Undoubtedly, fishbone diagrams or tree are the collection of this technique, which is not to solve the symptom, however, it used to fixing the root cause of each problem. At the same time, it demonstrates all possible causes and classifies them into four or five categories, such as man, methods, material, and machines. Indeed, each cause may have its sub-causes; therefore according to (Murman et al., 2002), root cause analysis could address the complex problems together with a simple information gathering technique, which is called ***"5 why*** "techniques.

CHAPTER 3

METHODOLOGY

3.1. Methodology

Business transformation is a long-term journey to facilitate the positive changes to every aspect of an organisation in order to gain its competitive advantages. For this reason, business transformation requires executive leadership team to embrace the ideas of transformation and engages everyone in the business to recognise the needs for change, and then, only start to tackling some complex problems and defining the ***"ideal state"*** that organization intends to be.

Typically, some senior executives are more likely to believe transforming an organisation is an act on the emerging opportunities; however, some may not see the need of transformation and even resist playing in the change. At this point, it is very important to foster a collaborative understanding of the current business situation that convincingly indicates the sense of urgency behind the current business. Therefore when it comes to preparing a business transformation plan, it seriously requires the genuine buy-in from the top executives and full commitment from the operation level in order to holistically addressing the current business situation, including the context of company's problems. In this thesis, it is essential for everyone who involved in the business to study the different aspects of current process focus in terms of processes, flow, people, infrastructure and system. Additionally, all data were appropriately gathered and collected through multiple interview sessions with different stakeholders, round table meetings, direct observation etc.

On the other side, many tools and techniques will be used to analysis the data in order to provide a clear strategic perspective for senior management to recognise the implication of business transformation, current business environment, problems to solve, company's core capabilities and appropriateness of their performance

objectives. After all, it will be a conceptual discussion for the senior management to study on the common problems of current operational processes, and definitely, it will provide an opportunity for the senior management to generate some thoughts about the new process design while evaluating the gap between the current state and intended state of the company. Finally, the new process design will be introduced along with the appropriate recommendations on lean techniques or technology implementation in order to architect the "To-Be" processes of the company.

Apparently, this thesis is an academic research and the scope of this research is focusing on conceptual designing a business transformation plan for a vehicle repair workshop, which only covers the agenda of analysing current state and conceptually defining the future state as well as redesigning the existing vehicle repair process. Therefore, the idea of this research methodology is coming from the transformation planning framework, as mentioned in theoretical consideration of previous chapter (refer to Figure 2.12). By using the planning cycle of the enterprise transformation roadmap, the author re-chooses some appropriate techniques and redesigns the research methodology accordingly as shown below.

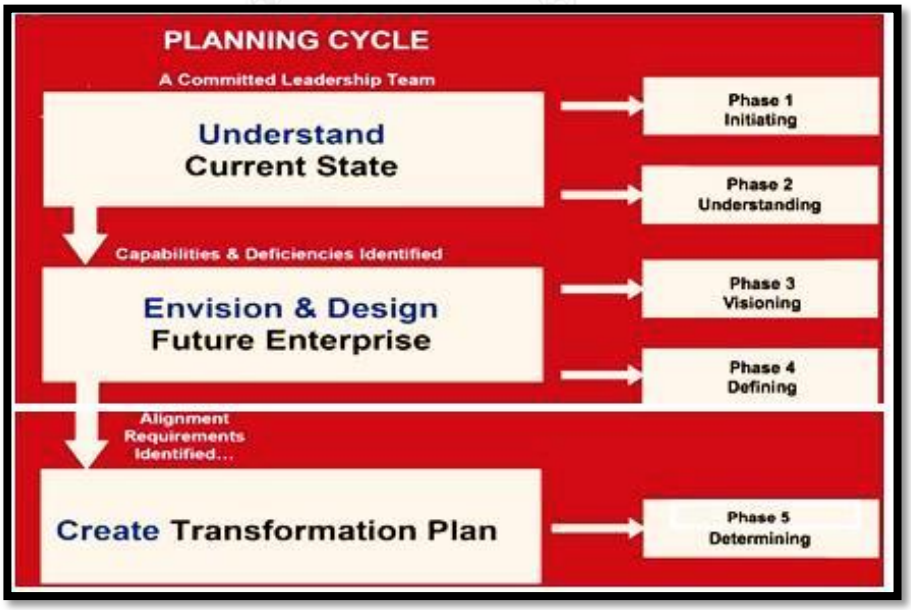


Figure 3.1: Research methodology,
Adopted from (Nightingale & Srinivasan, 2011)

According to the case studies of MIT's Lean advancement initiative (LAI) consortium, most of the companies that eventually transformed under the transformation roadmap are some of the aerospace and manufacturing companies. Thus, most of the tools and techniques on the transformation roadmap are actually the real life executions of certain practices, such as empower change agent, align incentives, communicate the plan and so on. For this reason, not all executions method on the roadmap will be considered as the agenda of this thesis.

On the contrary, case company is a service organization that provides different kind of services including vehicle body repairs, automotive servicing, and spray painting to its customer, which means that some of the methods that can be seen in the planning cycle may not be appropriate for analysing or defining the current and future state of this case company. In operation perspective, service organisation comprises many different service operations, which are generally well coordinated to deliver a service or solution to its customer, however manufacturing company focus on produce tangible goods to its customer with a strong base in production. Theoretically, key characteristics between service organisation and manufacturing organization are absolutely different in the context of operation in terms of inputs, outputs, labour, inventory, customer and other variables.

According to this research methodology, there are five different phases described as followed as:

1. Initiating the project research team
2. Understanding the current state
3. Visioning the future of the business
4. Recommend the new processes of the business
5. Determine the impact upon business performance

3.1.1. Initiating a project research team

As previously mentioned, some of the executives may see in a different direction, especially when it comes to understanding the idea of business transformation, somehow it would be a conflict due to every person has different perspectives of business transformation, including the way of assessments of the current business situation. Obviously, this conflict seriously affects the genuine buy-in from the senior executive team as well as the commitment, if everyone tried to keep distance to their own. Consequently, this reason could be a core factor that particularly affects the validity of this research outcome.

In order to ensure the validity of the research outcomes and allows the senior management to truly understand the needs of change, a research project team has to be formed in order to engage everyone in the business to be more collaborative and allow them to understand the motivation behind business transformation during this research. Furthermore, this initiative also empowers the employees to provide the genuine information to perform the research, which also directly improves the validity of the research. The following table shows the research team members and their roles and responsibilities in making the business transformation plan for the vehicle repair workshop.

Position	Role/Responsibility
Directors team	• Top management team of the business (Decision makers) • Give advice, direction of business and support all aspects that related to the vehicle repair business • Provides information regarding the business background e.g. history, financial information • Share the real life experience and thoughts about the competition among Malaysian vehicle repair businesses and external factors

	that massively impact the business
Claims manager	• Provides information regarding the motor vehicle insurance claims e.g. claiming process flow, customer information, closed claims per month, annual claims volume of SHAW Company • Share the real life experience and thoughts about the customer experience during insurance claiming process
Customer service Manager	• Provides information that related to customer side e.g. customer feedbacks, how they treat the customers, customer emotions • Share the real life experience and thoughts about the customer experience throughout whole vehicle repair process
Part manager	• Provides information regarding the motor vehicle parts procurement e.g. parts procurement process. • Share the real life experience and thoughts about the parts procurement throughout whole vehicle repair process
Technician team	• Provides information regarding the motor vehicle repairing e.g. repairing process flow, a series of maintenance procedures • Share the real life experience and thoughts about the vehicle repair process

Estimator	• Provides information regarding the motor vehicle repair estimate e.g. motor vehicle repair estimate process, the accuracy of an estimate. • Share the real life experience and thoughts about the importance of motor vehicle repair estimating throughout whole vehicle repair process
Researcher	• Primary responsibility of designing and conducting the research • Responsible for coordinating the research team

Table 3.1: Research Team

3.1.2. Understanding the current state

3.1.2.1. Company and literature study

In this case, the background of the company needs to be studied first in order to identify the case company's business purpose, its capabilities as well as reviewing the current problems. Furthermore, it is extremely important for the researcher to understand the concept of vehicle repair business, vehicle repair processes as well as allows the research team and related employees to understand vehicle repair business is a service delivery system. After that, relevant literature about business transformation need to be studied as well as some theoretical consideration that related to the characteristics of the lean in order to conduct the research in a proper manner with substantial findings and knowledge.

As we known, business transformation is an interesting and enormous topic, which related to numerous kinds of theories, methodologies or even some frameworks that successfully driven an iconic change in the real life business to cope with the fast-changing market environment. Therefore, in this thesis, all frameworks and

techniques needed to choose carefully and revised to best fit the objective of this thesis to transform the vehicle repair workshop into a more efficient and effective organisation.

Deliverables of this phase: Literature review

3.1.2.2. Business environment scan

With an appropriate knowledge of the company background and literature, business environment analysis is another vital step to study on how the case company is performing in its current business environment. Furthermore, the essential information about the business environment will be gathered by using the primary and secondary sources of data in order to provide an overview of the current situation of the company. Initially, primary data will be gathered by interviewing with the executives who have been engaged in the business for more than 20 years due to their answers were convincingly demonstrating the current situation of the company through their experience and participation. Moreover, secondary data will be gathered from the non-academic resources such as Internet, magazine, newspaper, official document and articles that related to the research. As a result, the analysis tools will be used to analysis the business environment, such as SWOT, PESTLE and Porter's 5 forces. Frankly, top executives of the company will be benefited from some analyses that provide a better understanding of the company capabilities, current market trends and even exploit the opportunity to gain a competitive advantage in their business.

Deliverables of this phase: External analysis, Industry analysis, and SWOT analysis

3.1.2.3. Stakeholder assessment

Once the executives recognise the urgency of the business, it is important for them to understand the values and relationship between the stakeholders. Furthermore, the essential information about the stakeholder will be gathered thru interviewing the executives and teatime meeting with customers and supplier as well as discussing with related staffs. Indeed their answers were convincingly demonstrating on what actually they want from the company, based on their experience and participation.

Moreover, the researcher will gather a hundred samples of successive random vehicle repair jobs from 2013 to 2014 in order to understand the case company's current performance from the customer orders as well as the customer fulfilment. Frankly, detailed of each job will be explained by the claim manager, so that the researcher can identify and analysis the business performance of case company. Next, project research team will meet and discuss the outcome of customer sample analysis. Therefore, the top executives of the company will be benefited from this analysis that provides a better understanding of the company's performance, customer satisfaction and even comprehends to the customer journey thru vehicle repair processes.

Deliverables of this phase: Stakeholder Identification and Value elicitation, Customer sample analysis and Customer consumption map

3.1.2.4. Current process assessment

In this stage, it is essential for the entire research team to understand the current way business operates (As-Is process). Director instructs each department manager to document the key process of each department as well as the input, output and concerns of each process. Then, research team votes and choosing which process that crucially needs to be redesigned. Subsequently, the team set a priority of the process needs to be redesigned and starts to gather the information thru a series of meeting and interviewing with the staffs. After that, the team acts like surrogated customer and walking thru the entire process from entering the company until the end of the process. Throughout the walk, they also check the validity of the process documents as well as identify the issues of each process, such as time-consuming tasks, bottleneck, extremely over processing tasks and poor handling of certain tasks by using the concept of lean thinking, newly evolved eight waste concept. After that, researcher starts to combine all process documents by using mapping software and facilitating brainstorming session to discuss the problems and concerns of each process. The team definitely will debate and discuss the impact of each problem and categorises the critical issues by using a fishbone diagram.

Deliverables of this phase: SIPOC diagram, current process mapping, fishbone diagram

3.1.3. Visioning the future of business

In this stage, it is essential for the entire research team to agree on the business objectives, and then, choose and understand what performance objectives they going to achieve in the future. Furthermore, the research team will discuss the result of external environment analysis in order identify the business opportunity and which factors needs to be minimised. After that, researcher facilitates a brainstorming session to discuss the future state of each process based on the selection of performance objective, and then, the team shares the solutions or ideas to mitigate the problems of each process based on experience or from other company's practices. The team definitely will debate and discuss the impact of each solution and categorises the limitations and key metrics of each solution provided by using gap analysis.

Deliverables of this phase: Recommendations of new process, understanding of performance objectives based on customer needs and values

3.1.4. Recommend new process for the business

In this stage, the entire research team will redesign the processes based on desired performance objectives for the future as well as the new process design is focusing on reducing non value added activities (Muda) and solve the bottlenecks of the business by using root cause analysis and the proposed solution as a guideline. Furthermore, the research team will discuss the alignment of the tools or techniques in the new process design. And then, the research team will discuss the feasibility of the new process design, executives will feedback on each process and further remarks which activities needs to be modified in order to achieve the desired performance objectives. Therefore, everyone in the team will practically fine tune and conceptually finalise the new process in logical sequence. Once everyone agreed about the new process design, the researcher will map out the new process design by using mapping software. Undoubtedly, the new process design will clearly demonstrate which process or activities has been eliminated or modified; meanwhile, the research team will discuss the impact of each modification on the new process design.

Deliverables of this phase: To-Be process

3.1.5. Determines the impacts on business performance

In this stage, the entire research team will discuss and classify the potential advantages of the transformation by redesigning the existing processes based on desired performance objectives for the future. Furthermore, the team will discuss the desired impacts from this transformation and links those impacts by using balance scorecard, and then, conceptually establish a set of measurement as a guideline for measure the business performance in the future.

Deliverables of this phase: Balance scorecard for case company

3.2. Research Deliverables

Within each phase of this research methodology, research deliverables are a set of expected resultants that delivers the information and documentation of output from multiple analyses in each respective chapter. In fact, it makes the research contents in a format that easier for the readers to read and understand; at the same time, it also allows the readers to follow the flow of this research in an organised way. To be honest, it is impossible to categorise all readers towards the same direction; but at least, research deliverables provide the details on what author is working on to helps the readers in order to understand the ideas of this research. Ultimately, readers could discover each research deliverable consists of clear objectives, substantial findings and methodological approaches that specially designed for each phase of work. This thesis consists of five (5) key deliverables, starting with business environment analysis, stakeholder analysis, As-Is analysis, To-Be analysis, and followed by a transformation roadmap. The detail of each deliverable is elaborated as follows:

3.2.1. Business Environment Analysis

The objective of business environment analysis is to understand the context of SHAW Company's operates within a business situation, scanning from the external environment (Marco) until the internal environment (Micro). In this thesis, PESTLE analysis, Porter's five forces and SWOT analysis are used to illustrate the big picture of all influences that impact on SHAW Company's operating situation. Attempts to enhance the validity of this analysis, it involves a series of in-depth interviews and

direct observations as well as conducting data collection. Before scanning the environment, it's absolutely important to understand the major issues behind that subsequently triggered case company to decide this analysis is required, which is shown in chapter 4, section 4.2.

Within a common formal way to understand the case company's business environment, the purpose of this analysis will be useful for strategic management by uncovering the role of the business that can best describe the business capabilities in terms of internal strengths and weaknesses, identifying uncontrollable external forces that potentially affects the case company and analysing power relationship within the competitive structure of respective industry which assists case company's senior executive to recognize the business environment in order to respond to the market shift. Intentionally, this analysis allows case company's senior executives to learn from the environment and understand the external factors which actually influencing their business decision on how to shape the business to suit the dynamic business environment, especially developing the aims and objectives of the company.

3.2.2. Stakeholder Analysis

The objective of stakeholder analysis is to understand the stakeholder engagement of case company. It actually helps case company's senior executives to recognise roles of each stakeholder in a systematic way by analysing their power and influences as well as identify their interest and the values elicited among stakeholders at the business; indeed, high-interest stakeholders are the company's most important players. These activities include an in-depth discussion with related department and interview sessions with each focus group are employed in this analysis. Throughout the process of identifying stakeholders, stakeholder list will be snapshotted on a map, which shown in section 4.4.1. In addition, the intangible concerns and expectations from different stakeholders will be reviewed and verified by related parties to ensure the consistency of the information.

Attempts to narrow down this subject, customer sample analysis are used to analyse the case company's customer fulfilment; as known to all, customers are positioned as

case company's high-interest stakeholder. Therefore, case company's senior management needs to understand whether they successfully fulfilled their customer's interest in the past three years, from 2013 until 2015. Throughout the sample collection from the customer database, the purpose of this sample analysis is to identify the customer satisfaction as well as facts of the business performance, from customer's standpoint. In this case, customer consumption map is another complex approach to illustrate the customer experiences during its consumption process; as a matter of fact, this consumption map is introduced by James Womack as ***"Lean consumption"*** in order to recognise the company's internal problem from the customer point of view. This consumption map allows senior management to identify internal deficiencies of the business, and understand internal problem could actually bring massive impact on customer experience as well as alter customer perception towards vehicle repair business. Within a semi-structured way to understand the customer journey throughout vehicle repair processes, this analysis provides a better understanding on how customers are being served, and then, it also provides an opportunity to understand on what the customer actually focus on and concerns towards a vehicle repair business.

3.2.3. As-Is Analysis

The objective of the As-Is analysis is to review SHAW company's current process and document in a detailed process map. In this analysis, it involves multiple interview sessions and direct observation of work thru a "Gemba walk", which drawing the workflow from the beginning of the process until the end, indeed, each step throughout the process must be verified by related parties and recognise who are really responsible for each business activity. To be honest, the analysis is guided by SIPOC process mapping, and followed by the purpose of this analysis is to find out the major problems in each business activity, for example, focusing on the bottleneck in the process, long waiting activities and repeated loop of work. At the same time, in order to achieve this objective, cross-functional project research team will be supporting and brainstorming potential cause of each respective issue of every process and sub-process. At the same time, fish bone diagram will be used to summarise all potential causes of each respective issues and end up with the cause-effect

relationship. Within this analysis, the research information is essential to understand the current way of the business operates that will help case company to improve the business process by designing new steps or using some breakthrough opportunities, such as systemise the business with technology improvement, facilitating change and learning in the workplace and so on.

3.2.4. Recommendation and To-Be Analysis

The objective of To-Be analysis is to document SHAW Company's new process in a detailed process map. Indeed, this analysis is not sound so simple when comes with the procedures. First of all, within essential information from the business environment analysis, stakeholder analysis and As-Is analysis, the cross-functional team should truly understand the business situation of case company in the first place, and followed by a deep understanding on customer impression towards the vehicle repair businesses in Malaysia was continually decreasing. In the same chorus, customer consumption definitely manifesting internal deficiencies are not just creating issues for the business, but it also seriously causes inconveniences to their customer in terms of time, money and efforts which leads to unlighted experience and eventually results in customer dissatisfaction. Further details on As-Is analysis, the team perfectly expose the problem and issues that been associated with every process or sub-process by looking at outside-in perspective.

Attempts to narrowing down all information above to support this analysis, the team will spend the time to redefine objective of the business and agree on what elements actually constituted the key success factor of vehicle repair business. In order to achieve the objective, the team needs to understand the gaps between current state and desired future state as well as give views for process improvement, from internal brainstorming sessions or recommending some techniques from other companies or industries, which can radically change the business operation. Although this thesis is academic research, the recommendation of new process should be practical in the real business world; therefore, each recommended solution/action actually comes with key metric targets and limitation. Ultimately, the To-Be process design will be clearly

mapped to demonstrate which business activity or steps will be eliminated or altered in order to deliver new process design.

3.2.5. Transformation Roadmap

Transformation roadmap is a schedule plan that applies to demonstrate each process change during this research project. In fact, transformation roadmap will be guiding the cross-functional team of SHAW Company around this research, because it serves as a guideline to allow everyone in the research able to clearly understand each activity or action of the work stream includes responsible parties, timeline and decision-making. Additionally, this roadmap is to explain the key elements of this research, especially the direction and progress to ensure that each action matches with the scope of the study. As can be seen from figure 3.2.20, this transformation roadmap was adopting from Lean Enterprise Transformation's planning cycle, which comes from (Nightingale & Srinivasan, 2011). However, author re-designed the framework and selected some appropriate techniques to analyse SHAW Company, especially in different perspectives and re-integrated high-level initiatives in the flow of research cycle.

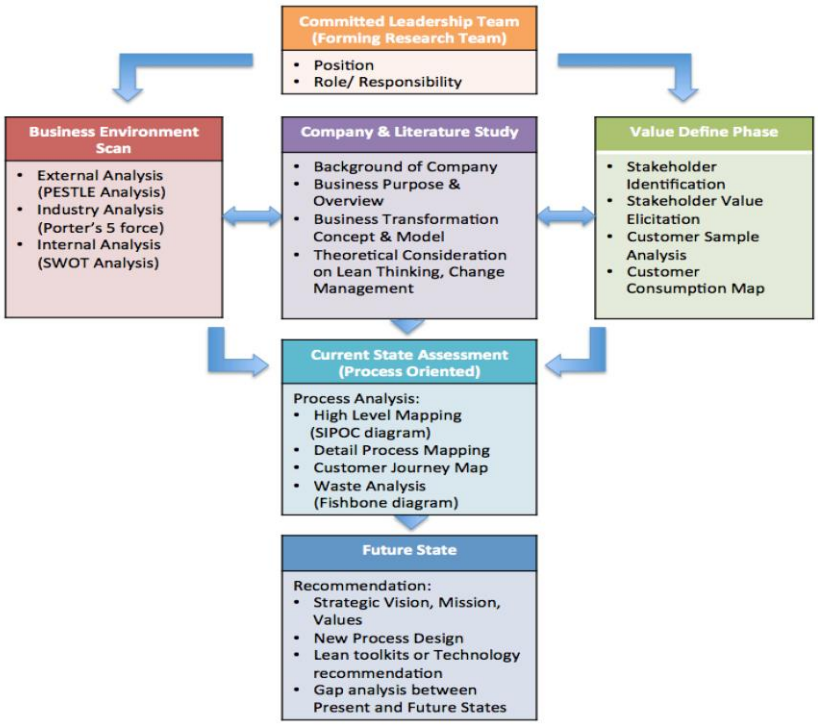


Figure 3.2: Transformation roadmap

According to figure 3.2, this roadmap describes how this research project is likely to flow and aligns with each chapter of this thesis, which allows all readers able to understand the flow of this research in an organised way. Usually, each chapter of thesis carry different deliverables, described as follows:

- Chapter 1 starting with an introduction and explain the reasons behind this study includes objective, problem statement, a scope of the study and inhered benefit of this research. Chapter 2 consists of literature study and company study, including theoretical consideration on different ideology. Next, preparation of this research and forming the research team includes research deliverables of this thesis will be clearly explained in Chapter 3.
- As can be seen from figure 3.2, **"Business scan"** and **"value define phase"** from the roadmap comprises of some key activities that significantly analysing the current state of case company, from the external environment to internal environment, plus determine the customer experience from its service consumption, which comprehensively summarised in Chapter 4. Moreover, it may seem obvious that current state assessment is very crucial in order to understand the challenges of case company thru a clear understanding of the end to end processes. As a result, Chapter 5 carried out process analysis, starting from value stream standpoint to metrics-based process mapping in order to identify the root cause relationship of each issue.
- Last but not least, Chapter 6 is a new challenging task to define the future state and vision of success for case company; therefore, this is where gap analysis is useful to identify the gap between current situation and desirable future of the business in order to select the best solution to close down each gap. Ultimately, Chapter 6 proposed recommendation of new action or technology improvement to improve the way of managing each sub-process, and along with new process design that conceptually improve each sub-process. The simplified flow of this research is shown in figure 3.3.

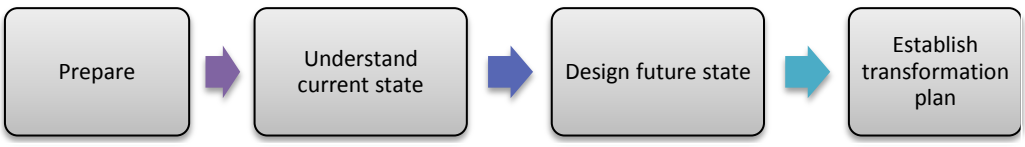


Figure 3.3: A Simple Flow of this research

CHAPTER 4

Business overview and Current situation

4.1. Introduction

This chapter begins with an overview of the case company background that can support the readers to truly understand the business capability of the case company. It is followed by a business description of the case company, which includes the following information in terms of the purpose of business, types of products and services, organisation structures, demand profile, vehicle damage severities and so on. Besides, the case company's current business environment is discussed and supported with appropriate evidence that fully demonstrate the competitive position of the business. Additionally, a comprehensive analysis is used to describe on how an individual or group of stakeholders could influence the business and help the readers to understand the significant determinants of the values from the stakeholders. Finally, customer sample analysis is getting to measure the customer-perceived service performance, which provides a better mechanism to identify case company's business performance and the customers' key requirements as well as the primary drivers of business growth.

4.2. Company Overview

SHAW Limited Company is the case company of this research, which is a traditional automotive body repair workshop located in the western coast of Peninsular Malaysia. The case company has been established for 27 years and provides a variety of specialised automotive services, especially on auto body repairs of traffic collision vehicles and comprehensive road traffic accident compensation insurance claims. Throughout the last 27 years, case company built up to 5,000 square meters of automotive repair shop floor and definitely equipped with automotive repair facility that can handle numerous of automotive services and auto body repairs. SHAW

Company tried to deliver what it has promised in every job in order to build up its customer service reputation with exclusive automotive expertise under a roof.

As a family-owned business, the shareholders managed the executive management and constituted the basis for managing the vehicle repair workshop in the same way for more than 20 years. In spite of the fact that everyone has worked very hard in this company, but the case company directors did not manage to confront the intense competition of today's fast-changing business environment. Indeed, case company was constantly under pressured and the business profit margin was seriously declining for the past few years. On the other hand, the shareholders were no longer investing any money into this company, which may not be an option for the business development.

As a result, directors have to confront the decision-making dilemma on the future of the case company. Instead of further endangering the future of the workshop business, the directors start to think about the idea of turnaround and turn this crisis into an opportunity by changing the ways of doing business or seeking for any improvement method.

4.2.1. Purpose of Business

The case company's main objective is to provide an integrated one-stop automotive maintenance and repair service in the west coast of Peninsular Malaysia. With professional workmanship and advanced equipment, SHAW Company is committed to providing a hassle-free and professional car repair services to all customers and take care of the rest of insurance claims process.

Figure 4.1: SHAW COMPANY

4.2.2. Product & Service Review

In the western coast of Peninsular Malaysia, case company offers various automotive maintenance and repair services. Those services were primarily explained as the table below:

Types of automotive service	**Brief explanation**
24 Hours Car Towing	Towing all types of cars from emergency breakdowns to traffic accidents.
Preventive maintenance (Include Oil change service) (5K/10K/20K Mileage)	Periodic maintenance for lubricating oil in the engines, oil filter replacement (Multi points vehicle inspection).
Body repair (Traffic collision)	Repairing all kind of traffic accident vehicles (Automotive body and mechanical repair).
Breakdown/Engine/Brakes/Exhaust/ Transmission system diagnostic (Auto services)	Repair, Replace, Inspect, Diagnose, Evaluate automotive failures and parts breakdown.
Motor vehicle insurance claim services	Offer insurance claim services for all types of cars from road traffic accidents.

Table 4.1: Product & Service of Case Company

4.2.3. Organisation Structure

Since the case company is a small and medium sized service enterprise, it was predominantly running through a functional organisation structure that consists of four major departments such as auto body repair, parts procurement, insurance claim, customer service and marketing. Actually, it only consists of few numbers of staffs, which includes some contract automotive technicians, accounting staff, apprentices and interns. Please refer to the detailed case company's organisational chart in Appendix A. It clearly shows the number of existing executives, includes the operation workforces who deliver the on-going business support. (See Appendix A)

4.2.4. Demand Profile

In the modern age of urban transportation system, motor vehicles always have played a dominant role in urban mobility that initially makes the travel easier, in conjunction with a better quality of urban living. For this reason, global demand for vehicles has dramatically risen up as following as the number of the road accident was also simultaneously increasing. Indeed, there is no one-to-one relationship between vehicle population and the number of road accidents; however, this trend may indicate that massive rise in vehicle population could be one of the major causes of the road accident. As a developing country, a number of registered vehicles and the number of road accidents in Malaysia have been correspondingly increasing every year.

As given the facts, the previous statement clarified that the demand for vehicle maintenance and repair service was continually increasing, due to the reason of the high growth of vehicle population. Convincingly, this trend creates a huge business opportunity, especially for automotive vehicle repair industry. However back to case company, the total service volumes in the past three years (comprised of vehicle repair services and insurance claim services) at case company has been sharply deteriorating, and it precisely in contrast with the current trend of vehicle population and road accident. For better illustration, case company's total service volumes with respect to previous years are illustrated in figure 4.2.

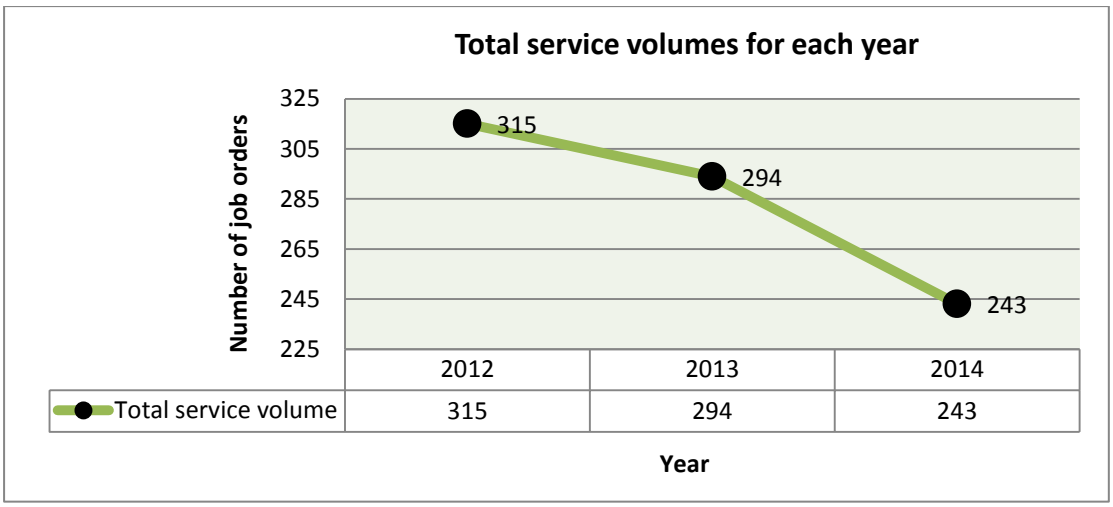


Figure 4.2: Total service volumes of Case Company

In addition, the case company's total insurance claim orders with respect to the each respective insurance company from 2012 to 2014 are showed in figure 4.3 and in figure 4.4 is all about the total number of job orders according to the respective severity of vehicle damages.

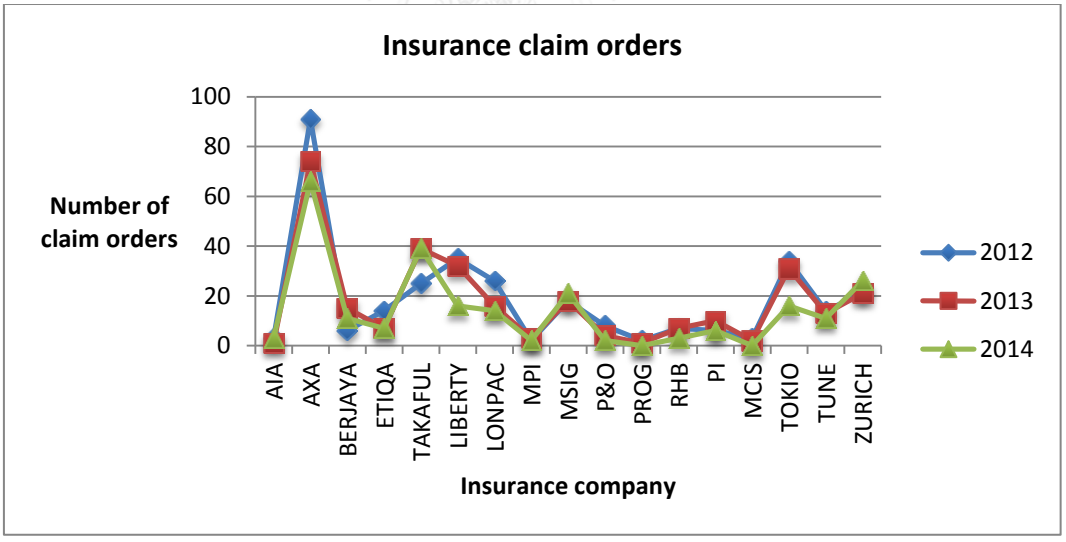


Figure 4.3: Total number of claim orders with respect to each respective insurance company from the year 2012 to 2014

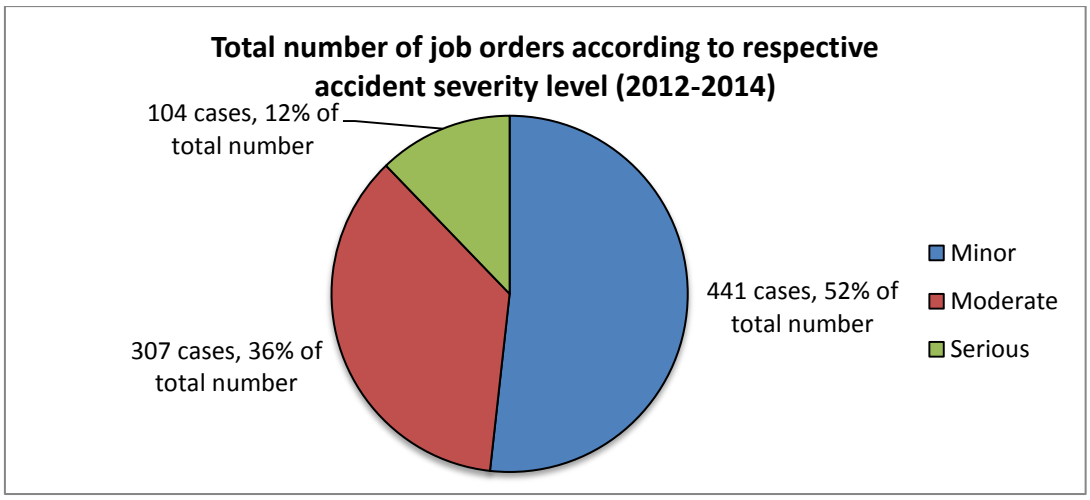


Figure 4.4: Total volumes of job orders according to each respective accident severity level from the year 2012 to 2014

In actual fact, the major portion of case company's business revenue was truly relying on its service volume, which is comprised of vehicle repair services and the insurance claim services at the same time. Based on figure 4.2, the total service volumes of case company from the year 2012 to 2014 were reducing approximately 23%. Obviously, it was a sign of business underperformance, although the need of vehicle maintenance and repair services was apparently increasing. Consequently, the case company may suffer a significant revenue loss that limits the growth of its business.

Furthermore, according to figure 4.4, most of the job orders that came from minor and moderate severity level are the major contribution of company's revenue from 2012 to 2014. In vehicle repair business, vehicle damages severity is an inevitable variation; despite it may also dramatically affect case company's business processes. Therefore, case company has to determine beforehand whether the vehicle damages are serious or not in order to accurately classify the job orders in accordance with the severity of vehicle damages.

As a matter of fact, there may be many factors that can influence the severity of traffic road accident. For this instance, different severity of motor vehicle damages requires different sort of duration of work (average length of time required to repair), different types of automotive parts, specialised repairing skills or automotive knowledge, varieties of equipment, manpower planning and etc. Generally, motor vehicle

damages severity divided into three different levels of indicator: minor, moderate and serious damages, as described as:

- **Minor vehicle damages (Low severity)**

In order to indicate the types of vehicle damages, some of the real-life images from case company will be used to demonstrate the correlation between vehicle damages characteristics and the severity of damages received. At the same time, the minor vehicle damages characteristics are shown in figure 4.5.

Figure 4.5: Motor vehicle collision characteristics with respect to the minor vehicle accident, Source: SHAW Company

Based on figure 4.5, the minor damages of a vehicle were usually resulting from a minor collision, which causes some paintwork scratches, small dents, partially cracked headlight, bumper scuffs and etc. Therefore, it may not require the technician to spend a great amount of time to do any substantial repair works. At the same time, technicians can probably use basic hand tools and fundamental repair techniques to restore the vehicle back to its original condition.

- **Moderate vehicle damages (Moderate severity)**

In this part, the characteristics of moderate damages commonly determined by the change of exterior structures or any physical damages such as large dents in the hood, bent bumper, broken headlight, twisted fender, probably cannot be driven or some air bags may deploy and etc. At this rate, moderate vehicle damages require some additional structural body repair and using some power equipment such as dent puller, welders, metal straightening equipment, and parts assembler in order to do some necessary metal works. Once everything considered, it may require a certain amount of time and skills to repair and restore the vehicle back to its original condition. As a

reference, the vehicle damage characteristics that resulted from a moderate collision are shown in figure 4.6.

Figure 4.6: Motor vehicle collision characteristics that resulted from a moderate traffic collision, Source: SHAW Company

- **Serious vehicle damages (High severity)**

According to figure 4.7, this image was depicting the serious damages of vehicles, and can be seen the collision force was truly pounding into the vehicle interior compartment. This includes massive structure damages, vehicle circuit malfunction, airbags deployed and frames damages, twisted axles, at the end, cannot be driven. Unquestionably, this severe damage is much more difficult to repair and it may also require more operative time to measure the vehicle damages, analysis the collision force, replace the structural parts, metal works, interior repairs and mechanical system repairs.

Figure 4.7: Motor vehicle collision characteristics with respect to the serious vehicle crash severity level, Source: SHAW Company

4.3. Business Environment Scanning

Towards a fundamental understanding of the background of case company, a holistic view of the business environment should be undertaken as a key component to identifying the external and internal impacts across the business. In reality, most of the businesses transformations' efforts may tend to be failed due to the absence of awareness of the business situation as well as without good understanding of the firm's internal and external environment, therefore the initial path of business transformation will end up with undesirable strategic objectives which may lead to transformation failures. Undeniably, another transformation failure reasons could come from different aspects in terms of leadership, corporate cultures, and focus on current problems.

In this section, case company's business macro-environment is to be evaluated accordingly by using particular frameworks in order to allow the case company's senior management to think strategically and understand its current business situation, before selecting the best strategies and appropriate business model for the enterprise. Besides that, stakeholder analysis methods will be carried out to identify the stakeholders and their roles involved in the business activities, which allow the senior management to gain a better understanding for how the stakeholder's interest and relations emerged within the case company. Regardless of their roles and abilities, senior management could actually understand the values exchanges among the stakeholders and gradually recognise the needs of its external stakeholder, for instance, the "Values from the customer's eyes". According to lean principles, this could be a critical starting point to help the senior management to emphasise on what creates values from a customer perspective and how they support to create sufficient values proposition of the service business.

According to the module notes of WMG, beginning of any lean journey is to define the values from customers in order to form a better value proposition of the business (WMG, 2013). Subjected to this matter, two key techniques will be used in the end of this chapter to study the customer consumption and customer fulfilment in order to specify the critical areas of customer needs and experience. Lastly, it gradually helps

the senior management to remark the case company's business performance thru its customer's eyes and understand what actually the customers want are.

4.3.1. External Analysis

Towards to study the macro environment of the business, PESTLE analysis framework would be the best method to examine the external factors that tremendously influencing or indirectly affect the case company's business development and future of vehicle repair businesses. To our knowledge, external factors normally create uncertainty condition for the business environment because most of the external influences are inevitable and uncontrollable factors, which is practically beyond the business itself. To be honest, this analysis can help the senior management to discover some attractive business opportunities as well as to understand the underlying factors that driving change of the business environment. Table 4.2 demonstrated the current issues and logical evidence on business impacts with respect to different external factors.

Issues	Impact on business
Political Factors	
• **Automotive workshop modernization (ATOM)** (Part of Malaysian Economic Transformation Plan) • **Malaysia national automotive policy (MNAP)**	• Provide an opportunity for those who decided to improve the workshop business operation and receive the guidance from automotive experts. • Provide soft loans as expansion opportunity to workshop businesses

Economic Factors	
• **Malaysian currency's dismal performance** • **Competitive environment** • **Goods and services taxation**	• Burden the procurement of automotive parts, including import barriers. • Strive to boost the business which led to price wars • Create the uncertainty and burden of the business.
Social Factors	
• **The negative perception of independent vehicle repairs workshop in Malaysia.**	• Low customer retention • Difficult to maintain reputation of each company • Stagnated industry
Technological Factors	
• **Advanced automotive technology** • **Modern automotive repair equipment or latest software support**	• Increase the difficulty of automotive service and repair • Increase the procurement of the modern repair facility • Require highly skilled or knowledgeable workers to operate the repair facility
Legal Factors	
• **Health and occupational safety in motor vehicle repair** • **Minimum wages policy**	• Conduct employee training in first-aid, manual and mechanical equipment handling • Increase expenditure of business

Environmental Factors	
• **Pollution control on oily residue and automotive wastes from vehicle repair workshop (Malaysia environmental policy)**	• Introduce good practices on handling the disposal of waste • Imposed heavy penalties for any violations.

Table 4.2: PESTLE Analyses for Case Company

Political factors

- In term of political factor, Malaysian government acted as a dominant character that wishes to transform and modernise the existing vehicle repair industry by launching an innovative "Automotive Transformation Program (ATOM)" as a major plan of Malaysia Economic Transformation Program ((PEMANDU), 2012). This initiative will offer guidance or support from automotive expert to improve the vehicle repair workshops' operation, and then, provide soft loans for support any machinery procurement or shop expansion. Faithfully, this initiative provides a great alternative for all nationwide workshops that dedicated to improving their business operation to provide the better service to the consumers. Figure 4.8 shows the description of Malaysian Government's automotive transformation program.

Figure 4.8: Automotive transformation program

- Besides that, Malaysian government put more efforts to establish its new national automotive policy to protect the current automotive repair and retail ecosystem. According to Malaysia Automotive Institute, this policy helps to maintain the nationwide workshops' repair quality, introduces spare parts standardisation and develops more entry-level of technicians in order to fulfil the talent gap of the automotive industry and retrieve the consumer trust especially when they using the vehicle repair services. With such great policy, it would be great news for vehicle repair shop to rebuild its business system with substantial of subsidies from the government.

Economic factors

- Apart from that, economic factors would be another greatest challenge for vehicle repair industry. Most of the time, vehicle repair companies purchase the automotive spare parts or materials were usually importing from other countries and trading in US dollar. For this reason, they may have to pay extra more for the parts in accordance with the Malaysian currency's dismal performance, which dramatically caused an overwhelming financial burden for the businesses. According to Malaysian Chinese Newspaper, (DAILY, 2015), automotive spare parts imported from abroad may increase in prices by 20 to 30 percent due to the weakening of Malaysian currency.

- Under taxation practices, vehicle repair workshops have to obey the taxation compliance that governs how they deliver a better service or solution to the customers. In 2015, the Malaysian government has proposed a change in the tax system by introducing Goods and Services Tax (GST). Unquestionably, it creates some significant impacts to the vehicle repair businesses because many companies have to incorporate this taxation into their business system, which is totally creating financial uncertainty to those companies. Furthermore, according to the Malaysia's first source for automotive news, paultan.org, the spare parts, car accessories subjected to the same tax structures and the prices may do go up if the taxation rate increase in the future (J. J. Tan, 2015).

- Up to the present time, highly growth vehicle population also creates strong competition for the vehicle repair businesses. Indeed, price wars could begin when every company tries to grab the business as much as they can. As a result, it would gradually create aggressive price wars, which are disrupting the healthy competition of vehicle repair industry in Malaysia as well as resulting in overcharge, cheating or lying to the customers. Certainly, this could lead to the negative impression on vehicle repair businesses.

Social factors

- On the other hand, social factors could create numerous influences to the vehicle repair industry. According to a survey that conducted by Malaysian famous automotive blogger, (D. Tan, 2014), together with Carama by Castrol, this survey illustrated that 77% of Malaysian drivers are disappointed with the current quality of vehicle repair work. Based on those submissions, he highlighted that 71% of respondents are worried about the vehicle defects that have been repaired will re-occur again. Interestingly, 92% of the respondents are afraid to encounter any overcharge issues especially when they have to pay the bill to fix their vehicles. Indeed, this survey successfully cited that lack of quality and trust is a barrier holding the customer back. From this instance, this negative perception could penetrate into vehicle owner mentality and it would be a very challenging topic for all vehicle repair workshops to retain their customers as well as rebuild the reputation of the companies. Conclusively, the survey also outlined that Malaysian drivers are desperately seeking for better technical expertise and transparency in service of vehicle repair workshops, as shown in figure 4.9.

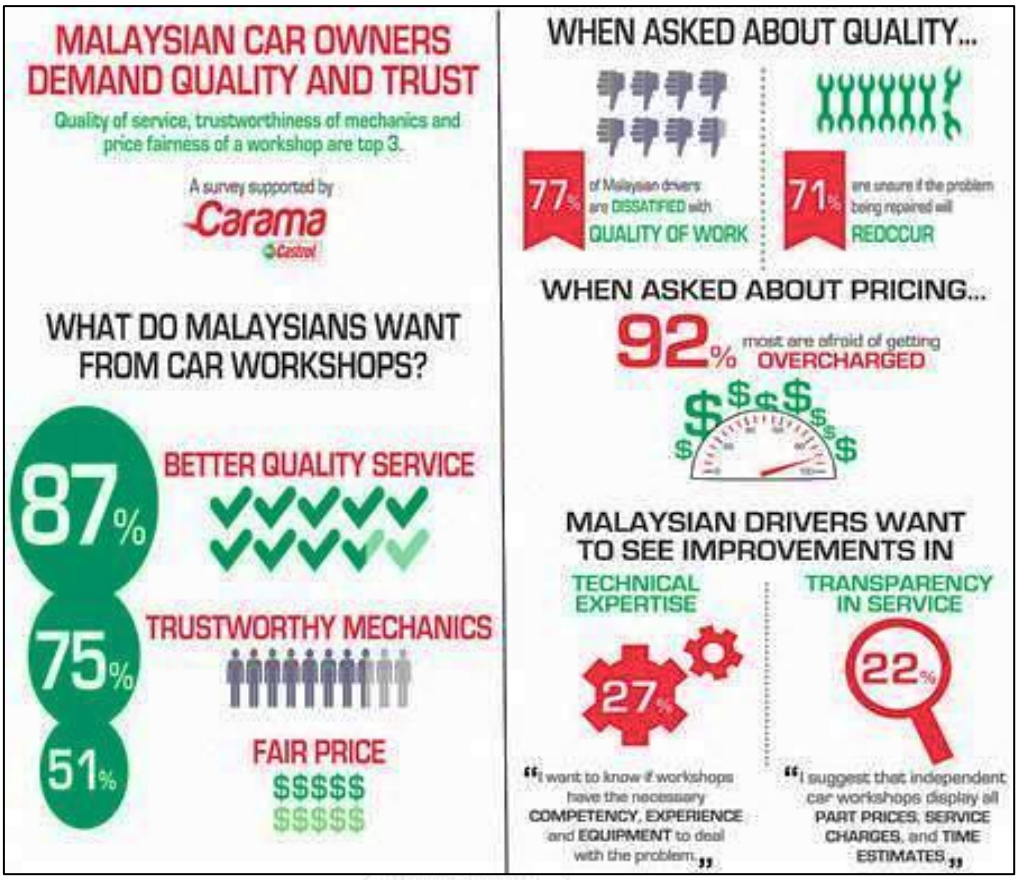


Figure 4.9: Malaysian car owners demand quality and trust (D. Tan, 2014)

Technological factors

- In technology aspect, the evolution of vehicle technology tremendously burdens the vehicle repair businesses from time to time. The main reason is because of the fast paced of technological advancement in the automotive industry has dramatically increased the complexity of vehicle maintenance and repair. For example, there are many existing electronic systems can be found in todays' motor vehicles. Therefore, vehicle repair business requires better technical expertise and highly skilled workers to handle the modern equipment in order to facilitate the vehicle maintenance and repair processes. Definitely, this factor could increase the expenditure of the workshop businesses, because the company has to provide extra training to its employees, especially with up-to-date repair procedures and acquire new modern repair facility to improve the repair quality for its customers.

Legal factors

- Under business law practices, vehicle repair workshops have to obey the health and safety regulatory compliance that governs how they ensure the health and occupational safety during vehicle repair. Therefore, vehicle repair need to conduct some employee training to allow the employees understand the working safety and legal compliance at their respective workplace.
- In its place, minimum wages policy also increased the expenditure of a company because the company has to pay extra more to guarantee the minimum wages of each employee.

Environmental factors

- As an environmental concern, Malaysian Government has established environmental policy in order to pollution control on oil residue and the automotive wastes. In the case of improper automotive waste disposal, authorities may impose significant fines or heavy penalties to the company's directors and employees for breaching the environmental policy. Therefore, vehicle repair workshops have to follow the guidance of the Environment Agency and introduced good hygiene practices on storage and disposal of automotive waste. Furthermore, Environmental Agency will annually visit the workshop and carry out routine audits to review its business activities whether still comply with environmental requirements.

4.3.2. Industry Analysis

As case company's senior management gain the knowledge of macro environment described as above, Michael Porter's five forces analysis will be carried out to assist the senior management in looking into their competitive forces within vehicle repair industry in Malaysia. Obviously, this method demonstrates the competitiveness of case company in terms of buyers, suppliers, rivalry, substitutes, and new competitors.

- **Buyer Forces**

As we known, the main customers of case company mostly are vehicle drivers or owners. In this case, vehicle owners usually wish to fix their problematic vehicles by sending it to any vehicle repair workshop for maintenance and repair services. Obviously, switching costs for customers are low because they could basically send their vehicles to any reliable independent vehicle repair workshops. However, in reality, it is interesting to note that vehicle repair and maintenance service quality can be found respectively from the competition. At the same time, customers may not know about the accountability of service repair workshops, prices of parts and services charges. To be sure as first time customer, there is always a dilemma especially when they manage to find a vehicle repair workshop, which offers good quality vehicle repair services at fair and affordable price; therefore, in this case, most of the customers are afraid to be haunted by the poor service quality and pricey service charges. At the present time, existing independent vehicle repair workshop obviously lacks transparency in the business especially in terms of service quality, pricing and technical expertise; consequently, customers may not really know about the auto repair services as well as their rights in auto repair. As shown above, the threat of backwards integration is extremely low.

- **Supplier Forces**

On the other hand, the suppliers of case company are vehicle manufacturer's aftermarket auto parts distributors or original equipment manufacturer (OEM), for instance, Toyota Genuine Parts Centre or Honda Automotive Parts distributors. As a matter of fact, these automotive conglomerates identically dominated its automotive aftermarket industry; therefore vehicle repair workshop was unable to reduce its reliance on these automotive parts suppliers because their automotive products are equally important for the case company. Indeed, this is clarifying that automotive parts suppliers have higher bargaining power than case company. Consequently, case company has managed to initiate an annual contract with the suppliers in order to ensure the adequate supply of automotive parts and equipment to smoothing the business process.

- **Threat of new market entrant**

Due to the increasing demand for vehicle maintenance and repairs in Malaysia, there are many newcomers have started to step into this red ocean business environment, especially those large automotive conglomerates. The main reason of this phenomenon is because they are expecting potential profits return from this attractive industry and at the same time boost the sales of automotive spare parts. Furthermore, the entry and exit barrier of this industry is low and those who with adequate capital and capable of repairing a vehicle can just easily setting up an independent workshop. As a result, new firms with better capabilities might change the rules of competition, which creates strong pressure for existing players.

- **Threat of substitution**

When to thinking about the competitive pressure of substitutes in this industry, vehicle repair workshop generally offers everything related to vehicle repairing, repainting, car care maintenance and insurance claims. Accordingly, there may be less pressure regarding the threat of substitution, because according to General Insurance Association of Malaysia (GIAM), only officially approved panel workshop can provide insurance claiming service and accountable to repair the dented vehicles at the same time. For example, if someone who involved in a vehicle accident in Malaysia, vehicle owner may be possible to authorise an approved panel vehicle workshop to repair the vehicle and concurrently making an accident compensation claim. As a result, the threat of substitution in this industry is tremendously low because approved panel vehicle repair workshops in Malaysia were the only body that provides comprehensive accident insurance claim for the vehicle owner.

- **Existing competitive rivalry**

Vehicle repair industry is a red ocean of competition due to the number of competitors is steadily increasing while there are low barriers to entry or exits this existing market. Moving along with the time, vehicle repair and maintenance services that provided by the workshops were booming and identical, therefore it was less pressure for the vehicle owner to choose a reliable workshop to repairing and maintenance its lovely car. Furthermore, the volatile demand of vehicle maintenance and repair services also

leads to a strong competition of this niche sector because every existing player tries to grab the business as much as they can in this competitive environment. As a result, many existing players has suffered low-profit margin primarily due to the volatile demand and intense competition. In order to stand out amid competition, some strong players started to expand their business with new automotive branches or renovate with new facilities plan to attract customers and improve existing customer satisfaction.

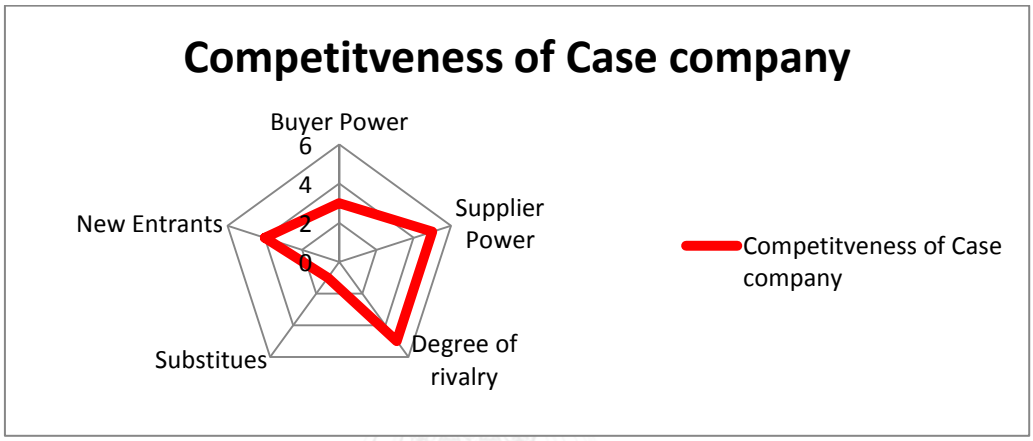


Figure 4.10: Competitiveness of case company

Last but not least, the diagram of case company competitiveness, as shown in figure 4.10, showed that supplier power and intense competition with new entrants are seriously pressurizing this business sector; by the same token, case company has to put more efforts to retain its existing customers to survive or evolving in this red ocean environment. Under those circumstances, it could be a serious challenge for the case company to transform its firm to an effective and efficiency organisation.

4.3.3. Internal Analysis

After demonstrated the dynamics environment of this niche business sector, it would be a great time for the case company senior management to look into its internal environment of this business. For this reason, this section aims to perform an internal analysis of case company by using SWOT analysis in order to determine the core competences on the positive side and competitive deficiencies of the business on the negative side.

Initially, case company owner has clearly highlighted that the workshop business was constantly underperformed in the past few years, which means that the senior management obviously no longer executed any better strategies and persist in the traditional way of doing business although this may be true as the demand for vehicle maintenance and repair services in Malaysia was dramatically increasing. In this case, it would be equally important to allow the senior management team to understand its organisation's capabilities and resources before initiating the changes of business.

In order to evaluate the company's resources and capabilities, SWOT analysis framework will be used as a strategic tool to determine the capabilities of case company including the company's strength, weakness, market opportunities and external threats that influence the vehicle workshop business. With this in mind, senior management can easily identify the core competence and develop its strategic action plan that truly based on the firm's capabilities and resources which collaborate with the company objectives accordingly.

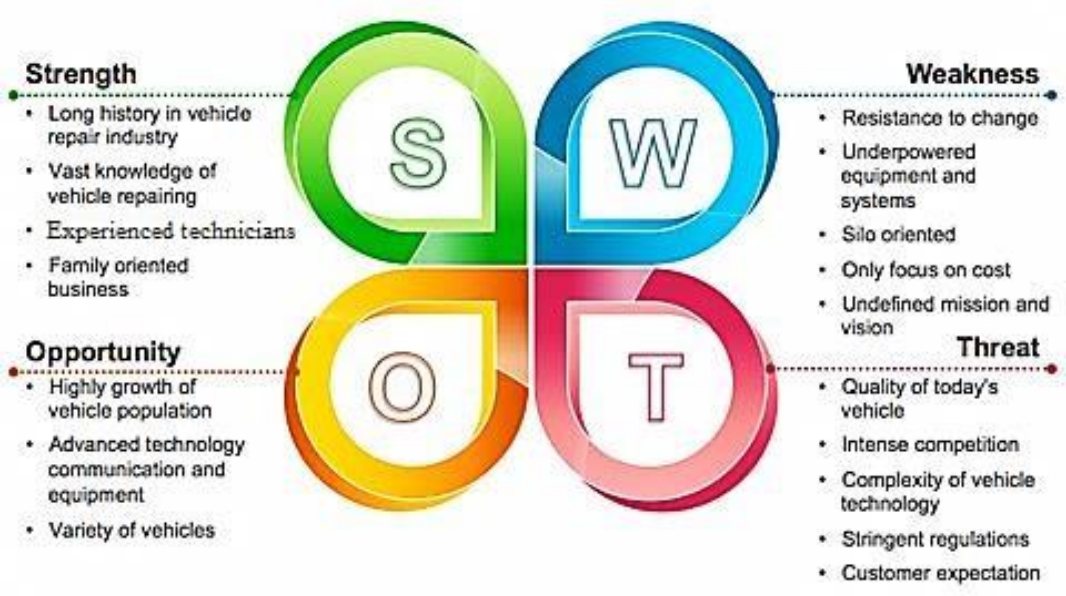


Figure 4.11: SWOT Analysis for case company

Strength

- When it comes to the internal strength of case company, it is important to realise from the background of case company because it has established almost 27 years on the western coast of Peninsular Malaysia. According to the business overview,

it consists of a long history in vehicle repair industry and it has a credible reputation in the region as an integrated vehicle repair workshop.

- Moreover, another key strength within the firm is the technician team who really passionate about cars, as they love to fix and customise vehicles. Indeed, those professional automotive technicians consist of vast knowledge of vehicle collision repair techniques and at least ten years working experience as an automotive technician. Uniquely, they still pursue extra training from time to time so that the skill level of being professional automotive technician is still preserved. In fact, this strength could be a distinctive competence of the business because it's not easy to be duplicated by the other competitors in terms of intellectual capital and professional repairing skills.

- As a part of collision profession association, case company is an officially approved panel workshop and permitted by General Insurance Association of Malaysia. With this in mind, case company is a family owned small business so everyone tries to commit their best effort to help the business grow and survive.

Weakness

- Typically, one of the biggest constraints within case company is resistance to change in the organisation development. To be informed, the owner never changed his way of the managing business for the past two decades, as a result, this culture has deeply rooted within the organisation from the top to bottom, and eventually, senior management tried to associate change with negative results. With this in mind, this issue could be a barrier for the business to move forward in the fast changing business environment, in the same fashion, it also difficult to survive in the red ocean environment.

- On the negative side, out-dated equipment and tools could be another challenge for case company. As long as the fast moving pace of automotive technology development, it could be complicated for automotive technicians to restore the vehicle back to the factory specification. Without those specific tools and advanced

systems, many adjustments of the vehicle maintenance and repairs are just fully based on assumption and prior experience, which eventually led to quality and safety issues.

- General speaking, it's easy to point out the traditional businesses tend to be less cooperative, cost oriented and silo functioned. Without a proper alignment amidst the case company, most of the business units do not collaborated and employees refused to share the information across the company. For instance, the customers may feel the company is non-systematic; especially when they found out the claim officer has no idea about the detail of vehicle repair progress. Eventually, this could create a conflict between the business units, doubled the cost of working and effort as well as decreasing the customer satisfaction respectively.

Opportunity

- As described in the macro environment analysis, highly growth vehicle population is remarkably increasing the demand for vehicle maintenance and repairs. In the meantime, this could be a potential opportunity for case company to expand its business in order to seize the market share of this industry.

- Another interesting opportunity that has been discovered is participating automotive manufacturer's dealer program. Together with this opportunity, case company can easily be a part of automotive conglomerates' authorised service centre. With attention to the advantage of brand recognition, case company could follow the guidance of automotive manufacturer experts to transform and improve its business units, however, it's not easy to work along with the automotive conglomerate because it requires decent portfolio of the company such as strong automotive background, large amount of capital, including management experience in sale or marketing.

- The next opportunity is backwards integration of the automotive repair supply chain. Not to mention from supply chain perspective, automotive parts' suppliers have higher bargaining power than vehicle repair businesses, for this reason,

vehicle repair workshops need to completely depend on the supply of automotive spare parts from their suppliers. In this condition, if the vehicle workshop purses backwards integration by moving upstream to produce its automotive parts internally, it's not only controlling the supply of the automotive spare parts but also improve the efficiency of the vehicle repair workshop business processes.

Threat

- At the same time, there are some external factors surprisingly threaten the vehicle repair business from time to time. To be honest, the first thing to remember is the rising cost of doing business. Indeed, it could be affected by the external factors such as currency exchange rates, labour rates or economic policy and political factors, for example, recession and inflation.

- Moreover, vehicle technology advancement is another great issue. As we known, the evolution of vehicle is vibrantly increasing the complexity of the vehicle model. Therefore, it's quite difficult for technicians to instantly keep track with latest repairs standard but also it might require a large investment for any purchase of high-tech auto repair equipment and extra training.

- In addition, most of the vehicle workshop businesses often encounter the problem of shortage-qualified technicians. As a matter of fact, the education level of young generation was significantly improved therefore many youngsters are not willing to work as an auto technician due to long working hours and an uncomfortable working environment.

4.4. Stakeholder Analysis

When comes to focus on the business organisation of case company, it's essential to understand stakeholders' roles and responsibilities of running the business activities. According to R. Edward Freeman, he has defined that stakeholder is all about an individual or groups of people that dynamically influence the organisation and business processes (Nightingale & Srinivasan, 2011). For this reason, senior

management should recognise who are the stakeholders in the business, including understands their stakeholders' needs and expectation in the event that crafting any business strategy. To be sure, Freeman also believed that stakeholder is the one who shaping the success of the business (Nightingale & Srinivasan, 2011).

At the same time, according to the book "Manager's guide to navigating the change", stakeholder analysis is an assessment to examine and understand the stakeholders' perception in accordance with the overall business strategy (Rock, 2012). With this intention, stakeholder analysis can help the senior management to discover the values exchanges relationship between its enterprise and the stakeholders. Eventually, senior management could re-determine the value proposition of vehicle repair business to satisfy its customers' needs. In spite of the knowledge of stakeholders, senior management also can calibrate the enterprise values with respect to the stakeholders' values prior to stimulating any changes of the business.

4.4.1. Stakeholder Identification

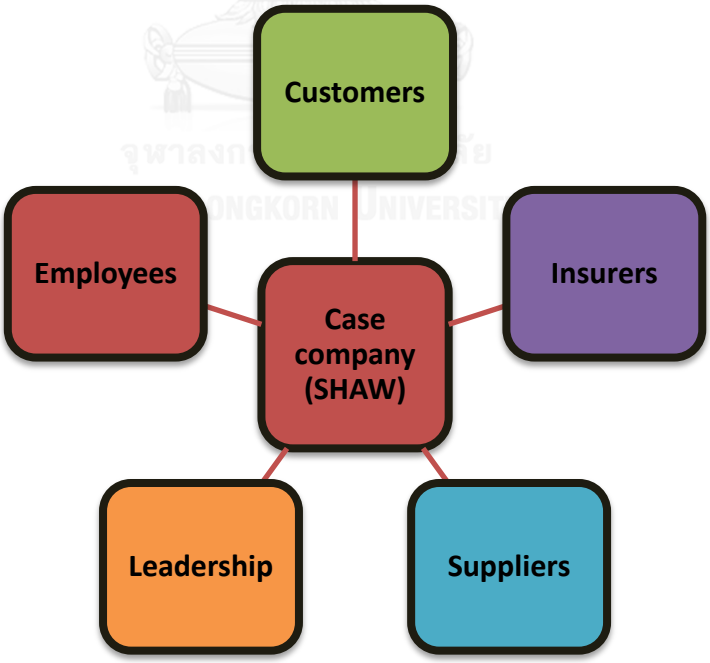


Figure 4.12: Stakeholder map of case company

According to the interviews with case company's senior management, including direct observation, there are five common stakeholders groups relevant to this business. As figure 4.12 shows, this stakeholder map unfolds into five key stakeholder groups such as customers, insurers, suppliers, employees and senior management. Here, different stakeholder groups have different kinds of roles play as well as concerns about the relationship among the various stakeholder groups, including the changes of the business that could bring massive impacts into the business.

- **Customers**

First of all, the customers are the first significant stakeholder group that influentially impacts the case company, because vehicle driver or car owner is the end user that actually consumes the products or using the vehicle repair services. Correspondingly, they have the legal right to authorise any vehicle repairs work to fix an accident car. If as an illustration, it is interesting to note that this scenario is completely same as the moment when a customer visits a restaurant, customers may order food according to their appetite, but they may also listen to the chef's recommendation. From this example, senior management could immediately see that different customers' needs may require a different set of ingredients or perhaps involves other business activities; unquestionably, customers' needs are dynamically triggering a variance at the business processes. With this in mind, this example shows the customers' needs implied a one-to-one relationship between the customer and case company, which means that customer's needs are deeply connected with the business processes, in other words, by this implication, case company must satisfy its customer by providing sufficient values and it's essential to understand what is customer actually want.

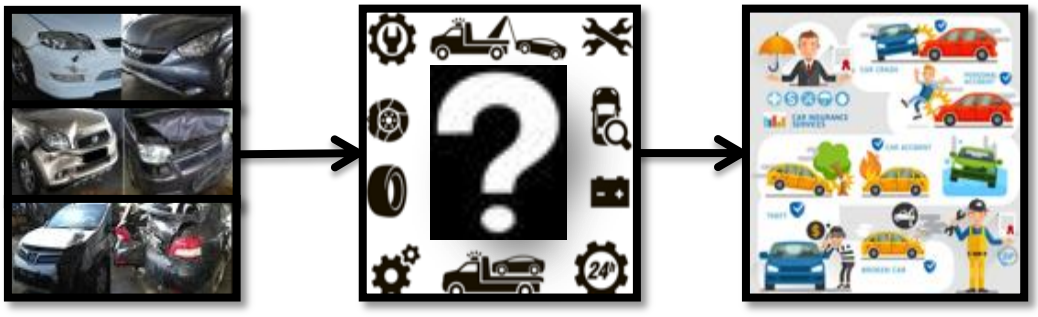


Figure 4.13: Customer's confusion after a traffic vehicle accident

As figure 4.13 shows, whenever a vehicle traffic accident, most of the customers may not only confuse on vehicle repair services, but they also may harder to make a decision in a short period. In this case, case company not only provides vehicle repair services but it also responsible for assisting the customer to find the clarity on what customer should do after an accident. As a matter of fact, minor damages may be costly to repair, and it could be an adventure when a customer has to choose a reliable vehicle repair workshop. In spite of these issues, the customer still concerned about the price, quality of the services, accurate repairs information, and fair treatment.

- **Insurance companies (Insurers)**

Rather, case company was working closely with another significant stakeholder groups on a regular basis, which is known as the automotive insurance companies. Until now, case company has annually performed more than hundreds of insurance claims for the car accidents. Indeed, this long-standing relationship has been driving case company's senior management to think that insurance company is its real customer, because in here, insurance companies will compensate the vehicle policyholder for the claim money based upon the final cost of repair from their authorized repairers, which is corresponding with the same goes for case company. In the meantime, as long as case company helps its customer promptly file an auto insurance claim with a letter of subrogation, case company will direct receives the claim money from the insurance companies to repair the accident vehicle. Ordinarily, the vehicle owner would not receive any claim money at all until the repair work has been completed, so in the end, the customer will eventually receive a repaired car. As can be seen, an insurance company is the one who paying for the claim, meanwhile case company is providing automotive services and repair to its customer. For this reason, case company's senior management concluded that insurance company is their actual customer that actually pay for the services and specify requirements for them, whereas vehicle owner is the end user that actually use the insurance claim and repair services.

Generally speaking, in this moment, this relationship may sound complicated or strange, especially for those who never filed an auto insurance claim before.

Therefore in order to make it clear, figure 4.14 shows the triangle relationship, especially when an insurance company has entered the relationship between case company and vehicle owner.

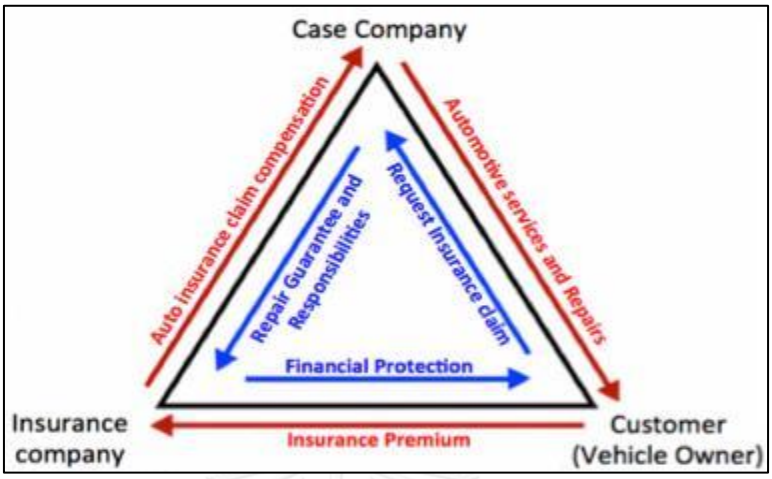


Figure 4.14: Triangle relationships amid case company, insurer and customer

As can been seen from figure 4.14, once put this relationship into a car accident simulation, this triangle relationship may do not sound complicated for any longer. In the view of this relationship, whenever an insurance company and a customer have entered into an agreement of automotive insurance contract, the insurance company has to be responsible for providing a financial protection to its customer. At this instant, the vehicle owner must pay for a yearly insurance premium in order to "insure" the value of a vehicle.

Additionally, as long as car accident happened, vehicle driver usually inform the insurance company or insurance agents at the first place, which is together with a request for insurance claim and substantial concerns. Meanwhile, the insurance company may provide recommendation and insist particular authorised panel vehicle repair shop, somehow has better quality in terms of insurance claims service, high-quality repair work, technical expertise and warranty protection. Besides that, the insurance company may also inform its customers about the customer's insurance policy may only cover repairs work by particular accredited repairs shop; therefore, vehicle owner needs to select whether without going through car insurance or just receive compensation in accordance with the insurance company to repair its car.

Once everything considered, the customer may request an insurance claim via an authorised repairer and permit an authorised repairer to take care of its damaged vehicle. Unquestionably, the insurance claims adjuster will assess the damages, and then, negotiate the "insurance compensation settlement" with vehicle repair shop in order to return for a properly repair vehicle. Obviously, the insurance companies have a repair contract with their authorised repairers; therefore, insurance companies have a higher position to specify the requirements for their authorised repairers.

As a matter of fact, insurance company and case company were respectively assisting the same customer in order to provide the repair solution to ensure their customer get their car repaired efficiently and making the best use of automotive insurance. For this reason, insurance companies worked collaboratively with case company and setting up some policies to ensure the quality of vehicle repair workshop, so that vehicle repair workshop must be on par and meet certain standards, otherwise they just dissolve the collaboration without any contract extension and insurance company eventually looking for another potential vehicle repair shop to work under their supervision. Interestingly, insurance company actually acted as be the customer of case company, but at the same time, both parties are working closely as partners to reduce the negotiating time, unwanted concerns and least risky for all parties involved.

- **Suppliers**

Case company has a number of supplier groups who are responsible for providing automotive spare parts and repairs hardware. Needless to mention, all suppliers were strictly concerning about the timely payment of a large amount of money for the automotive parts and hardware. In vice versa, senior management was seriously concerning about the delivery time and quality of their suppliers. Again in here, case company is unable to make its own automotive spare parts; therefore case company has to fully rely on the supply of spare parts from its supplier groups. Convincingly, previous statements have indicated that the suppliers also have a one-to-one relationship with the case company's business activities, because the efficiency and effectiveness of suppliers could directly affect the business processes, therefore, it's essential to choose the right supplier for case company.

- **Employees**

In the meantime, employees are the genuine stakeholder group who working in the company, such as the claim advisors, estimators, part manager, technicians and so on. In general, they were employed under the contract of service in order to receive some forms of returns include salary, incentives or annual bonus. Furthermore in a business perspective, they are acting on behalf of the enablers of the business process with the engagement of skills and knowledge. Evidently, in reality, human power also triggers the business processes as well as the efficiency and effectiveness of the business. Therefore, hiring the right person in right position would be a challenging task all the time. To sum up every point, table 4.3 summarises the roles of different stakeholder groups, including their respective concerns.

Stakeholder identification		
Stakeholder	Role description	Concern
Customer	Person who has the legal right to authorise any repairs service and truly consume the services related to vehicle repairs or car maintenance.	• Price • Quality of service/repairs • Reputation of the workshop • Technical expertise
Insurer	A formal organisation that setting the insurance claims process and work closely with vehicle repair workshop businesses to control the cost of repair.	• Insurance policy • Accident information • Repair estimation • Technical expertise of the repairs shop
Suppliers	An individual or organisation that supplies the automotive spare parts and vehicle hardware to vehicle workshop in exchange for money.	• Timely payment • Parts requirement • Competition among the suppliers
Employees	An individual who works for case company, vehicle repairs business.	• Employee Benefit • Reward recognition • Working condition • Job security

Table 4.3: Stakeholder groups' role description and their concerns

4.4.2. Stakeholder Value Elicitation

In this section, stakeholder value elicitation is a useful approach to help the senior management to identify the current value proposition among all stakeholders in enterprise level. Indeed, this process may be an initial point to help the senior management to reflect the values as delivered by the stakeholder groups into the business as well as in the reverse direction, the values that expected by the stakeholders. In order to accurately interpreting on the stakeholder values, this section involved multiple interview sessions and knowledge sharing between all relevant stakeholders because engaging a conversation with relevant stakeholders can easily identify some intangible values that stakeholders expect in exchange for their contribution.

- **Suppliers**

First of all, most of the suppliers agreed that fair and ethical treatment from case company could eventually turn their one-to-one arm length relationship into a mutual benefited long-term relationship because those suppliers are more likely to do business with a trustable and reliable company. At the same time, they still highlighted that appropriate and timely payment could be the key enabler of both parties' relationship, which resulting the high product quality assurance and punctual delivery. Table 4.4 shows the values expected by suppliers and contributed to case company.

Value expected from the suppliers	Stakeholder Group name: Suppliers	Value contributed to case company
• **On time payment** • **Fair and ethical treatment** • **Build long term relationship**	SHL Auto Parts Ltd, HM Ltd, KT Auto Parts Ltd and etc.	• **Spare parts (Raw material)** • **High-quality products** • **On time delivery**

Table 4.4: Values expected by the suppliers and contributed by suppliers

- **Employees**

When it comes to the employees group, most of the employees typically expected their employer could pay them good wages in a timely manner as well as the annual bonus. Furthermore, they think that mutual respect in the workplace and good working environment are markedly important, especially when they commit their best effort to the company. At the same time, most of the technicians wish to improve their professional repairs skills by attending training programs. Within this workshop business, the most important values contributed by the employees are employee commitment in terms of time, energy and efforts, including technical knowledge and repairing hands-on. By understanding the employee value proposition, it could be an opportunity to engage its employees as well as retaining the important skills of the employees, especially in vehicle repairing expertise. Table 4.5 summarised the employee value proposition of case company.

Value expected from the employees	Stakeholder Group name: Employees	Value contributed to the case company
• **Timely good wages** • **Promotion opportunities** • **Respect among employees** • **Good working environment**	Claim advisors, Technicians, Parts managers, Estimators.	• **Technical knowledge** • **Repairing skills** • **Commitment in term of time, energy and efforts**

Table 4.5: Values expected by the employees and contributed by employees

- **Insurers**

As table 4.6 shows, most of the insurance company agreed that they expect outstanding customer service, short cycle time and staff professionalism of case company, eventually, boost the confidence of the customers towards vehicle repair industry. In addition, they are strictly against the fraud in insurance claim and faithful to fair estimation. At the same time, they tried to provide some professional guidance or training to case company's claim advisor in order to assure that the insurance claims handling always in a standard operating procedure. Indeed, the insurance companies also provide accreditation and repair contract to potential vehicle repairs workshop, if they consistently achieves exemplary service and quality vehicle repairs.

Table 4.6 shows the values expected and contributed by insurers to SHAW workshop business.

Value expected from the insurers	Stakeholder Group name: Insurers	Value contributed to the enterprise
• **Good repairs & service quality** • **No fraud in insurance claim** • **Fair and Ethic estimation**	AXA Malaysia, Kurnia Malaysia, ING, Tokio Marine, Allianz and etc.	• **Business quality assurance** • **Award or Accreditation** • **Offer variety of conferences or training programs**

Table 4.6: Values expected by the insurers and contributed by insurers

- **Customers**

Not to mention again, the main customers of case company are vehicle owner, driver or vehicle policy owner. Of course for case company, it could be difficult for doing any customer segmentation on particular customer characteristics, due to its customers may come from different background, age, using different types of vehicles, different repair job orders, concerns and so on. However, one of their shared similar characteristics is they want to have their car fixed on time at a reasonable price, therefore, definitely they also want to have a hassle-free and efficiency way to retain back their mobility. No matter how unique about the customer needs, generally speaking, most of the customers would like to stay with the case company, as long as customers feel its value for money. Table 4.7 shows the values expected and contributed by the customers to SHAW workshop business.

Value expected from the customer	Stakeholder Group name: Customer	Value contributed to the enterprise
• **Convenience** • **Acceptable price** • **Excellent service** • **Good quality** • **Promise delivery** • **Accurate information**	Vehicle owner/ Vehicle driver/ Vehicle policy owner	• **Money** • **Customer information** • **Customer relationship**

Table 4.7: Values expected by the customers and contributed by customers

Last but not least, the detail discussion on customer analysis will be on next sub-section, customer sample analysis and customer consumption map. With those

analyses, senior management could immediately see their customer values in a more detail manner and to determine how to deliver the values that expected by the customer.

In conclusion, the previous two sub-sections of stakeholder analysis obviously are not just telling the stories in regard to the importance of stakeholder's roles and responsibilities in this workshop business. Yet, it provides a clear concept to the senior management, so that they could immediately comprehend the benefits of retaining the existing customers, especially with respect to the value exchanges between the stakeholders and enterprise itself. With this in mind, senior management may realise that the stakeholders' relationship is entirely connected in conjunction with the overall value proposition of case company (Nightingale & Srinivasan, 2011). Moreover, stakeholder analysis is to help them to rethink about the business model based upon value-centred concepts, and learn to listen and understand the needs of customers, suppliers and from other stakeholder groups rather than acting arrogance or being cost oriented (Heskett, Sasser, & Schlesinger, 2010). For instance, a realistic business transformation in the World that actually happened at IBM Company was convincingly illustrating that a business crisis could eventually help them to initiate a business rethinking process, where it helps to successfully transform the business. Moreover, managing the values exchanges among the various stakeholders would be a dramatic challenge because there is always a trade-off where that the senior management may not able to fulfil all stakeholders needs. For this reason, senior management has to rethink and prioritise the stakeholders, and obviously in this business, the customer is extremely important and requires the highest values from case company. According to (Brunt & Kiff, 2007), authors of the book "Creating Lean Dealers", they stressed that ***"avoid doing something that unreasonably drive customers away, which is more likely to improve the customer satisfaction, so called "loyalty".***

4.4.3. Customer Sample Analysis

When comes to this sub-section, most of the people would like to understand their customers by using a number of questionnaires or interview a group of customers in order to feedback certain context of customer needs, including facts of the business performance. Rather, customer sample analysis at this point could be a different type of measurement, because it will be focusing on a hundred samples of successive random vehicle repair jobs, which have been completed in the year of 2013. Indeed, these genuine data are obtained from the customer's repair order database; correspondingly, it clearly indicates that the compelling evidence is eventually coming from the customer side. Please refer to the appendix **B** for any consistent information, such as 'vehicle type', 'traffic collision severity level', 'initial estimation amount', 'vehicle arrival date', 'claims approval date' and so on. Figure 4.15 shows the successive random vehicle repair jobs orders on the year 2013, reprinted from case company.

Figure 4.15: A hundreds of successive random vehicle repair jobs orders

Following to the appendix, the spreadsheet apparently demonstrated the facts that whether the case company performed the repair jobs accordingly, either right first time or right on time. According to (Brunt & Kiff, 2007), they defined that this measurement is to measure the customer satisfaction in a different way by not only looking at the records, but eventually it helps to highlight the internal business processes on ***"how and where its impact the customer experience"***, especially when people doing business with their customers. However when comes to the attention to the data of the company's performance, obviously there are several doubts which are not fully clarified, first:

- How did senior management know about the due date of each job orders?

- Who set the due date of each job orders? Case company? Insurance company?
- How did senior management know the car handed back on time?
- How did senior management know there were any additional works?

In order to make the good use of this sample analysis, senior management finally explained the key criterion of typical vehicle repair shop in terms of vehicle repair duration. In reality, insurance companies have set a norm of vehicle repair duration, as described as the standard duration of repair works (Average time required to repair a vehicle). In fact, this criterion should be considered as the industry standard of authorized repairers, so that case company have to promise to deliver a repaired vehicle on certain duration, or else case company would receive warning or penalty from insurance company, if even more serious, the insurance company may revoke their repair contract, including the accreditation of insurance approved repairers.

Along with this industry benchmark, the initial estimation of vehicle damages is totally based upon the vehicle damages severity; meanwhile, different vehicle damages severity level has a different limit on the duration of each repair. For example, if an accident vehicle that has been estimated requires less than 50,000 Baht to repair, insurance company would consider it as a "Low/Minor" vehicle damages severity level, therefore once the insurance claim has been approved, insurance company may expect the case company could fully repair the accident vehicle within seven (7) working days. Table 4.8 shows the actual benchmark of the duration of each repairs work based upon the vehicle damages severity level.

Initial estimation amount of damages	Vehicle damages severity level	Expected duration
Below 50,000 THB	Low/Minor	7 Days
50,000THB – 100,000 THB	Moderate	14 Days
100,0000THB – 200,000THB	High	21 Days
Above 200,000THB	Serious	30 Days

Table 4.8: Actual expectation of duration of work
(Average time required to repair)

Based on table 4.8, senior management could notify that each vehicle damages severity level refers to certain repairs duration; therefore, once the insurance company approved the claims, they can immediately identify when would be the due date of each job orders. On the other hand, according to insurance claim procedures, case company requires the customer to sign a "vehicle satisfaction note" during the completion date in order to declare the satisfaction with the repairs work prior to returning the vehicle back home. Logically, senior management could aware how long case company takes to repair each accident vehicle.

To put it differently, in any event, any extra works can be easily found by looking at the customer job orders, because each job orders consist of those official documents in terms of repair details, accident report, estimation report, parts orders, and final bill. For example in certain case, the case company may do require some "supplement requests", because estimator may overlook some vehicle damages, fluctuation in automotive parts prices as well as some necessary quantities have been left off its initial estimate report. Under this circumstance, case company usually may not bear with this incident and certainly not charging the customer for anything; so that they probably rewrite an estimate and ensure insurance company cover all the damages and the actual cost of fixing the accident vehicle. On the contrary, this circumstance obviously exposing some additional activities in the processes, especially when any re-estimating, overestimating, automotive parts late delivery and so on. Along with those clear explanations above, senior management could truly understand the facts of the business performance with the good use of this analysis; they may also found some reasons behind why the case company failed to commit the best efforts to the customers.

Initially, those samples data are divided in accordance with different collision severity level, whereas can been to see that low and moderate collision severity level approximately contributed 80% of the business demand in the year 2013, whereas the high and serious collision severity only contributed one-fifth of the demand. Table 4.9 shows the number of cases in accordance with different collision severity level.

Traffic collision severity level	Number of cases
Low	36
Moderate	42
High	12
Serious	10
Total	100

Table 4.9: Number of cases according to different collision severity level

Through the analysis of those successive repair job orders, put everything together in a big picture, the result of this customer sample analysis demonstrated table 4.10.

Result of the customer sample analysis		
Element	**Score**	**Comments**
Overall customer satisfaction	**50%**	• Half of repair jobs come with quality or delivery problem. Unquestionably, it showed that the case company's internal processes had a fifty-fifty chance went wrong at each step. • Half of the customers were suffering a quality or a delivery problem, which means case company probably, loses 50% of customers in the future. • For first time customers, it assumed that 50% of customers might not come back again and may lose 50% of revenue if this happens again.
Jobs with quality problems (Not fixed right first time)	**13%**	• Approximately, there was a one-sixth chance of failure to provide good quality at each step of internal processes. • In this case, some of the customers have to return back in order to fix the existing quality problems.
Jobs with delivery problems (Not handed on time)	**37%**	• There was slightly more than one-third chance of failure to deliver the vehicles back to the customer on time.

		• In this case, some of the customers had to wait again and again in order to get their car back.
Jobs with In-house repair	**79%**	• Here, 21% of vehicles were outsourced to other vehicle repair shops. Obviously, this analysis showed that this was primarily due to poor planning of the workshop.
Jobs with additional work	**20%**	• Approximately, there was a one-fifth chance of additional work to ensure the quality and delivery at each step of case company's internal processes. • In this case, employees have to work more hours in order to ensure everything is fine.

Table 4.10: Result of the customer sample analysis

From these results, senior management initially couldn't believe that these real facts are coming from its vehicle repair shop, so that they felt surprised and never assumed that case company were dissatisfying lots of their customers in 2013. From the analysis, there are approximately 37 vehicles are considered as not handed back right on time; meanwhile, 13 customers have returned their vehicles back to case company in order to re-do certain automotive repairs due to some quality problems reoccurred following the first month. In other words, there were half of the repair jobs had either a quality or a delivery problem. Unquestionably, senior management could recognise that 50% of the repair jobs may not complete appropriately and forcing some customers to return to the workshop, again and again, it would be a clear risk that dissatisfies the customers and perhaps most of the customers may lose their confidence toward case company in the future.

Obviously from these results, senior management could immediately notice that this was a reverse direction and lose focus on its business objectives, because this analysis vividly demonstrated that case company may lose half of its customers in the future, which apparently impacts the future business revenue. Apart from that, it may also tarnish the good reputation of the company; forthwith, senior management finally

realised that these are the reasons behind why the case company's profit margin was aggressively decreasing in the past few years.

On the other hand, when looking deeper into these results, every quality issue requires additional booking process to rework and redo any vehicle repairs again was costing extra amount of time, additional money and efforts. For instance, case company may not able to serve the new customers immediately, and then, it may delay and on hold some vehicle repair jobs in order to complete the recall jobs first. In contrast, according to David Brunt & John Kiff, authors of the book "Creating Lean Dealers", they mentioned that customer service and convenience are the important elements that create a great customer experience, but if the basics aren't right, every element will become forfeited especially when the vehicle wasn't repaired properly.

Additionally, case company may suffer losing opportunity cost and it creates more big issues in terms of poor planning and late delivery. As can be seen, 21% of job orders were outsourced to other vehicle repair shops; indeed, outsourcing may create certain confusion to its customer and there are plenty of risks associated with outsourcing such as quality issues, lead times, and regulatory factors. For example in reality, as part of insurance authorised repairer, outsourcing the accident vehicles to unauthorised vehicle repair shops actually violating the term and condition of the repair contract, which means that this is a hidden problem actually for the relationship between insurance companies and case company.

If looking back to the appendix, the highest lead-time of a moderate severity vehicle is apparently around 24 days. But if based on the expected duration, the customer should collect its car in 14 days once insurance company approved its claim. In contrast, it shows that customer has to wait more than a month in order to get its vehicle back, indeed, case company could offer some vehicle maintenance vouchers, discount, gifts and treated the customer politely, but this may be a little compensation for the customers, not to mention that customers may furious and felt helpless at that moment. From an operation perspective, senior management could discover that inefficiency and ineffectiveness of its business processes are not only burdens and

create waste for its business, subsequently, it also generate so many inconveniences to its customers, such as wasting their time, money and efforts. Alas, this scenario may create a poor experience and bad perception for the customers, at the end, customers wouldn't believe the case company able to deliver any promise accordingly in the future.

4.4.4. Customer Consumption Map

Based on the previous section, customer sample analysis may provide senior management with a clear and concise information regarding on the performance of the company's internal processes, as how well the case company delivering its services to satisfy the customers. As shown above, previous analysis awkwardly showed that half of the case company's repair job orders had come with either a quality issue or a delivery problem. On the other hand, senior management made an assumption that if a typical customer may require three (3) times of vehicle repair services in a year, perhaps the customer may have right first time on time experience was 50% × 50% × 50%, which means that the right first time on time experience could have amounted to 12.5%. To put it differently, this assumption can be set out as a logical calculation to indicate that there are seven (7) out of every eight (8) customers may have at least one terrifying experience with the case company, without including any interactions with the customer service.

By referring to the data, those numbers do actually provide the information from the past; however it's not rigid enough to an emphasis on how the customer sees the things. In a truth, senior management probably get used to inside-out perspective, thus they may simply overlook and missing clues about the context of customer needs and consumer experience. According to (Johnston & Clark, 2008), the author believed that ***"...Keys to good service design are about taking a customer, outside-in perspective and understanding the whole service processes..."*** On the positive side, senior management started to undertake a walk-through audit and acted as a surrogate customer in order to evaluate the entire service processes of case company from an outside-in perspective. Unquestionably, this walk-through helps them to learn to see about the consumer consumption and truly understand every touch points during a set

of business activities, which recognised as the route of a consumer to the vehicle repair service. As an illustration, customer consumption map is to draw a typical consumer consumption processes, starting from searching for vehicle repairs until the process that followed the vehicle repairs cycles, the consumption processes were divisible into three different cycles as follows as:

I. Customer's enquiries after a traffic accident

II. The first-time customer visits repairs workshop after a traffic accident

III. Multiple visits due to significant quality issues

According to (Johnston & Clark, 2008), the article summarised that customer experience is a ***"customer's direct and personal interpretation through a series of touch points on interaction and participation in the service process and its outputs."*** As experienced in the vehicle accident processes, senior management believed that a customer journey is full of series of interactions and involved intangible emotions, particularly some significant interactions in between customer and vehicle repair workshop's employees. Figure 4.16 showed the typical customer consumption processes after a traffic accident.

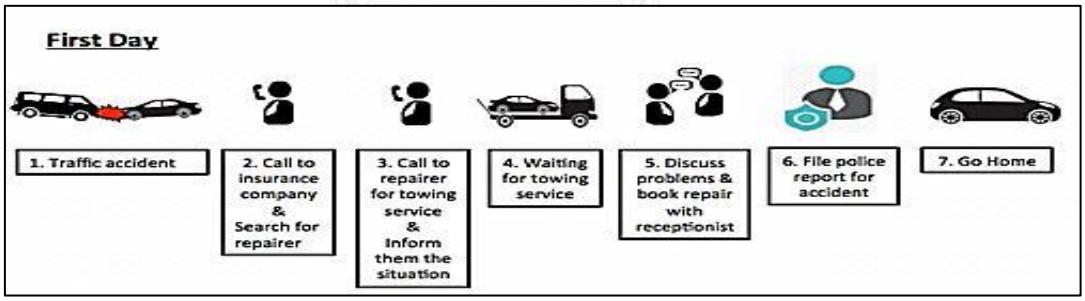


Figure 4.16: Customer's enquiries after a traffic accident

According to figure 4.16, it was the regular consumption practices of a typical customer after traffic accident as described as below:

1. Whenever car accident happened, the customer will initially try to make its first call to contact an insurance agent or insurance hotline in order to know what they exactly have to do after an accident. After notifying the insurance company, many people still do not know what to expect in order to get its car repaired.

2. With a great amount of pressure, the customer may inquiry plenty of questions regarding insurance policy, claiming process and recommendation of particular authorised vehicle repairing shop. With a proper guidance from an insurance agent, in general, the customer could receive a recommendation list of authorised vehicle repairing companies. At this moment, the customer has to choose a reliable vehicle repairing shop in order to get its vehicle repaired.

3. At this point, a phone conversation would be the first touch point in between customer and Case Company, because customer rings up for a towing service and inform the accident situation and concerns. Unquestionably, as front-office processes, case company's customer service receptionist would be the first front liner to serve and interact directly with the customer and concurrently create the customer's experience.

4. Unsurprisingly, the customer has to wait for the towing service in order to send accident vehicle to case company for further inspection.

5. With a great amount of dilemma, the customer starts to schedule its accident vehicle for a repair service, and get the information from customer service.

6. While waiting for the towing service, the customer should call local enforcement to investigate the scene of the accident and then, go to the nearest police station to complete a report, or maybe wait for the assistance from case company in order to complete a report.

7. After dealing with the hassle, fear and anxiety, the customer normally will go back to home first, at the same time, customer service receptionist will arrange transportation for the customer at this moment.

As above descriptions, first of all, senior management couldn't notice anything right or wrong about the customer's activities on this consumption processes. As they insisted, this was the common sequence that was required of a typical customer to

follow these steps after involved in a traffic accident. Obviously, there were several interaction activities in between the customer and different authorities, such as other drivers, emergency assistance, insurance company, law enforcement and vehicle repairs workshop. Following the discussion, senior management highlighted that in this cycle, if there was any miscommunication issue happened during the information exchange activities, it could cause massive impacts to the customer, especially a great possibility of misunderstanding. With a solid example as they experienced before, once at a time, case company's customer receptionist mistakenly assigned a towing truck to a wrong accident scene due to some missing information during their conversation. Consequently, the customer was waiting at the accident scene, and eventually felt impatient, disappointed and furious. As rehashed to this mistake again, definitely, the consumer would feel that case company is totally unprofessional in the incident; as a result, senior management started to concern about the customer values during these interaction activities. They believed that customer values were absolutely vital because no one willing to accept for this incident, which is tremendously tarnishing their customer experience.

On the other side, according to (Johnston & Clark, 2008), the book underlined that ***"...too easy for the process to be designed for the benefit of the service provider and ignore the customer experience".*** Surprisingly, senior management unanimously agreed on this statement and stressed that they usually focusing on the vehicle and repair process rather than paid attention on the consumer experience. For example, they highlighted that current front office processes are much designed to be flexible, so receptionists could basically answer any customer's queries without any proper guidance, however it lead to lots of waste in the front office 's processes and logically adding extra works in order to ensure a past mistake will never happen again. As goes deeper into the next cycle, senior management mentioned that the customer would start to think about its accident vehicle; therefore, the customer would like to do as the following steps as figure 4.17.

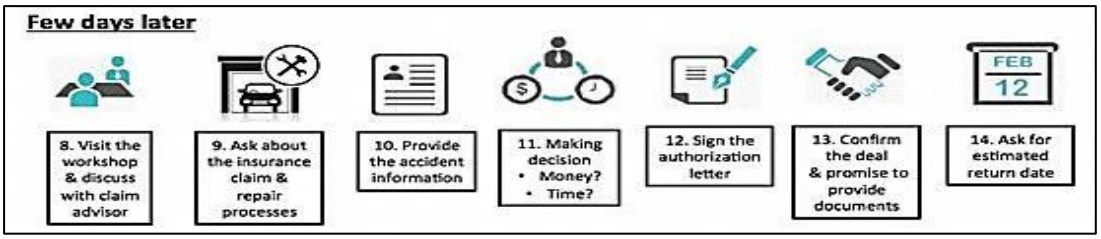


Figure 4.17: First time customer visits repairs workshop after a traffic accident

According to figure 4.17, it was the regular consumption practices of typical customer after several days of traffic accident as described as below:

8. Perhaps a few days later, the customer may follow up its booking and visits the workshop. Once first arrival, the customer will meet with the case company's claim advisor and discuss to file a claim in order to get its vehicle repaired. From this scenario, this would be the second touch point for the purpose of an insurance claim and repair the accident vehicle correspondingly.

9. With proper guidance, the customer would understand the insurance claiming process throughout the whole case company's vehicle repair processes.

10. At this point, the customer is advised to provide adequate accident information, including some personal documentation. Thus, claim advisor could immediately prepare to file an insurance claim for its accident.

11. Typically at this moment, the customer may feel dilemma and worry whether going through car insurance in order to receive compensation in accordance with the insurance company. This is because repairing a car thru an insurance compensation may requires more time than usual; at the same time, the customer also know that minor damages may cost lots of money.

12. Once everything in a good manner, the customer would sign an authorization subrogation letter, which means that customer permitted the insurance company to compensate based upon the final cost of repair, from their authorised repairers.

Of course, the claims money will be transferred directly to the case company in order to get the vehicle repaired.

13. Particularly, the customer has to provide some additional documents to facilitate the insurance claiming process such as accident scene photos, police report and so on.

14. At last, the customer may inquire how long case company would take to repair the vehicle, and then, usually customer wants to know when would be the ideal time that the car can be handed back. Usually, claim advisor will estimate the vehicle repairing time at this point, includes the duration of claim processing. Significantly, the advisor has to promise that each accident vehicle repair will be completed right on time.

Throughout these touch points, senior management could see that consumer was playing an important role in the insurance claiming activities. Based on figure 4.5.6, it holistically showed these 7 steps that seem to be the common sequence after a traffic accident, subsequently, it would be the first time customer visit the vehicle repair workshop and meet with the employees of case company. Senior management thought that this was a common sequence that was required of a customer to select a suitable repair facility and filed an insurance claim to get its vehicle repaired, therefore, they couldn't see anything right or wrong at these customer's activities at this moment.

As experience in this claiming process and from the standpoint of the service provider, claim advisor stated that the biggest problems at this cycle waiting and unpredictability of customer. As we known, no one could ever predict who could be the next potential customer; for this reason, claim advisor usually has to wait for its customer order. Meanwhile, claim advisor is required to understand the customer's feeling, concerns and guide them in a regular procedure. Therefore, claim advisor has to ensure the adequate amount of supporting documents, understand what actually cover by its customer's insurance policy and promise that each accident vehicle's

repair works could complete within the expected duration, including the duration of claim processing.

As can been seen holistically from the consumption map, customer requires a meeting with the claim advisor in order to discuss the accident circumstances and provides adequate information as well as collecting materials accordingly. Most of the time, claim advisor may have to on hold the claim processing in order to wait for the sufficient information and adequate documents from its customer side. According to insurers, it usually takes 2 days to 2 weeks to process an auto insurance claim after an accident; therefore, most of the customer may not understand why they have to wait for so long in order to get repair approval from insurance companies.

According to General insurance association of Malaysia, it strongly asserted that consumer always unhappy regarding the processing delay in its insurance claim, as they said, main obstacles in claim process are insufficient information given on claim form, inadequate of supporting documentation as well as the consumer doesn't understand what insurance policies actually covered. In reality, high variability in the insurance claiming activities may create lots of wastes for case company as well as insurance investigates division on insurance company side. For example, if claim advisor missing some documents and proceed with wrong documents, subsequently, it could delay the insurance claim processing and end up with more time to resubmit the appropriate documents, for this case, try to imagine that if the customer was using postal delivery for its document.

Moreover, according to Mitchell article (Jason Bertellotti & Kuehn, 2011); any activity in a process needed to be repeated is absolutely a waste, which creates a "Recurring action" such as re-order, re-entry, re-key, rewrite and so on. Correspondingly, any repeated works in the service processes are not just creating stumbling blocks for the business activities; to be honest, it also simultaneously affects the shop's workflow and causes the customer to wait, repeat visit and hassle. Additionally, senior management highlighted that there was an absence of any touch points during the vehicle repair interval. To put it differently, it means that case

company does not constitute any interaction with the customer during the vehicle repair cycle until the completion of repair. Indeed, it may sound strange at this moment, because the customer could contact case company anytime in order to update with the vehicle repair progress.

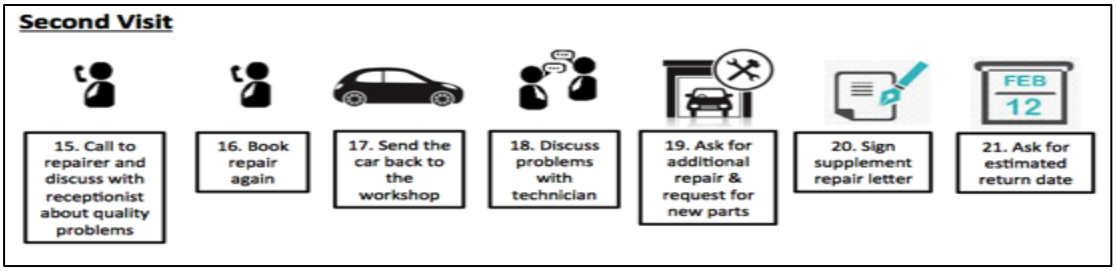


Figure 4.18: Multiple visits due to significant quality issues

As goes to the further stage, according to figure 4.18, this sequence would be the worst case scenario that is to say a customer has to come back for a second visit or multiple visits in order to resolve some significant repair's defects. Those following steps are described as below:

15. Whenever repairs defect has been found, the customer could be furious and frustrated, usually they may contact receptionist via company's hotline to criticise and reflect the symptoms of a quality issue, at the same time, a receptionist may encourage particular customer for a recall visit.

16. With the great amount of troubles, customer may rebook for a recall service and acquires the booking information from customer service.

17. Customer may drive the *"repaired car"* back to the vehicle workshop or ask for a towing service in order to return the car back to case company.

18. At this point, the customer explains the issues, and then, technician will propose an inspection to check the root of problem. For this reason, customer needs to leave the car at workshop for further inspection.

19. Once a flaw has been determined, the technician may ask for an additional repair and ordering some automotive parts for further replacement. Obviously, particular customer needs to wait over and over again in order to get its car repaired.

20. The customer needs to sign a supplement work order to authorise any supplemental repairs. Indeed, particular customer has to bear the additional repairs cost. Indeed at this point, most of the customer may unpleasant and annoying due to the quality issue was not fixing right at the first time.

21. Eventually, customer would inquire how long case company takes to repair the vehicle.

Based on figure 4.18, senior management eventually declared that this would be the worst customer experience when certain things did not right at the first time during repairing cycle. From the sequence from figure 4.18, senior management confirmed that these steps are equally unnecessary and seem not to create any values to the customer. As can be seen from here, customer needs to do multiple visits to resolve its vehicle's repair defects, at the same time, needs to pay for something that not caused by their own. Meanwhile, waits also utterly causing the consumer to consume lots of time and efforts. Sensibly, this was a compelling evidence to show that repair defects could bring significant affects to its customer satisfaction and it could cause instantaneous interruptions to business operation. As experienced in back office processes, senior management highlighted that technicians may have to halt on-going repairs job, especially once they received a particular defective vehicle from a customer. At the same time, they need to diagnose and resolve the particular defects immediately. However in reality, sometimes technician may not be able to diagnose and repair on the spot due to lacks of some necessary parts or repairing knowledge. For this reason, senior management implied that it was ***"falling-between-two-stools",*** which means that the back office process is not consistent due to the technician failed to achieve two aims at the same time: neither resolve a recall problem nor keep on-going repairs.

Following the discussion, senior management no longer focus on the vehicle itself or vehicle repair processes, and they started to understand the context of consumer values by looking at a typical customer consumption as well as focusing on how to minimise the waste and manage the coordination of those processes in order to support a customer throughout the customer journey (Womack & Jones). With the concept of lean consumption map, this method truly reveals the inefficiencies and ineffectiveness of case company's business processes from an outside-in perspective, especially thru a customer standpoint. In reality, according to (Womack & Jones, 2005), Womack has published that the concept of consumption map has successfully helped a Portuguese automobile dealer group to determine the deficiencies of its processes. On other hand, as can be seen from the customer consumption process, a customer usually plays a role in the front office business processes; therefore, most of the customers may see the vehicle repair shop has an end-to-end process. However from the top management viewpoint, senior management knew that the total chain of vehicle repair service processes is not only an end-to-end process, in fact, it was a shift from the front office activities to the backend operation. As from the service operation management textbook, it reveals that top management shouldn't only focus to a distinctive issue from the back-office or front-office processes because the author specified that the total chain of processes was a linkage of the different business activities, which is the sole creator of service delivery and customer values (Johnston & Clark, 2008).

4.5. Conclusion

In chapter 4, it's obvious to show that the business environment analysis is holistically uncovering the business situation of case company in different perspectives. Indeed, case company has strong capabilities in terms of automotive repair and maintenance, especially it equipped with some significant fundamentals, such as:

- An officially licensed indoor vehicle repairs facility
- Professional vehicle repairs technician team
- A long history in the vehicle repairs industry.

As a matter of fact, long history of a business revealed that the past could eventually create the competencies of a company; unfortunately, emerging external influences may push the business into a sharp edge subsequently. Therefore, in a long run, as a traditional shop, it may struggle to survive when the business behind the times. In fact, intense competition of vehicle repair industry remarkably indicated that the vehicle repair business considered as a thriving and potential business; that is to say, more new entrants wish to enter this red ocean environment. Based on chapter 4 analysis, vehicle population growth, vehicle technology advancement and dramatic shift in customer perception of values are the emerging trends that begun to impact the case company's business demand in effect, which also creates some uncertainty to the business. As known to all, those external factors could be either an opportunity or an inevitable disaster for the business. Throughout a variety of analysis in chapter 4, the executives should be able to understand key objectives of chapter 4, which elaborated as follows as:

- Understand the competencies and challenges of case company behind the company background and the purpose of business
- Understand what is required for identifying the company's financial performance
- Understand the reasoning behind the company's uncertainty within the business environment by using Out-to-Inside perspective and understand content of how could external influence drastically impacts case company's business
- Learn to identify and prioritise the stakeholders, and understand the values flow behind the stakeholders to outline importance of each stakeholder in the business
- Understand customer fulfilment or satisfaction thru the company's operation performance by using customer sample analysis Understand how company's operation could affect a customer's experience during service delivery as well as identify how the business operation could impact the customer in terms of time, money or efforts.

CHAPTER 5

Current State Assessment

5.1. Introduction

As a traditional niche business, case company's senior executives previously tends to focus on the individual piece of the business, particularly, everything related to the cost aspect rather than considering the influence of customer's values or being a customer-oriented vehicle repair workshop company. As known to all, nowadays customer expectation is constantly changing along with the business environment; therefore, the customers recently are more demanding than ever and less tolerant for any poor quality or low performance of the service provided to the customer. Although the senior executives have accordingly improved the service processes in the past two decades; however, the efforts don't seem to come with any benefits and eventually failed to meet its potential.

Additionally from the collective evidence of the previous chapter, the facts were convincingly indicating that vehicle repair workshop businesses were totally triggered by the major changes from the external aspects, for instance, red ocean business environment and fast moving automotive technology continuously formed tremendous impact to this kind of niche businesses. Concurrently, customer sample analysis, from the previous chapter, has highlighted that half of the vehicle repair job orders weren't performed right at the first time on time. Surprisingly when comes to the customer consumption map, it was also demonstrating that vehicle repair operation could significantly affect the customer's experience, especially the worst scenario when the customer has to resolve its vehicle repair's defect and need to re-send the vehicle back for some recall repairs. Obviously, it was revealing the inefficiency and ineffectiveness of case company's operational processes.

Within this information, those hard facts and measurements were successfully demonstrating the incompetence of case company. Indeed, this moment could be a

critical point to reflect on the sense of urgency and understand the needs of change, starting from current business situation shifts to a new ideal state, otherwise, the company will be difficult to survive in the future. In order to address internal deficiencies of case company, senior executives should understand how the vehicle repair workshop business works and what elements actually constituting the operational processes of case company.

5.2. Process Analysis

According to the well-known management guru, W. Edwards Deming, he has quoted that if someone unable to emphasise what were they doing as a process, they would unable to classify what were they actually doing in the business (Nightingale & Srinivasan, 2011). According to Dr Deming's statement, most of the people were unconsciously overlooking the importance of its business processes, and end up with the thought that where the customer received the service is the main point of service process rather than holistically assessing and understand the detail of each business activity. Somehow if everyone looking deeper into the business processes behind a service organization, the service processes are not just used to satisfy the customer as a part of some strategic intentions, but in fact, the service processes eventually encompassing many intangible elements from business essentials, such as people skills, knowledge, information, decisions and different intangible element that involving in many interrelated processes.

Consequently, this section is very important for the executives to understand the case company's operational processes, starting from the top management viewpoint because different companies may have different types of service processes. General speaking, vehicle repair workshop can be seen to have one end-to-end process; however in reality, it may involves variety types of activities in the sub-processes: for instance some standard activities, such as prepare paperwork for each insurance claim, and some non-standard activities that rather difficult to foresee, such as different types of repair orders based on different types of customer demand- in other words, variation.

Based on a ***"Gemba walk"*** through the vehicle repair service processes in case company and additional interviews with top management, entire vehicle repair service processes comprised two main service processes in terms of processing an automotive insurance claim and provide vehicle repair service. As a result, a simple and sequenced high-level process map for vehicle repair service processes has been successfully initialized and displayed horizontally as figure 5.1.

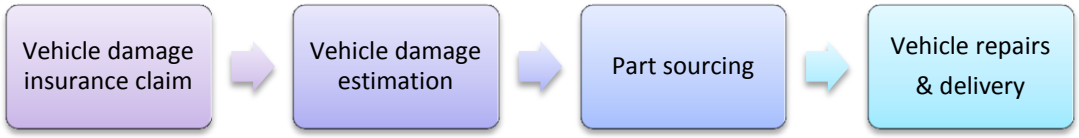


Figure 5.1: Simple high-level process map for vehicle repair service process

As figure 5.1 shown, this simple process map visually demonstrated that case company was consisting of four primary operational elements, which displayed in logical and direct sequences, such as, vehicle damage insurance claiming process, vehicle damage estimation, parts sourcing, vehicle repairing and vehicle delivery. As a result, executives could easily identify these elements are mainly constituted case company's business processes, with other enabling processes such as financial, human resource and so on. It does, however, this simple process mapping is not visible enough to show that what actually happened in the overall processes, and who are truly involved in these processes.

With this in mind, different level of process mapping will be used in this chapter in order to accurately analysis the processes architecture of case company operational as well as provides a deeper understanding regarding how the vehicle repair processes performs to address the minor damaged accident vehicle. Despite different process mapping has different strengths and limitations, indeed, those approaches that will be used in this section are well chosen for some specific unit and robust analysis, which allows the senior management understand the inefficiencies of the operational processes and recognise the non-value-added activities.

5.2.1. High-Level Process Mapping (SIPOC)

A six-sigma tool SIPOC (**S**uppliers, **I**nputs, **P**rocesses, **O**utputs, **C**ustomer) will be introduced to demonstrate the case company's vehicle repair service processes at a high-level perspective, starting from the beginning to the end of service processes. Indeed, SIPOC mapping provides an opportunity for those executives who are not really familiar with process mapping, so that executives could understand the overview of case company's operational processes, from the supplier's inputs until the services received by a customer. Figure 5.2 shows SIPOC diagram of case company's vehicle collision repair processes.

SIPOC: Vehicle Repair Service Processes				
Supplier	**Inputs**	**Process**	**Outputs**	**Customer**
Vehicle owner	• Repair inquiry • Accident detail • Personal document • Authorization letter • Vehicle for repair	Vehicle damage & accident insurance claim	• Insurance claim forms • Appropriate accident documents	Insurance company
Insurance company	• Provide the latest price list of vehicle parts & labor times • Industry OEM parts & labor rates database	Vehicle damage estimation	• Cost estimate prepared • Estimate completion date given • Information of vehicle condition	Accident loss adjuster (on behalf of insurance company)
Loss adjuster	• Parts specification & requirement • Parts Recommendation letter	Parts sourcing	• Send parts order list by fax or email	Parts suppliers
Parts suppliers	• Parts delivery	Vehicle repairs & Delivery	• Repaired vehicle • Telephone/ Message notification	Vehicle owner

Figure 5.2: SIPOC diagram of case company's vehicle collision repair processes

Based on this SIPOC diagram, vehicle repair processes are generally started due to a traffic collision accident or self-inflicted damage accident. Therefore, most of the vehicle owners would like to enquiry about the vehicle repairs services, before they deciding to send a damaged vehicle for any repairs. In this case, repair inquiries, accident details and vehicle documents could be an important input to initialize an insurance claim processing. According to the approved repairer's scheme in Malaysia, every vehicle owner must authorise a vehicle repairs workshop that acted on behalf of the vehicle owner to talk over with an insurance company as corresponding to the vehicle damage insurance claim. Therefore at this moment, authorisation or subrogation letter could be an important input for facilitating the insurance claims process in order to receive an appropriate compensation to repair a damaged vehicle.

Generally speaking, the initial vehicle repair process of case company is an accident insurance claiming process. Of course at the workshop, vehicle owner will describe the circumstances of an accident as well as provides adequate accident information, so that the claim advisors able to file an insurance claim, and along with appropriate documents to facilitate the insurance claim. During the claiming process, claim advisors will try to prepare the complete set of insurance claim documents as an output to review with the insurance company, corresponding to the insurance compensation or any information required.

Later on, the damaged vehicle will be towed back to the shop floor, so that workshop estimator will start to collect the information about the vehicle condition, evaluating the damages to the vehicle and estimate the cost of repairs, especially the values of parts replacement, labour and materials. Certainly, it might take a number of days to estimate the length of repair time, including the resources that needed to fix the vehicle. Within the information above plus the latest pricing of the vehicle spare parts and labour times, that information is an input to facilitate estimation process in order to create a comprehensive and accurate estimate. Most of the time, workshop estimator prevents any fraud claims in motor insurance, by using the electronic database to check the pricing of each material. Once the estimation has been done, on behalf of an insurance company, a loss adjuster will review and investigate the claims,

and then negotiate with case company's estimator in order to fairly adjust the insurance compensation settlement.

Once the settlement agreement has been approved, insurance loss adjuster will start to deliver recommendation letter and repair payment to case company's parts manager. With the recommendation letter and sufficient funds, parts manager will identify the parts specification and start to purchase the vehicle replacement parts or repair materials.

Once payment received, part suppliers will deliver the new vehicle replacement parts and appropriate materials to the vehicle workshop. And then, an auto technician will start to repair the damaged vehicle accordingly and replace those faulty parts with new vehicle replacement parts. During the vehicle repairing, a customer representative will notify and update with the vehicle owner about the progress of the vehicle repair. Once the vehicle properly repaired, the workshop will deliver the vehicle back to the vehicle owner.

As can be seen from the SIPOC diagram, the tangible point of this method is to help the senior executives to get a high-level understanding of the value stream throughout the operational processes. From a top management viewpoint, this diagram is a basic visual presentation of information or material flow throughout the entire vehicle repair processes, for instance, the key inputs and outputs of each process. Therefore, senior management should able to distinguish the inputs and outputs of each operational process, and understand how the inputs could facilitate the vehicle repair service processes. Besides that, this diagram is representing as a stepping-stone, so that the senior executives could realise some challenging issues, especially in terms of the requirements of each output or expectation of each input. In other words, holistic view of this diagram provides an insight, which helps the senior executive to look ahead whether the existing workshop business is delivering the best values or right products to the right person rather than just focusing on the cost again and again.

With the knowledge of chapter 4 and SIPOC diagram, senior executives probably could see the touchline and linkage between customer's consumption process and the SIPOC diagram. From figure 5.3, this diagram vertically illustrating alignment of the interactions and linkages between companies' processes and customer consumption, including the values exchanges amidst the touch points, especially during vehicle insurance claim processing.

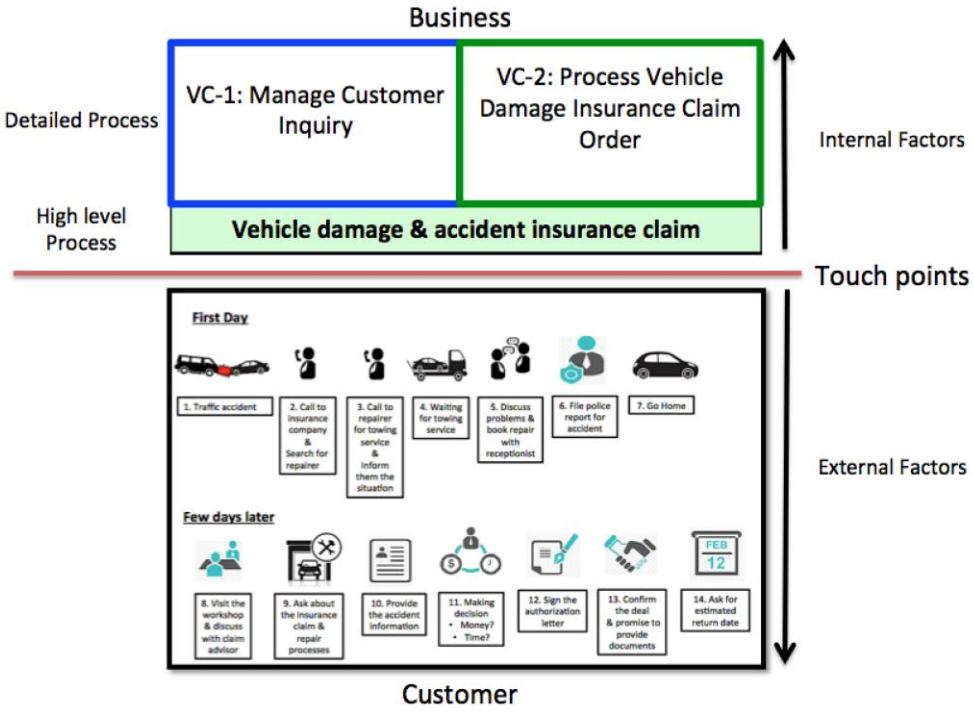


Figure 5.3: Alignment diagram between SIPOC and Customer consumption map

By using an out-inside perspective, the first customer touch point is where the customer was looking for a vehicle repair service, sending an enquiry and consulting with customer service representative over the phone in order to seek for a better option to repair the damaged vehicle. Recalling from SIPOC diagram, this information is the inputs that initializing and facilitating the vehicle insurance claim processing, which means that this customer information is very important and must be kept well.

At this point, most of the customers may feel confuse, anxious or maybe depressed after finding themselves in a traffic accident. For this reason, CSR has much focused

on customer communication and showing their best concern or empathy to the customer. Furthermore, this process strongly engaged in information sharing, especially when the CSR has to interact with the customer and record any information regarding the traffic accident as well as the customer concerns. Indeed, this process also allows the customer to find more useful information about the vehicle repair services; in the meantime, as can be seen from SIPOC diagram and figure 5.3, the information and material flow evidently do exists throughout the processes.

Additionally, the second customer touch point is where the customer enters the vehicle repair workshop. Generally, most of the customers may feel unsure at this point; they seem doubtful about the reliability and accountability of case company and curious whether the company can truly solve their problems. In this case, claim advisor has to interact professionally with the customer in order to understand the vehicle accident circumstances and the coverage of its car insurance. Undeniably, this process allows the customer to seek more useful information and evaluate the services that offered by a company. In the sense of consumer behaviour, this touch point is a purchase decision process for the customers, whether they should authorise case company to fix their vehicles. As can be seen from here, senior executives could actually derive many intangible elements by using SIPOC diagram in order to understand information flow and material flow between stakeholders as well as identify the value stream, which allows them to study whether case company provides sufficient values to a customer.

5.2.2. As-Is Analysis

In this section, the author has identified case company senior management were more likely to work with command and control style of management while the employees were just obeying what the manager tell them to do in the workshop. Obviously, none of them thoroughly understand the entire key business activities along the operational processes. Therefore in this section, a detailed business process mapping will be carried out to support the senior management and employees to understand how the entire business activities of case company work coordinately to deliver the vehicle

repair services to its customer from an inside-out perspective with full descriptions of each service process at case company.

As previously mentioned, the current processes that will be discussed in this section are directly related to the case of a minor vehicle body repair service. In this thesis, there is an assumption that the customer who receives the vehicle repair service is an individual with the same community segment because different customers are demanding different types of repairs orders; therefore every repair jobs could be different and impossible to include every potential customer for his or her view or request upon the vehicle repair services. For this reason, vehicle repair service business activities are totally correlating with the different types of customer demand, which means that different customer demand could eventually increase the complexity of the vehicle repair service processes as well as cause massive variation in the business activities. Consequently, this assumption is applicable to allow the senior management and employees to truly recognise and understand the actual service processes throughout the workshop business activities from an inside-out perspective without any variation.

5.2.2.1. As-Is Process

In order to clearly demonstrate the current operational process flow, the comprehensive operational process flow of SHAW Company will be divided into two key operational processes: Perform Vehicle Damage Insurance Claim (VC), and Vehicle Repair and Delivery (VD), which are shown in the figure below.

Figure 5.4: Two main operational processes of SHAW Company include each sub-process

Vehicle Damage Insurance Claim operational processes has been divided into four (4) sub-processes as described as below:

- VC-1: Manage Customer Inquiry
- VC-2: Process Vehicle Damage Insurance Claim Order
- VC-3: Prepare Estimates
- VC-4: Authorization of vehicle damage insurance claim

Vehicle Repair and Delivery will be divided into two (2) sub-processes are;

- VD-1: Part Sourcing
- VD-2: Vehicle Repair Process.

Besides, each sub-process will be demonstrated in metrics-based process mapping, and presented in “Swimlane” format in order to clarify each step of the process and the job responsibilities.

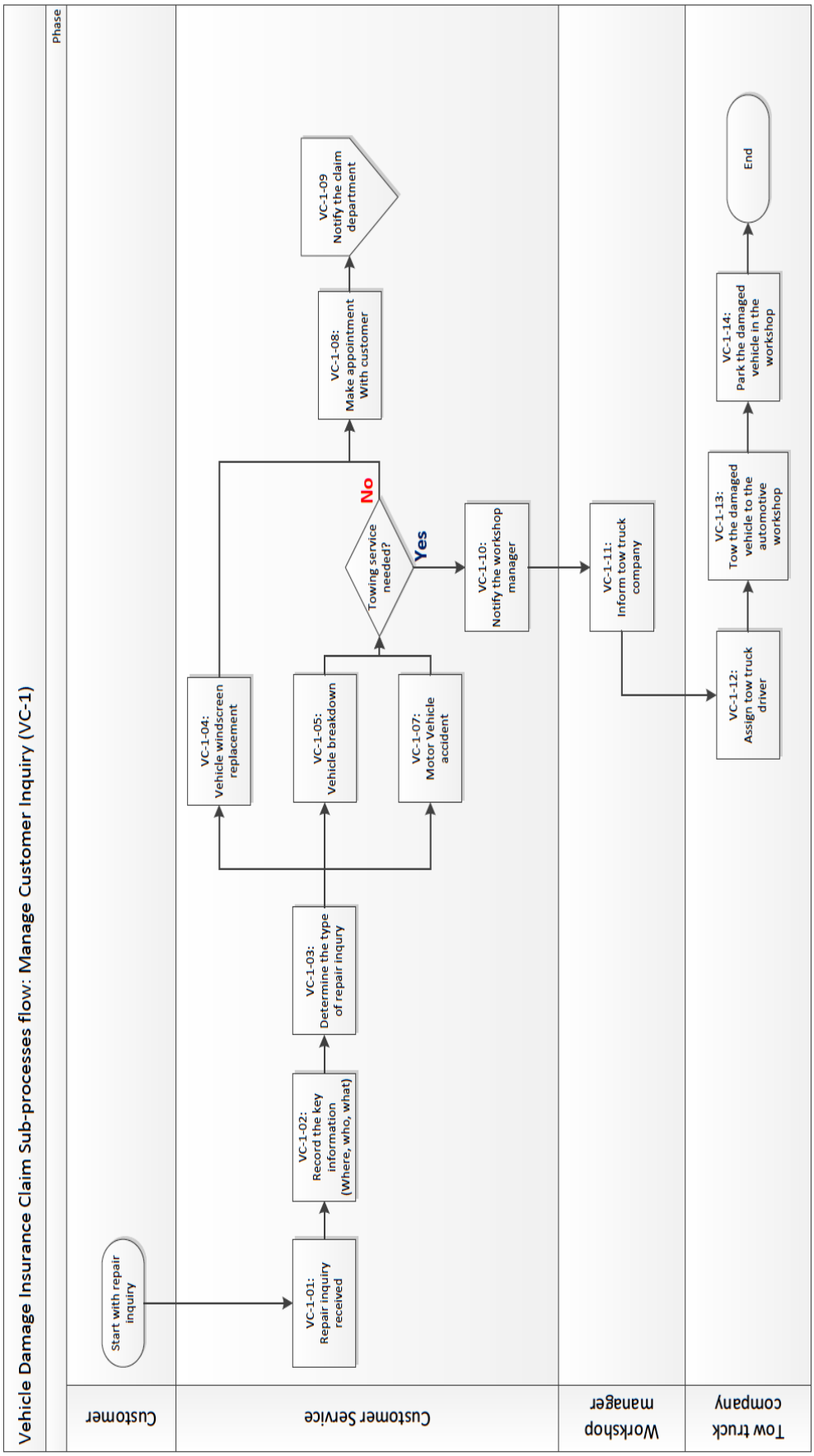


Figure 5.5: Vehicle damage insurance claim sub-process flow: Manage customer enquiry (VC-1)

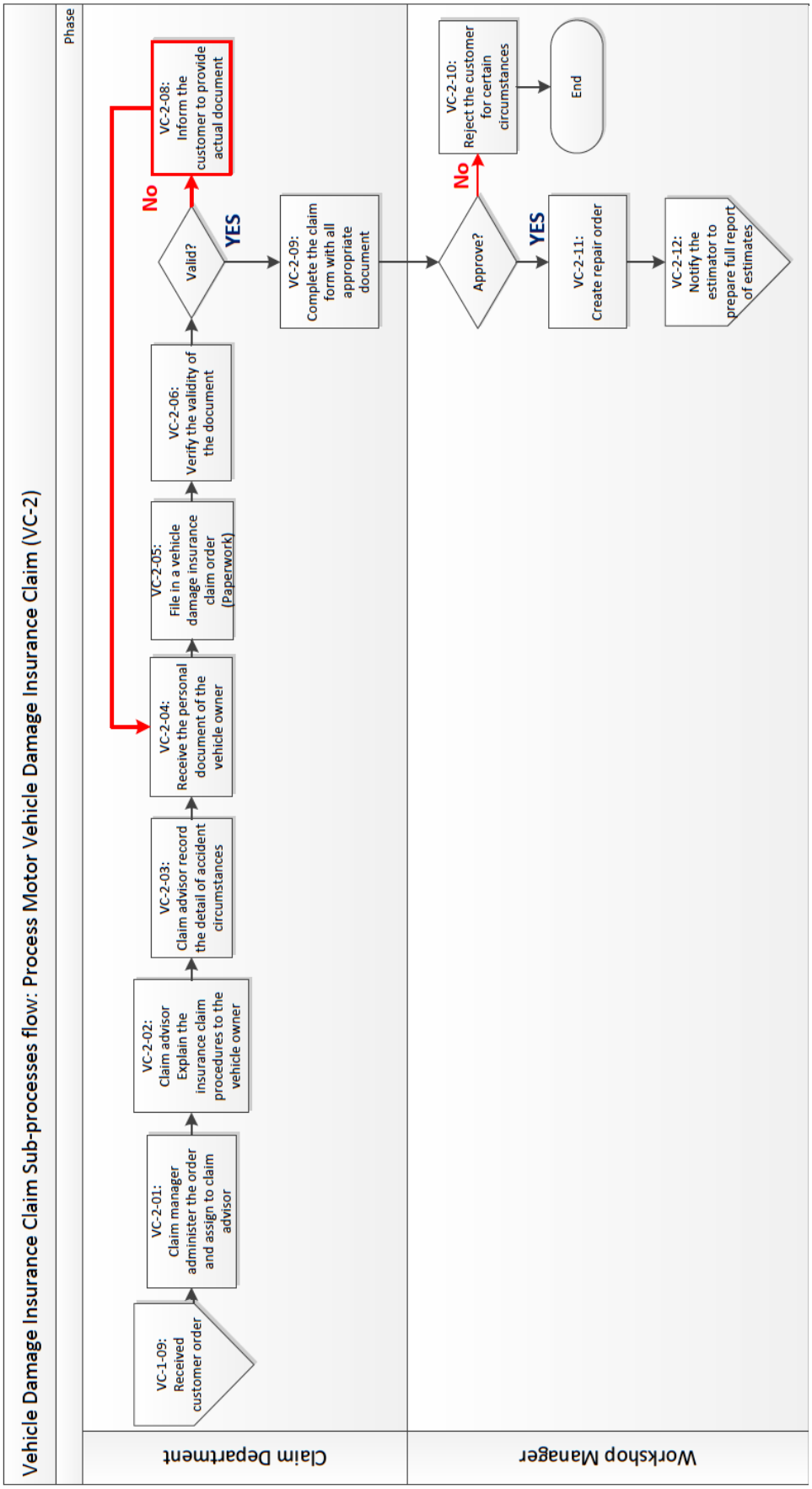


Figure 5.6: Vehicle damage insurance claim sub-process flow: Process motor vehicle damage insurance claim (VC-2)

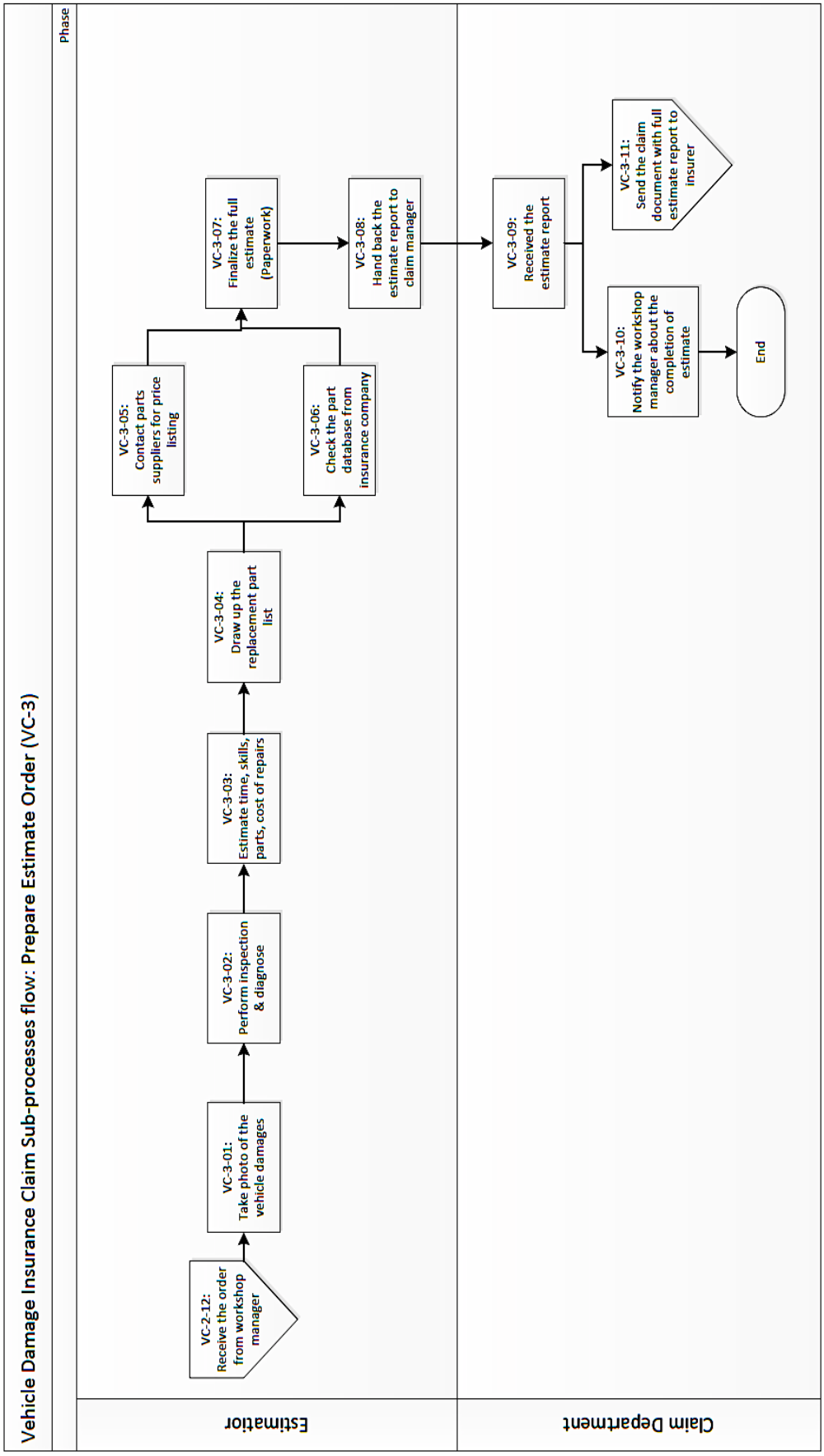


Figure 5.7: Vehicle damage insurance claim sub-process flow: Prepare estimate order (VC-3)

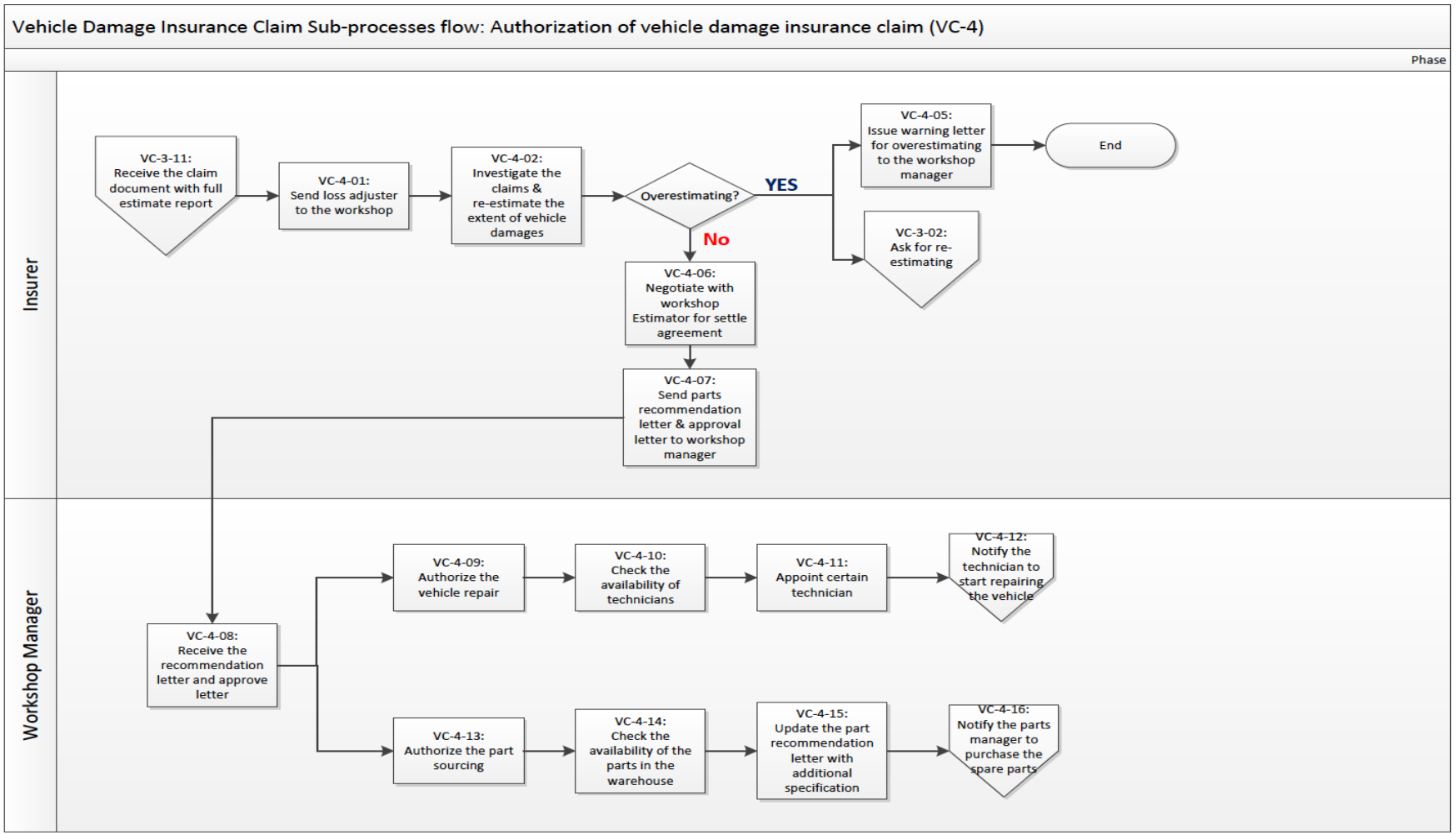


Figure 5.8: Vehicle damage insurance claim sub-process flow: Authorization of vehicle damage insurance claim (VC-4)

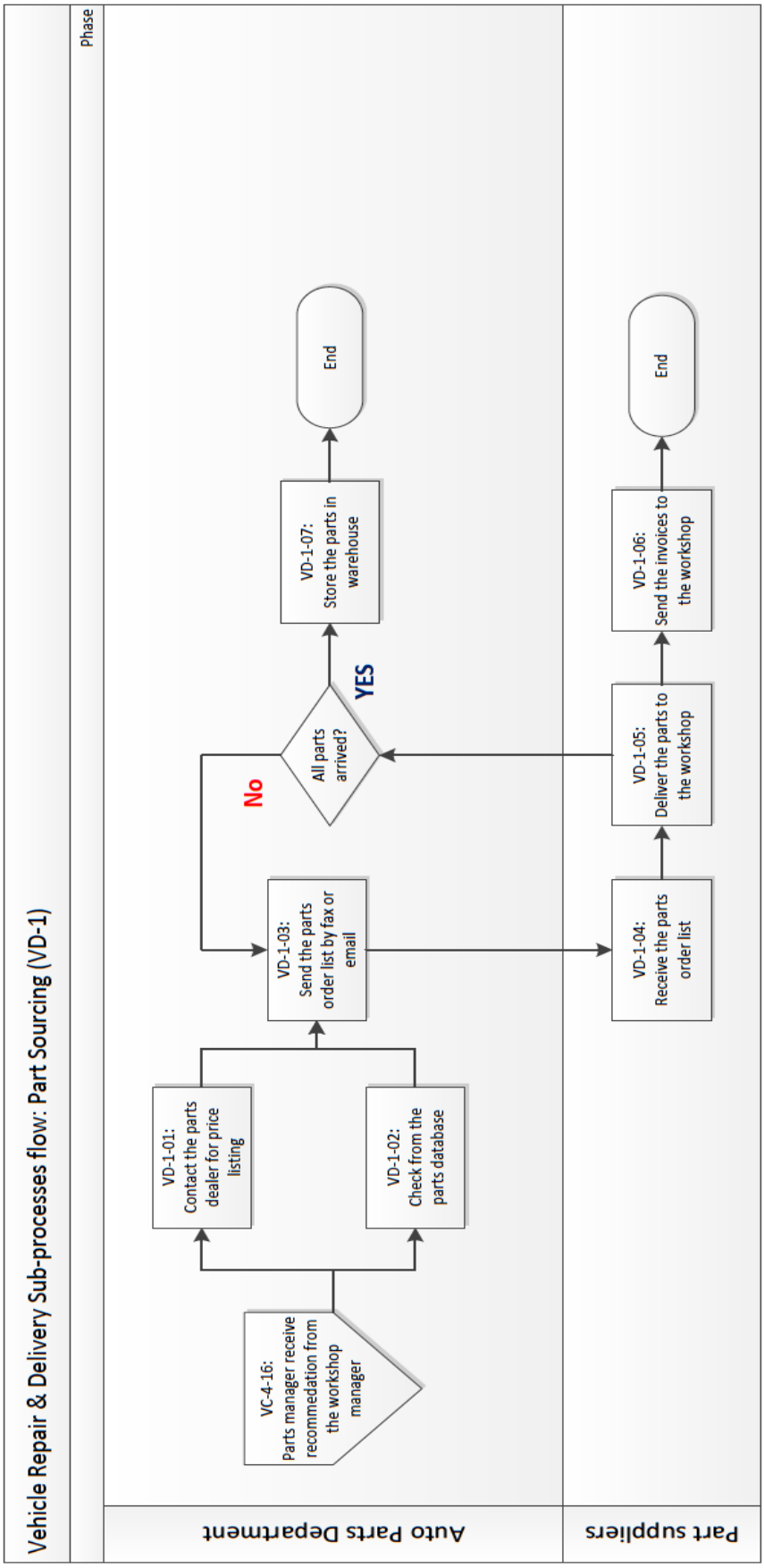


Figure 5.9: Vehicle damage insurance claim sub-process flow: Part sourcing (VD-1)

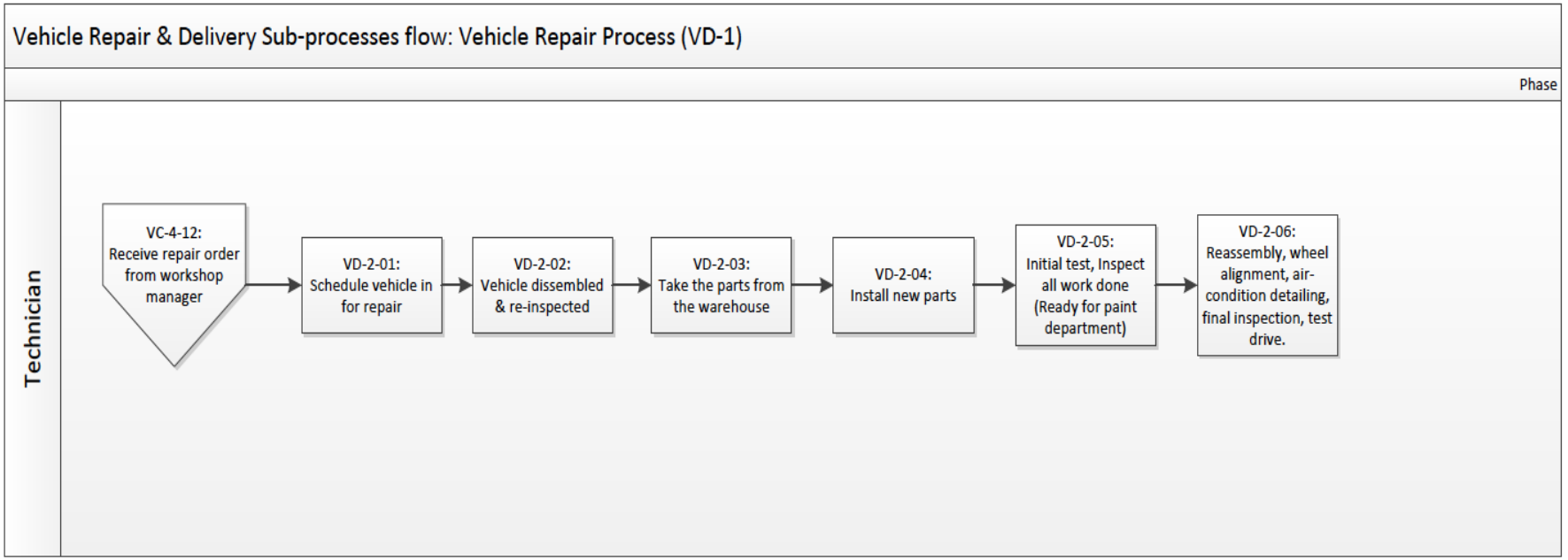


Figure 5.10: Vehicle damage insurance claim sub-process flow: Vehicle repair process (VD-2)

5.2.2.2. Sub-process VC-1: Manage Customer enquiry

This is the initial point of the entire vehicle repair service processes at SHAW Company. Usually, customers will contact SHAW company via telephone hotline in order enquiry about the vehicle repair services that provided by SHAW Company. Indeed, customer service representative (CSR) will immediately respond to the customer enquiry or any request for vehicle repairs, feedbacks or any specific questions regarding the vehicle issues. Concurrently, CSR has to record down the key information if there is an accident that confronted by the customers, for example, where the location of the vehicle accident occurs, what model of vehicles, who are involved in the vehicle accident scene and so on.

Furthermore, CSR has to inform the customer to take photographs of any damages on his or her vehicle with a smartphone or camera. Then, CSR has to determine the types of repair inquiry whether vehicle windscreen replacement, vehicle breakdown or motor vehicle accident. In this case, CSR has to confirm with the customer whether his or her vehicle still able to move or requires any towing service. If towing service was not needed, CSR will schedule an appointment with the customer before notifying the claim department.

However if towing service was needed, CSR will again inform the workshop manager to arrange a tow truck to tow the damaged vehicle back to the workshop. Once tow driver was assigned, CSR will update with the customer about the detail of towing service, for example, who is responsible for the towing service, how long it take and so on.

5.2.2.3. Sub-process VC-2: Process Motor Vehicle Insurance Claims

As in the case of minor vehicle body repair, CSR will notify the claim manager timely about the scheduled appointment. Once the customer arrived, appointed claim advisors will explain the insurance claiming procedures and adjustments to its customers in order to allow the customer to understand and familiar with the vehicle damage insurance claims process. Therefore, claim advisor will more likely to ask the

customer to provide all the details regarding to the accident circumstances and following information such as vehicle record, vehicle auto insurance policy and personal document of the vehicle owner in order to file in a vehicle damage insurance claim order as soon as possible.

Claim advisor will start to check the validly of the personal document of the vehicle owner. If the document is incorrect, claim advisor has to inform the customer to provide again the actual document. Once everything together in a correct order, claim advisor will finalise the claim form with all appropriate documents and hand it over to the workshop manager. At this point, workshop manager has to make an important decision of whether to approve the customer claim order because the involvement of fraudulent claims in motor insurance is a serious criminal offence, which dramatically affects the credibility of the vehicle repair workshop business. Once everything goes right, workshop manager will authorise this claim and create a repair order before notifying estimator to prepare an estimate report.

5.2.2.4. Sub-process VC-3: Prepare Estimate Order

Once the estimator received the order from the workshop manager, workshop estimator has to prepare the estimation report for the damaged vehicle. First of all, workshop estimator will take photographs of each damaged area on the vehicle based on insurance company's requirements in order to document the damages that will be covered by the insurance as well as provide these photos as an evidence to strengthen the customer claim. After that, workshop estimator will start to perform an inspection on the exterior damage such as any debris, marks or any parts that involved in the crash. At the same time, estimator will try to diagnose the vehicle in order to discover the interior damage of the vehicle. Next, workshop estimator will estimate the time and cost of vehicle repair include the labour rates, any replacement parts, and bills for towing the car after an accident. Definitely, it may time consuming to prepare the whole estimate report especially for checking the price of the vehicle parts from the part suppliers or the database of the insurance company. Once everything goes right, workshop estimator will compile the estimate report with appropriate documents such as any bills for towing, car rental after an accident, and etc. Later, workshop estimator

will send the estimation report to the claim department because claim advisor has to comprise everything together especially for the insurance claim documents, vehicle owner personal document and estimation report. Finally, claim department will notify the workshop manager about the completion of vehicle estimating and send the documents to an insurance company by mail or hand deliver.

5.2.2.5. Sub-process VC-4: Authorization of Vehicle Damage Insurance Claim

At this point, the insurer will start to process the vehicle damage claim with appropriate documents that provided by SHAW Company's claim department. Just then, the insurer will assign a third-party loss adjuster to SHAW Company's workshop in order to investigate the validity of the claim and re-estimate the extent of vehicle damages. If the claim adjuster found out there is benefit fraud or any overestimation, he or she will issue a warning letter on behalf of the insurance company to the workshop manager. At the same time, the claim adjuster will request the workshop estimator to re-estimate the extent of vehicle damages includes any bills that related to the vehicle accident and re-do the estimation report before submit it again to the insurance company. When if everything is fine, the claim adjuster will negotiate with the workshop estimator and offer a fair settlement. On the spot, the claim adjustor will issue parts recommendation letter and approval letter of vehicle repair to the workshop manager. Once approved by the insurance company, workshop manager will authorise the vehicle repair and part sourcing for the damaged vehicle. Then, workshop manager will check the availability of the technicians as well as check any remaining parts in the warehouse. Then, workshop manager will appoint one of the technicians to begin the vehicle repairing as well as update the part recommendation with additional specifications before notifying the parts manager.

5.2.2.6. Sub-process VD-1: Parts Sourcing

Once the parts manager received the order and recommendation letter from the workshop manager, he will contact the parts dealer for the price listing with respect to the vehicle replacement parts as well as checking the price of the replacement parts from the database. Undoubtedly, it might time consuming for getting the lowest price of the vehicle replacement parts. Then, the part manager will order the replacement parts via fax or email, once the part suppliers received the order list, they will deliver the parts to the workshop as soon as possible. If all parts arrived correctly, part managers will store the parts in the warehouse else he will re-order again for the missing parts.

5.2.2.7. Sub-process VD-2: Vehicle Repairs Process

As we known, vehicle repair process is the last process, which is the most significant operational process throughout the workshop business, in general, because it's a complex process that required vast knowledge of vehicle repairing skill and welding techniques. However in this section, in this traditional vehicle repair workshop, as in the case of normal accident vehicle body repair, it's crucial for the senior executive to understand the predictable and fundamental vehicle repair process in SHAW Company instead of just focusing on the unpredictable or comprehensive repairing work because they are the people who running the workshop business but not the actual person who fixed the cars. Initially, the appointed technician was fully in charged the vehicle repair process from the beginning of the repair until the end of the process. From the mapping, the technician is the only person who responsible to schedule the repair of the vehicle as well as install any new parts or dissembles the faulty vehicle for inspection.

5.2.3. Key Observation and Analysis

Before discussing the analysis of case company's current processes in this thesis, the author would like to highlight the reasons behind this section are crucial for case company's senior management to change the way of their thinking when looking at the problems that embedded in the company's operational processes from a different perspective. As we known, most of the people have a certain way of thinking or act differently even in the same circumstances. When it comes to the discussion of the company's current processes, indeed, sometimes people starts to blame each other for any problems or staring at the problems without truly understand the root causes of each problem. Based on observation, most of the employees were gradually distancing from the problems while some of them were strongly manipulated by their superior, which may result self-deception that leads to sceptical and provides some unclear statements about the company's problems.

Following the previous discussion and observation, it's obvious to reflect that the transactional relationship between case company's employer and employees was totally limiting the organisational trust and create ***"Silos"*** working environment, which leads to a rational that everyone unwilling to share the information with other departments. To our knowledge, these statements are all about the ***"soft"*** side of management, which is sound different to process analysis section. However according to Drucker Institute, (Zak, 2013) emphasised, ***"Neither technology nor people determine the other but each shapes the other."***[1] That is to say, people are the one who design, implement and run the business in order to achieve some desired goals. Indeed, the ***"soft"*** side of management could impact the way of people's thinking or the way they looking at the root cause of each problem as well as the way of they operates the business.

Despite the topic of "soft" side of management that related to case company will not be covered in this thesis, yet it's still important for the senior management to understand the influence of the people aspect of the business processes and take this

into account when they looking at the problems because when a client demands a service, employees are the one who control the service and interact with the customers, unlike the manufacturing company can just automate its production processes to produce any tangible goods for its consumers.

Last but not least, case company's senior management was strongly advised to empower its people to think rationally and sharing the information among each other about the problems that identified from their customer experience before focused on what are the most significant causes and a bottleneck of the business.

On the other hand, when it comes to the brainstorming session, most of the case company's employees still unclear on their problems and directly jumps into the solutions of process improvement. In order to ensure everyone in case Company truly understand those issues, one of the seven basic tools of quality, fishbone diagram will be used to demonstrate the cause-effect relationship, which is shown in figure 5.11. Moreover, fishbone diagram is a great technique to provide a visual interpretation of the problems and allows the senior management to classify some cause categories that commonly create the problems that affect the customer satisfaction.

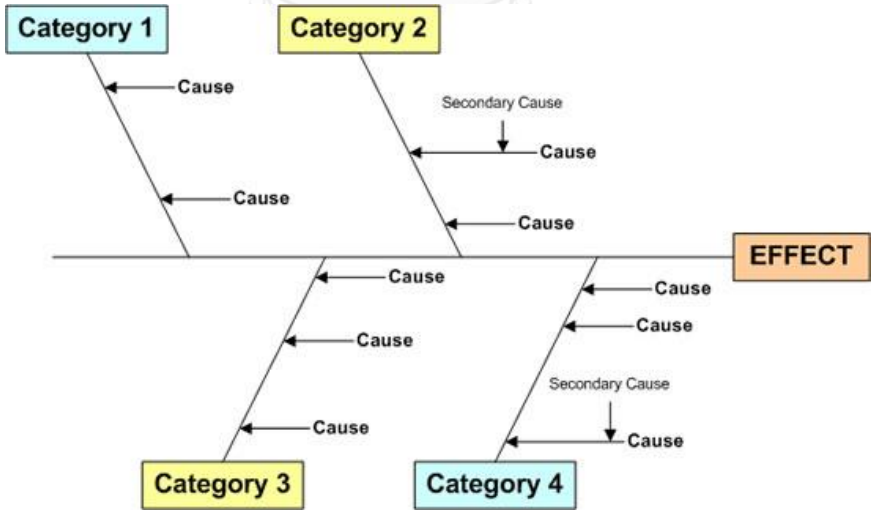


Figure 5.11: Fishbone diagram

At this point, people may ask what is the cause category should be chosen in order to specifically outline the possible causes that can create a possible effect to the customer with respect to a certain process. As a service business, there are many critical aspects are intangible to the business, for instance, “material” as cause category might not be suitable in the case of manage customer inquiry processes because there is no actual material can cause any mishandling of customer enquiry, however unlike manufacturing company, poor material may cause many quality problems for its finished goods. Therefore, it’s again to remind the SHAW’s senior management to pause and think about the possible cause categories that can be used in this fishbone diagram in order to clearly describe the overall causes under a possible effect with respect to a certain process.

5.2.3.1. Analysis of Managing Customer Enquiry sub-process

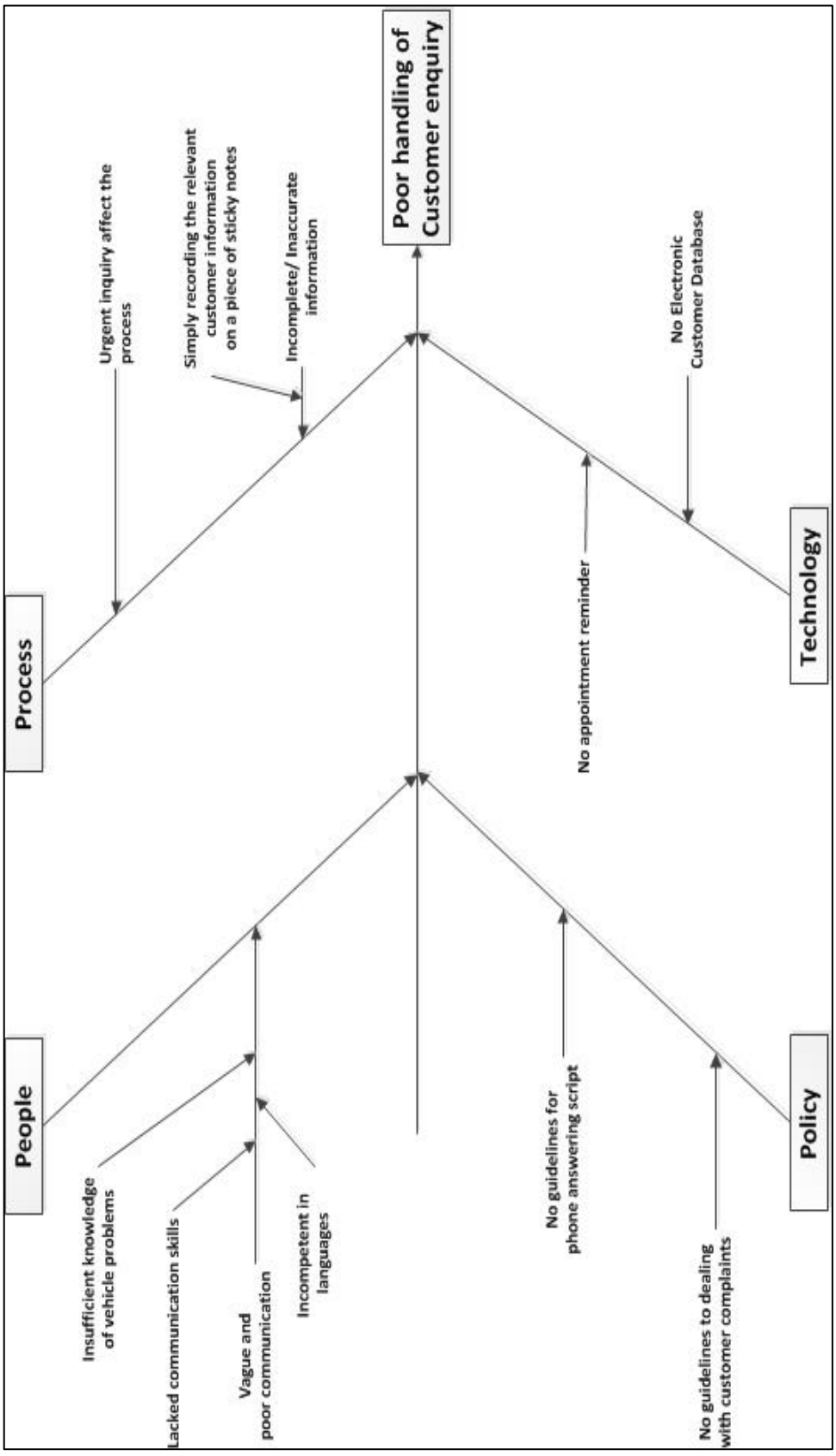


Figure 5.12: Analysis of managing customer enquiry sub-process

1) Process

❖ **Urgent enquiry affect the process**

An urgent enquiry is one of the major causes that absolutely interrupted the customer enquiry process due to the fact that customer service representative (CSR) could receive the urgent enquiries in different forms, whilst most will be by telephone or face to face.

Based on observation, CSRs have to stop other activities and struggle to answer any phone calls at the same time because they have to give an immediate response to the urgent enquiry, especially from the first-time customers or any walk-in customers. Awkwardly, they might unable to response to other's customer needs immediately and when in a serious case, they may have to interrupt a conversation for another potential customer. At the first instance, this can lead to a negative start for a potential customer or unpleasant customer experience for an existing one. As a result, poor handling processes totally tarnishes the reputation of the company and hurt the business, especially when the customer has to wait for a long time without any clear explanations and make them feel that the company is ethically unprofessional.

❖ **Simply recording the relevant customer information**

Another serious issue is the procedure of handling the customer information. During the observation period, the CSRs usually recording the relevant customer information manually on a piece of a sticky note or white paper, and then, they may unconsciously store the paper around the front desk. Obviously, this is the cost less and easier way to collect the customer information; however it's absolutely unprofessional which is resulting in missing or inaccurate customer information due to the human error as well as unethically disclosing the customer information.

2) People

- **Vague and poor communication**

SHAW Company is a small and traditional vehicle repair business which is primarily focusing on the efforts such as advertising, insurance claims, and vehicle repairs. Obviously, they know those efforts are the direct impacts on the business revenue; however they couldn't see the importance of customer communication. During the observation period, vague and poor communication of CSRs is another critical issue that dramatically leads to poor handling of customer enquiry. As we known, CSRs are the first touch point of contact at the company, whether the customer interaction are in person or over the phone, CSR is the first person who needs to understand the customer needs, communicate with the customer and let the customer know they're professional to provide any relevant services.

At this touch point, most of the time customers were anxious and confuse especially when they find themselves in a traffic accident. For this reason, most of the customers would expect an immediate assistance or a clear explanation from the CSRs in the terms that the customers can understand what they should do at that time. Indeed, the poor communication habits seriously affect the customer's confidence and tend to push the customers away, because the potential customers feel their needs were being ignored. In customer perspective, it wouldn't make sense to do business with the people who don't really understand the customer needs and never impressed with the poor communication of CSRs.

The main causes of vague and poor communication of CSRs are due to the incompetent languages, lacked communication skills, insufficient knowledge of the vehicle problems. Due to the multilingual society in Malaysia, a language barrier can result from different native languages, accents or maybe hearing difficulties, therefore incompetent languages of CSRs may lead to miscommunication and eventually never intent to create accidental conflicts that decrease the likelihood of an effective

customer support. Of course, customers may be frustrated especially when they are emotional and may not clearly communicate what their problem is. As a result, this is seriously affecting the business revenue and relationship with the customers.

3) Policy

- **No guidelines for phone answering script**

As known to all, the duty of CSR is to focus on customer communication; however case company couldn't see any constant needs for customer communication and ignored the importance of telephone-answering script for the business. Eventually, it messed up with a lot of troubles, for example, CSR may feel anxieties, especially when they speaking with a customer, using a wrong tone of voice, never greeting the customer or simply pop up with random answers and so on. Indeed, some customers may feel frustrated and be ignored; at the end, they probably stop the conversation and left the front office. Sometimes, most of the calls are simple inquiries; for instance, a customer would like to know about the hours of operations and what products or service provided, however, receptionist handles in a sloppy way.

- **No guidelines for dealing with customer complaints**

At some point, the challenge of business nowadays is about dealing with customer complaints, indeed the same goes for case company. In fact, this is an opportunity to transform dissatisfied customer into an active advocate for the business. However, sometimes CSR may feel anxieties when dealing with the customer complaints, some even worst may blame to another person or department without any sincere apologise.

4) Technology

- **No appointment reminder**

Most of the time, a customer may forget or late for the appointment with claim advisor to discuss the accident circumstance or repair coverage. At that time, SCR may have to call or messaging the customer again and again. As a result, it may coincidently bother and interrupt the customer in order to rearrange for another appointment.

- **No electronic customer database**

CSR unable to track their customer's information back due to the fact that there is certainly without an actual template or database to store any customer information. This may lead to a failure to treat the customers with the best service that they need, therefore due to the sloppy way of handling their enquiry, customer start to losing trust and bad impression on the company.

5.2.3.2. Analysis of Process Motor Vehicle Insurance Claims sub-process

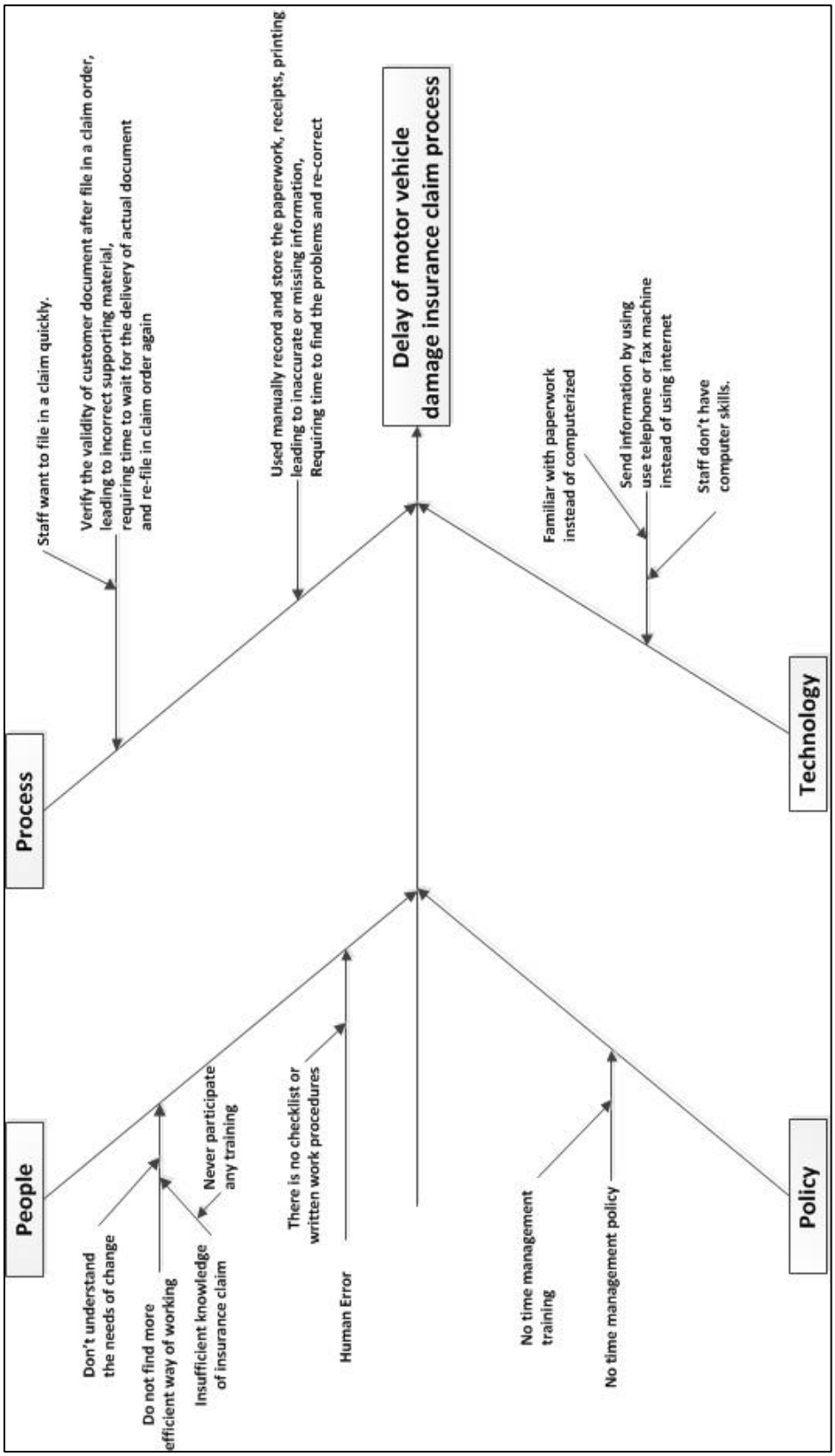


Figure 5.13: Analysis of motor vehicle insurance claims sub-process

1) Process

- **Validation of customer document**

Validation of customer document is a key activity to ensure the validity of customer document for an insurance claim. However most of the time, claim advisors initially may try to prepare the claim order once they received the document from a customer. Later on, they only start to check the validity of customer document. Awkwardly, sometimes customers may send a wrong document or invalid documents. Therefore, claim advisor has to redo the claim order and excessive checks the validity of customer documents, such as police report, auto insurance policy, driving license and so on until everything is correct. As a result, this repeated work is totally increasing the workload of claim advisor and delay the insurance claim as well; undoubtedly, the customer may wait for a long time without any notices.

- **Manually recording and store the relevant customer information**

Another serious issue is the procedure of handling the customer insurance claim. During the observation period, the claim advisors used to manually recording the relevant customer information, and then, they stored the paperwork, receipts, printing in a traditional file and eventually stack up and simply placed on the desk. Obviously, this is the cost less and easier way to store the customer information; however it may result in missing or inaccurate customer information. Consequently, claim advisors may need to spend some time to find the claim documents in front of their clients and it may interrupt the validity of insurance claim or require more time to redo or resubmit the relevant information.

2) People

- **Do not find an efficient way of working**

When comes to people aspects, most of the time, the staffs are getting used to the traditional way of doing work, which means that they failed to find an efficient way to do any tasks. Indeed, most of the people do not understand why they need to change; perhaps they may reply that they have been doing this for so many years and never embracing any changes. Another serious issue is the insufficient knowledge of handling the customer insurance claim. During the observation period, the claim advisors may not know how to answer their client's inquiries regarding insurance claim. Obviously, most of the time, the staffs are getting used to the traditional way of doing work, and then, they never participate the latest insurance claiming process training.

- **Human error**

In additionally, human error is another defect that usually affects the working process. Indeed, people may think that human error is acceptable and they're not working like a robot. However, this issue eventually increases the workload and creates related defects for other processes.

3) Policy

- **No time management policy**

When comes to time management aspect, the staffs do not have any knowledge to manage time in accordance with the schedule. Therefore, they may spend excessive time to preparing the claim orders, which cause the delay for the insurance claim process.

4) Technology

- **Still using fax machine for sending information**

Most of the time, the staffs are getting used to the traditional way of doing work, for example, they still using a fax machine for sending information because they’re not familiar with computer and lacked computer skills.

5.2.3.3. Analysis of Vehicle Estimation sub-process

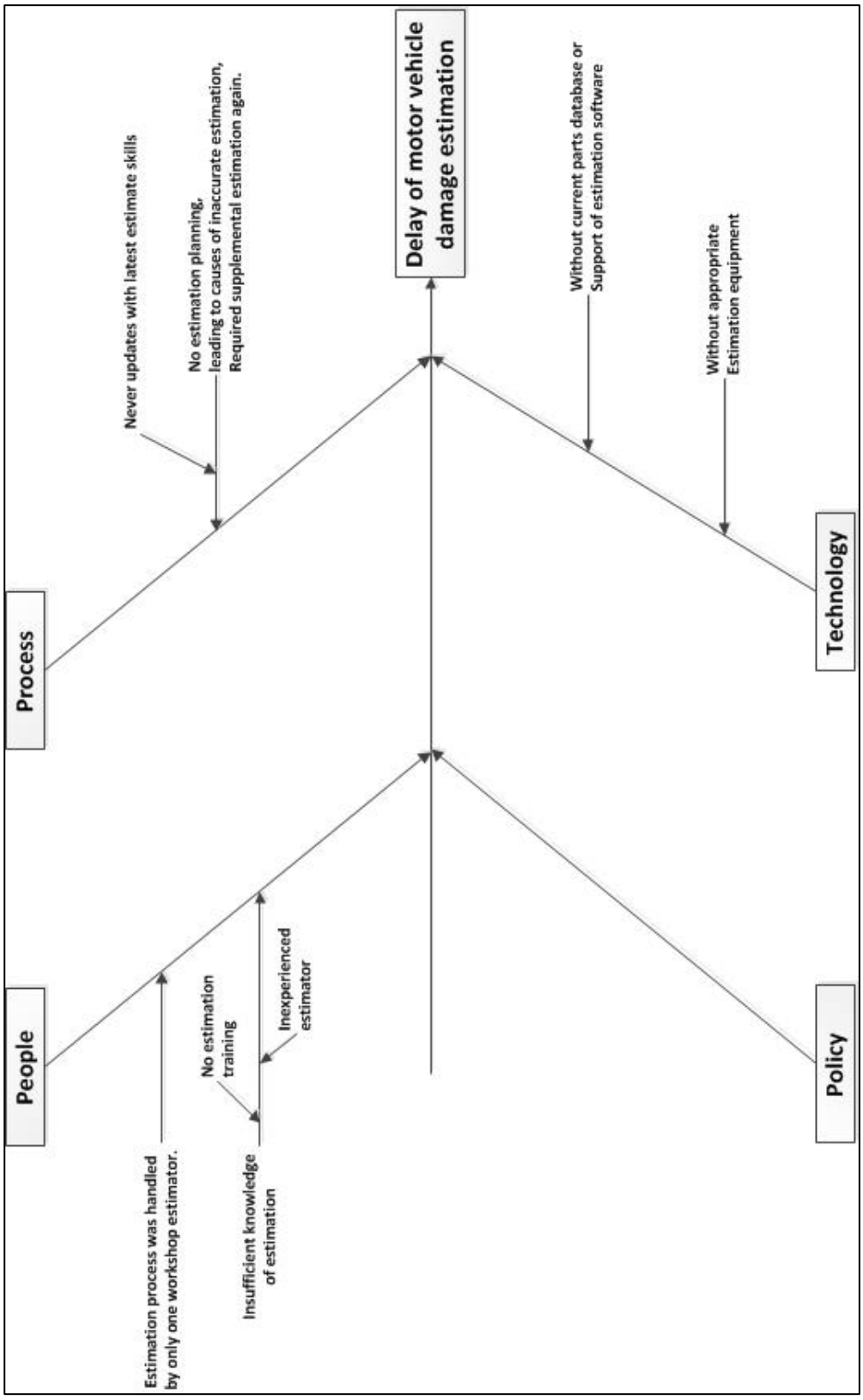


Figure 5.14: Analysis of vehicle estimation sub-process

1) Process

- **No estimation planning**

Vehicle estimation is a damage evaluation practice to evaluate the value on the repair, the length of time on repair, determine whether the car is repairable and so on. Based on observation period, estimator never makes a plan for estimation, yet just uses a piece of paper and record what parts need to be replaced and repaired. At the end, he spends most of the time to track the parts from vehicle's price list or catalogues. Therefore, that piece of paper is exactly that – an estimate.

2) People

- **All estimation handled by one estimator**

During vehicle estimation cycle, the only one estimator at the workshop handles the entire estimation process. As can be seen from here, this is a bottleneck of the business, for example, when estimator on leave or sick, the estimation process will be interrupted and it causes a chain effect of delay to other processes.

- **Insufficient knowledge of estimation**

When talking about the standard operating procedure of vehicle estimation, the estimator seems do not have any knowledge with respect to the standard operating procedure of vehicle estimation. As a result, everything is just based on his past experience and they were taught to do this way, as a result, he may spend excessive time to preparing an estimate by repeatedly check and tear down the vehicle, which eventually cause the delay for the estimation process.

3) Technology

- **Lack of estimation database**

Of course, the biggest waste of this process is waiting; without an estimation database, estimator has to spend so much of time to track the parts from catalogues and vehicle price list, try to imagine the variety of vehicles and how many types of components and different models.

- **Lack of estimation equipment**

One of the biggest constraints on vehicle estimation is about the estimation equipment. As known to all, the duty of estimator is to focus on vehicle estimation; however, case company couldn't see any constant needs for estimation equipment. This is because the latest estimation equipment could be very expensive and it may not easy to manage; as a result, the executives would like to invest some efforts that could bring the direct impacts on the business revenue rather than spend lots of money for some estimation equipment.

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5.2.3.4. Analysis of Part Sourcing sub-process

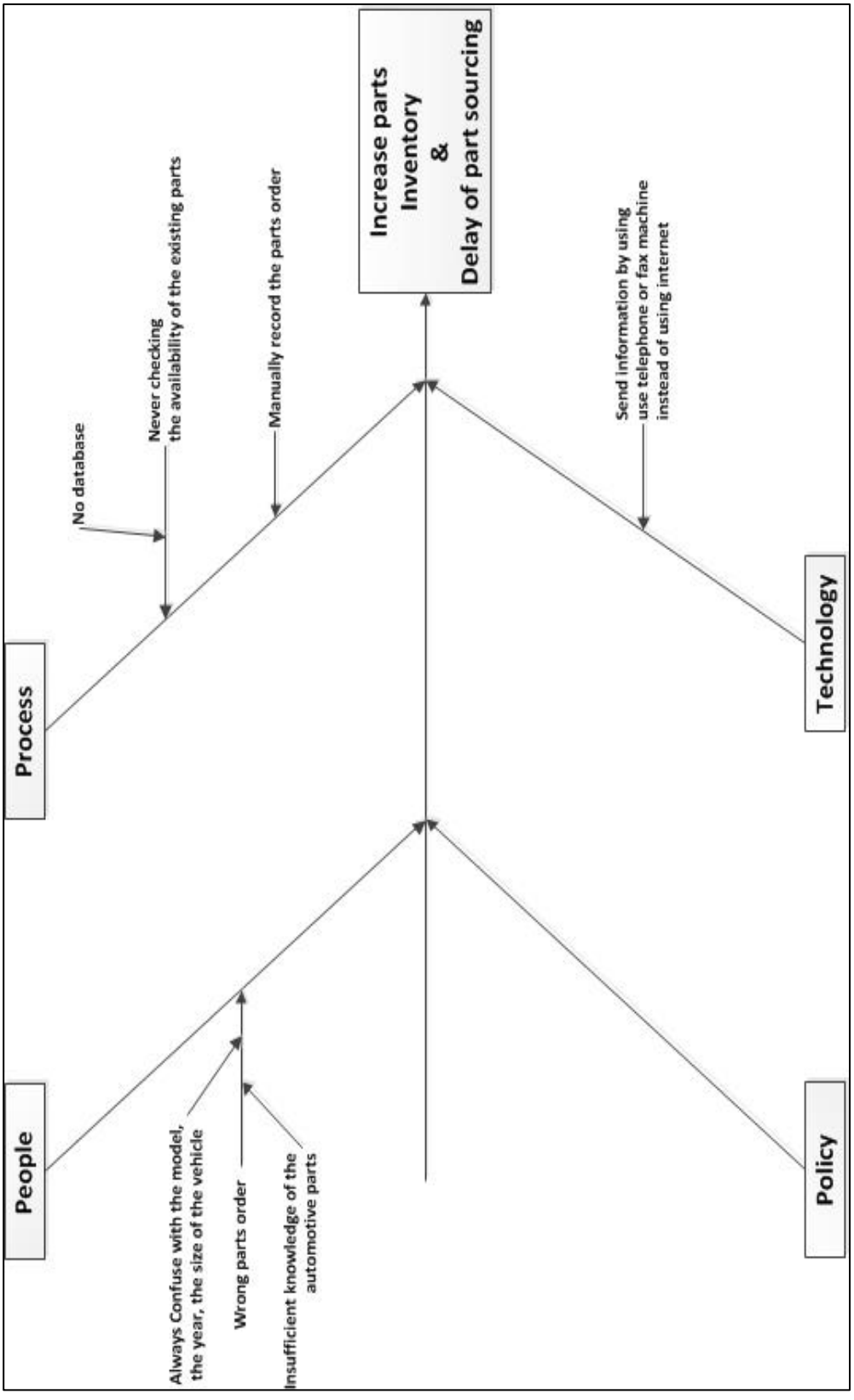


Figure 5.15: Analysis of part sourcing sub-process

1) Procedures

- **Manually record parts order**

According to case company, the common way of handling the parts order is recording the relevant parts information manually on a piece of white paper, and then, only inputting into a Microsoft excel file. Obviously, this is the cost less and easier way to store the parts order; however it's absolutely fragile which is resulting in missing or inaccurate parts information due to the human error.

- **Never checking the availability of existing parts**

Parts manager difficult to track back the availability of existing parts due to the fact that there is certainly without a database to store any parts information. This may increase the parts inventory and waste the space of shop floor.

2) People

- **Ordering wrong parts**

Due to insufficient knowledge of automotive parts, the staffs may confuse with the vehicle models, year of manufacture and so on, as a result, they always purchase the wrong vehicle parts, which lead to extra inventory and eventually boost the company's expenditure.

3) Technology

- **Still using telephone or fax machine to order parts**

Most of the time, the staffs are getting used to the traditional way of doing work, for example, they still using a fax machine for ordering automotive parts because they’re not familiar with computer and lacked computer skills.

5.2.3.5. Analysis of Vehicle Repair sub-process

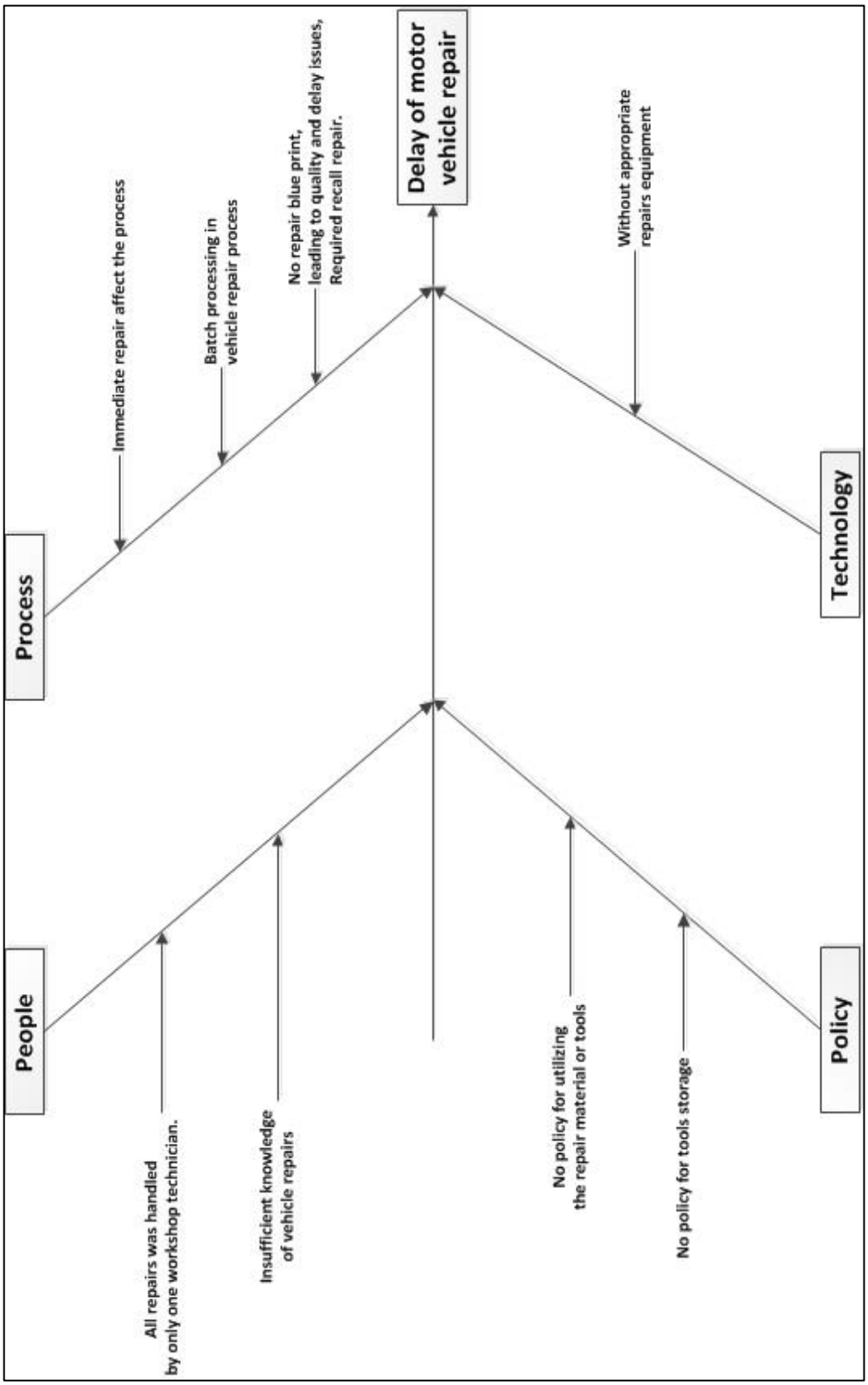


Figure 5.16: Analysis of vehicle repairs sub-process

1) Procedures

- **Immediate repair affect the process**

Immediate repair or urgent repair is the major cause that totally interrupted the vehicle repair process due to the urgent enquiries from the customers, for example, quality issues recall, vehicle breakdown and so on. Based on observation, this scenario is quite similar to the urgent enquiries that occurred at the front desk. Undoubtedly, technicians have to stop the current repair activities of particular damage vehicle and provide the immediate response to diagnosing or check another vehicle problem. But in fact, they may unable to diagnose or check the problems immediately, especially for some hidden issues. Of course, some customer may feel the technicians are not professional and feel frustrated about the vehicle problem reoccurred. Therefore most of the time, a technician will inform the customer service representative to persuade the car owner to drop off the car, so that the technician subsequently can check and solve the problems later on. Markedly, this can lead to an unpleasant customer experience, and then, the technician may need to work overtime in order to immediate repair for the customer; at the same, discontinue for the previous vehicle repairing. As a result, immediate repair slow down the repairing process and it cause delay for vehicle delivery, which is totally tarnishing the reputation of the company and hurt the business, especially when the customer has to wait for a long time without any clear explanations, and at the end, make them feel that the company is ethically unprofessional.

- **Batch processing used in the repair process**

In the existing repair process, as can be seen from **Figure 5.17**, despite the map show like a linear process to repair a vehicle; but to be honest, it is absolutely not a linear repairing process and the activities on the map are just a variety of repairing steps in the repair process. In fact, every time a technician can only take control of one vehicle repair, which means that each technician can only managing an assigned vehicle's repairs job in a due time. Definitely, each technician needs a different length of time to repair and quality of each repair is varied. Besides that, batch processing and

uneven scheduling may force to maximise the productivity of a particular technician, so that he must work more hours to repair a serious damages vehicle, but some technicians were relaxing and waiting for next assignment, and then, repair stalls are obviously empty. In another word, many cars may wait at behind certain repair stall, but some are empty. This is because uneven scheduling and poor assignment, plus the director would like to assign each vehicle repair job based on his perspective, for example, he usually assign a particular technician to fix particular brand of some vehicle. For example, technician A is focusing on compact car, while technician B is just repairing sedan car. In this case, due to the demand may be changed and followed by the season, as a result, some technicians may be idle at that time, while some may very busy. The figure below is an example of the traditional production model for case company, adopted from Marshall Auto Body.

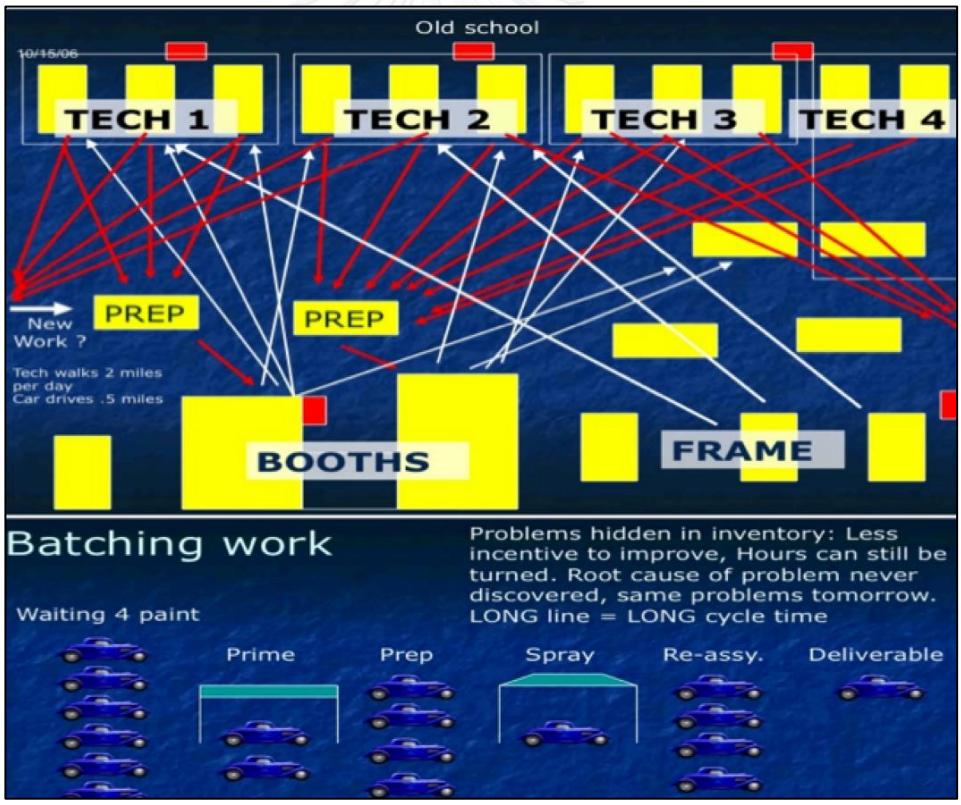


Figure 5.17: A traditional production model for vehicle repair business (Marshall, 2014)

- **No repair blueprints**

From this sub-process, there is an absence of vehicle repair planning activity. As mentioned previously, each technician owns each vehicle repair, absolutely without creating a blueprint, the technician could just follow his own way and based on past experience to repair a car, and quality of the repair is definitely varied. For example, each respective technician has its own way to install a car bumper; however using a repair blueprint, it could standardize each repair activity in a sequence, which can eliminate unwanted non-value added activities.

2) People

- **Each vehicle repair handled by one technician**

As mentioned again, each technician only handles one vehicle repair job at one time; therefore, the competency of the technician can be measured by looking at the vehicle repair quality and the time of delivery. Obviously, the repair quality and time of delivery is varied. Furthermore, once a technician is on leave or sick, the particular vehicle repair is absolutely suspended. For this reason, it would create a huge bottleneck and it may lead to the problems hidden in quality, over processing, motion, inventory, delays as well as the health of technician.

3) Policy

- **No policy or schedule for utilizing the repair material**

Along the vehicle repair process, there is an absent of a well-established policy for utilising the repair material or equipment. For example, some vehicle repairs may require frame straightening machine, which is the most expensive and only limited equipment at case company; therefore without a proper scheduling, some technicians may request to use the respective machine at the same time. Absolutely, this may lead to waiting for the machine, and then, some repair jobs may be idle. Therefore, most of the technicians asked the owner to buy a new machine for them rather than waiting over and over again for frame straightening activities.

- **No policy for repair tool storage**

Along the vehicle repair process, usually, technicians simply store or put the new parts inside the damaged vehicle. Indeed, they also simply put the repairing tools on the rack or on the floor, and when they need some parts or tools, they will automatically try to find the tools or particular parts from the mess. In this case, try to imagine that a vehicle consists of how many components as well as how many different types of repairing tools, as a result, this way of doing work is absolutely wasting the time, cost, and efforts. Interestingly, sometimes the repairing tools or parts could be missing on the shop floor.

Figure 5.18: Example of part storage in case company

4) Technology

- **No appropriate equipment and tools**

At last, there is an absent of appropriate equipment and tools for repairing the vehicle. As mentioned before, technicians may need to wait for the only one straightening machine as well as some of the tools and equipment are definitely out-dated and need to use it by manually or based on experience.

5.3. Conclusion

In chapter 5, it's obvious to show that the process analysis is holistically revealing the core operational of case company in different viewpoints, including the internal deficiencies. In terms of functionality, case company's business operation has two key capabilities, which are consisting of automotive repair and vehicle insurance claim processing. According to transformation planning cycle, this chapter is essential to study the current state of case company, which have been divided into three major

sections, such as high-level process mapping, As-Is analysis and analysis of the current process. Throughout these sections, executives should be able to understand current state of case company, and the objectives of each subsection were elaborated as follows as:

- **High-level process mapping:** SIPOC diagram is acting as a comprehensive roadmap that helps the executives to understand the big picture of its business behind the company's operational; therefore by using SIPOC, executives should be able to understand whether the current processes produce the right outputs, from the starting point to the desired endpoint, ultimately for the right person. With the assisting information from chapter 4 about the stakeholder needs and requirements, SIPOC could help executives to define the impacts on suppliers, customers, inputs or outputs if any proposed change on its operational processes. Indeed, this tool is absolutely important and useful for planning a change.

- **As-Is Analysis:** Comprehensively, detailed process mapping is another roadmap to help the executives to outline the total chain of its current operation behind the company; therefore, executives should be able to understand the entire flow of business activities, from one starting point to another endpoint. Furthermore, executives could recognise the stakeholders who actually involving in each business activity, either an individual or a business unit. Throughout this analysis, executives should be able to understand the common structures and design of current service processes in order to identify the unwanted loops or non-value adding activities that actually limiting the existing business. Last but not least, executives may able to identify the bottleneck of certain processes that significantly tumbling the effectiveness and efficiency of the operation, which outcomes direct impacts to its output and customer.

- **Key observation and analysis of current process:** It's a useful technique to summarise the key information within high-level process flow and As-Is analysis. Obviously, fishbone diagram was playing an important role in this section for deriving the consequences of each interrelated problem in terms of "hard" and "soft" aspects of the business.

CHAPTER 6

Recommendation and To-Be Process

6.1. Introduction

The main part of this chapter is to propose the recommendation of new process from the different viewpoint of the research team; indeed, all the ideas are usually come from ***'brainstorming'*** session, interviews and doing a gap analysis with the top executives and the shop floor related staffs. These recommendations could help to redesign the As-Is process and introduce the future state of the case company, which is the To-be process as a new solution to improve the effectiveness and efficiency of the business so that the company can be sustainable in future market as well as evolve to be a customer-oriented company. Besides that, the beginning of this chapter will discuss the aim of case company's business in order to allow the readers to truly understand the strategic context of the case company's operation. It is followed by the descriptions that derived from the current problem of the case company, which helps the readers to identify gaps between the desired goal and the current problems. Finally, it would explain why aligning the business infrastructure is important to support the transformation as well as determine the impact upon business performance.

6.2. Key Success Factor for the Business

According to Eli Goldratt's statement, the key objective of a business is to making money regardless of present time or in the future (WMG, 2013). In financial perspective, undeniably, making money is a final aim for all kinds of businesses around the world. However on the flip side, as Peter F. Drucker stated, the key objective of a business is about ***"providing a service"*** (WMG, 2013). As he strongly believed, the service or product provided is what actually customers want and value; therefore in operation perspective, operations' objectives are the necessary elements

of an organisation to determine whether it could meet its customer needs in return of any profit.

When comes back to this research, of course, the overall target of case company should has obvious relation with financial outcomes; for instance, they wishing to be profitable in the long run and stay sustainable in competitive market. Frankly speaking, during interviews with those executives, surprisingly, they have the same consent in their voice, which is only ***"Making Money".*** Perhaps this answer is obvious and ordinary. On the contrary, case company's executives have never thought about the vision or mission of their company.

As can be seen from the **chapter 4**, the demand of case company expressly demonstrated that case company's service volumes were linearly declining; notably, **customer sample analysis** helps to indicate that the efficiency and effectiveness of case company were gradually sinking in the past few years. In Lean thinking, no customer would actually accept the inferior quality of vehicle repair; especially, the service provided is not equivalent to customer needs and values. Besides that, attempts to attention to the **customer consumption map**, inefficiency and ineffectiveness of the case company eventually create inconveniences, which lead to poor customer experience, because customers may have to spend more money and wasting time. Within such information, above statement is totally reflecting the **key strengths** of case company, such as long history in repair industry, experienced technicians as well as the distinct competitive advantage: vast knowledge of vehicle repairing may fail to carry any brand equity and business performance in long run, due to the customer needs and requirements have been totally ignored.

On the other hand, it's worth mentioning that the PESTLE analysis in this research was convincingly explaining the social factor with regards to consumer perception: until now, Malaysians driver still demanding better service quality from vehicle repair workshop, and followed by the trustworthiness of automotive mechanics as well as reasonable price tag. As is known to all, this social factor can be used as a reference to identify the market requirements in order to re-define case company's operation

capabilities. Meanwhile, this factor could be a future indicator for case company in a long run, so that the vehicle repairs business can be transformed according to these market requirements. Furthermore, customers are the most important stakeholder group who specify the requirements for vehicle repair workshop that directly affecting the performance objectives of the company.

If translating the external effect of this social factor into a set of customer requirements by using Nigel slack's operations performance objectives model (See figure 6.1), in fact, these general terms: ***"Better quality service", "Trustworthiness of automotive mechanics"*** and ***"Fair price"*** actually encompass a mixture of customer needs and requirements that constituted the performance objectives of case company.

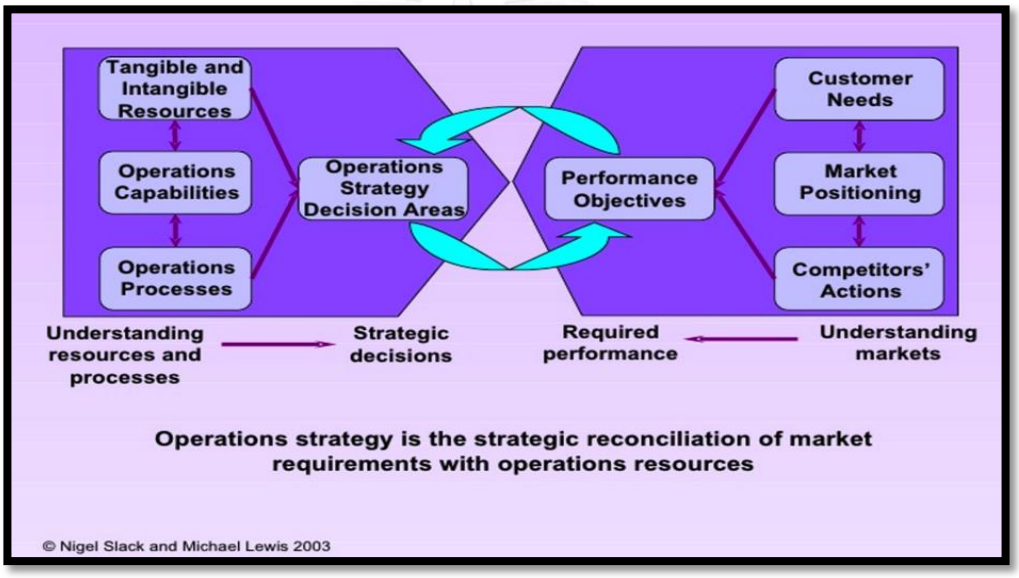


Figure 6.1: Strategic reconciliation between market requirements and operation resources (Slack & Lewis, 2002)

Therefore, the table below summarises that how these terms could shape the performance objectives of vehicle repairs business according to the customer requirements.

What actually customer demand for	Translating into customer requirements	Translating into Performance objective
• Better quality service • Trustworthiness of mechanics • Fair price	Customer wants to receive error-free products and services	Quality
	Customer wants to get the car back quicker (Speed of response)	Speed
	Customer wants to get the car back on time (Promised delivery)	Dependability
	Customer wants to receive and choose from variety of services (More customization)	Flexibility
	Customer wants fair price for vehicle repairs	Cost

Table 6.1: Customer requirements translating to performance objectives

Based on table 6.1, these performances objectives are actually translated based on what customer actually want, and obviously, it can be considered as the key success factors for the business, which provides a clear direction for vehicle repair businesses. Due to these desired goals are actually based on customer's requirement, therefore vehicle repairs operation should take these objectives into account in order to satisfy its customer requirement that could bring more revenue for the company. Despite equipped with a clear set of operation goals, however, this is the beginning of the problem. As can be seen from Figure 6.1, some companies may focus on the competitor's actions, and then, try to benchmark some leading companies in order to apply the best practices of their superior operation capabilities. However, it is not applicable to this research, because there is not much information with regards to the best practices of running an auto repair company.

From the discussion above, it eventually highlighted a gap between the current condition of case company and the future performance objectives. Undoubtedly, these future objectives will be progressively deriving, from the classical hierarchical of corporate strategy, ***"making money"*** until operation strategy, ***"providing a good service"***. In order to close down the existing gap, Dr Nigel also advised that executives should truly understand its operation resources (See figure 6.2), and then, think about ***"What do you have"*** in terms of operations capabilities as well as ***"What you have to do"*** to maintain the operation capabilities in order to satisfy the customer requirements **(Slack & Lewis, 2002)**.

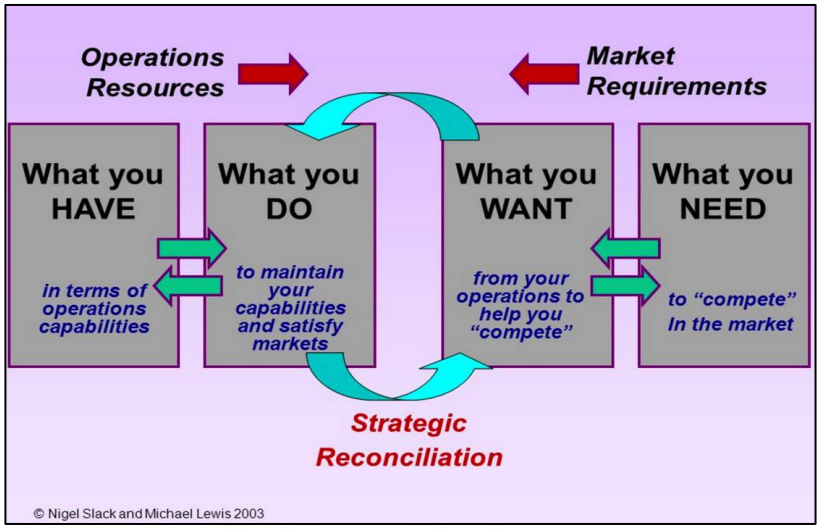


Figure 6.2: Strategic reconciliation (Slack & Lewis, 2002)

According to figure 6.1, within the information from Chapter 4 and Chapter 5 of this research, executives can actually explore case company's capabilities and deficiencies throughout its operation processes as well as understand the customer needs and requirements. In Chapter 4, SWOT analysis was demonstrating the strength and weakness of case company, which can be concluded as fundamental operation resources. Meanwhile in Chapter 5, As-Is analysis has captured the existing case company's service processes, and root cause analysis also demonstrated each respective problems throughout each sub-process, which allows the executives to identify how the business operates in past as well as reflecting the gap between ***"what company can do now"*** and ***"what company must do in future"*** in order to retain core capabilities of the vehicle repairs business to satisfy market requirements.

And now, perhaps executives could see that the external effect of ineffectiveness and inefficiency within its operations is reducing its business capabilities, in a long run, it may not adequately satisfy its customer requirements, at the end, it may lead to poor business performance. In order to retain back the operational capabilities of case company, the next section is to propose the recommendations of a new process by using gap analysis as well as brainstorming with the top executives and the shop floor related staffs.

6.3. Recommendations of New Process

After a comprehensive breakdown on the current condition of case company and future desired goals, and now, it is a critical starting point for executives to find out what actually they need to do or adjust in order to minimise those gaps, as mentioned earlier. As known to all, Lean thinking is to make and deliver what the customer desires for, particularly, when is needed and the quantity needed". Therefore, the aim of this section is to propose a variety of solutions to re-integrate all business activities that create values for the customer- from first touch point until the vehicle delivery, hopefully, each sub-process could work in a smooth flow, highest quality, shortest throughput time as well as the lowest cost. Indeed, chapter 5 has demonstrated case company's vehicle repairs service processes, from an end to another end, it eventually divided into 6 different sub-process, such as (1) manage customer inquiry, (2) process the vehicle insurance claims, (3) vehicle estimation, (4) authorization of insurance claims, (5) part sourcing and (6) vehicle repairing. Therefore in this section, a gap analysis will helps to highlight the waste in each sub-process, and then, propose the actions or solutions that may practically eliminate the issues of each sub-process. As mentioned before, the five operation performance objectives are the key objectives that case company wants to achieve; meanwhile, non-value creating activities or wastes are something that case company wish to eliminate because it does not create values for both company and customer.

6.3.1. Recommendations of Managing Customer Enquiry sub-process

According to section 5.2.3.1, waiting, defects, over-processing and incompetent staffs, are the main waste of this sub-process. As a result, the solutions and recommendation below will be used to minimise the main problems of this sub-process, and then, followed by introducing the key metrics of each recommendation as well as list out the limitation of each proposal action. Indeed, a future state of each sub-process is designed based on these recommendations in order to fulfil the five operation performance objectives as the key success factors of vehicle repair business.

Table 6.2: Recommendation of managing customer enquiry sub-process

Recommendation of managing customer enquiry sub-process	
Future State	**Current State**
Professional handling of customer inquiries and customer booking	**Poor handling of customer inquiries**

Next actions/Proposal	**Target (Metric)**	**Limitation**	**Idea comes from**
Hire phone communication training and coaching team to provide regular training to case company's CSR	Improve the customer communication skills to let customer feel the CSR team are professional	Regularly commitment in terms of money, time and efforts	"How to talk to customers", article from Fender-bender, leading collision industry magazine, (JOHNSON, 2011b)
Establish enquiry form to collect customer information	100% complete & accurate at customer information	Lack of flexibility in data collection	Fact Sheet from Customer FirstUK limited, (Customerfirst, 2015)
Create a contact form on case company's website	Allows CSR to control and specify the information from customers	Regularly commitment for the website	Brainstorming
Develop a great phone answering scripts with effective question techniques	Guide the conversation in a direction so that CSR can easily understand the customer needs	Lack of flexibility in interaction	Fact Sheet from Customer FirstUK limited, (Customerfirst, 2015), (TigerTel, 2014

Leverage automated attendant phone system or virtual receptionist to separate the inquiries	Reduce the intervention of CSR, directly transfer the special inquiry to an extension	It's all about money and require knowledge of the system	Brainstorming, support by the overview of (RingCentral, 2015)
Leverage automated appointment reminder system to remind customer	Reduce the missed appointment or no-shows and helps to reschedule an appointment	It's all about money and requires knowledge of the system	Brainstorming
Purchase database system to store customer information	Easily to track back the customer information	It's all about money and requires knowledge of the system	Brainstorming
Develop a lean visual scheduling board	Minimize the over/ under booking for customer appointment	Require training for knowledge of visual management	Visual scheduling board, an article from fender bender magazine, (COLLINS, 2016)
Develop a follow up procedure that drives the sales	Increase the customer retention	Increase the workload of CSR	Fact Sheet from Customer FirstUK limited, (Customerfirst, 2015)

6.3.2. Recommendations of Managing Insurance Claims sub-process

According to section 5.2.3.2, waiting, over-processing and incompetent staffs are the key problems of this sub-process. As a result, the solutions and recommendation below will be used to minimise the issues of this sub-process, and then, followed by introducing the key metrics of each recommendation as well as list out the limitation of each proposal action. Indeed, a future state of each sub-process is designed based on these recommendations in order to fulfil the five operation performance objectives as the key success factors of vehicle repair business.

Table 6.3: Recommendation of managing insurance claims sub-process

Recommendation of managing insurance claims sub-process	
Future State	**Current State**
Professional handling of customer inquiries and customer booking	**Poor handling of customer inquiries**

Next actions/Proposal	Target (Metric)	Limitation	Idea comes from
Provide regular training to case company's claim advisors	Improve the claim handling and computer skills	Regularly commitment in terms of money, time and efforts	Brainstorming session
Establish an identification documentation checklist for customers	100% complete & accurate at customer documentation, Eliminate recheck document activities	Still require claim advisor's signature to verify the document is complete or not	Brainstorming session
Introduce insurance claim procedures checklist	Guide the claims advisor to explain the insurance claim procedures to the customers	Lack of flexibility during explanation	Brainstorming session
Purchase insurance claim management software and subscribed high-speed broadband	Reduce the workload of staffs, simplify and speed up the claims processing	It's all about technology and money, requires knowledge of the system	Brainstorming session, support the idea from (Mitchell International, 2015)
Limit office hours for claim department	Improve the productivity of claim processing	Lead to frustration of other departments	Brainstorming session
Introduce effective time management policy	Supervise and manage the working time in accordance with this policy	Lack of flexibility in workplace	Brainstorming session

6.3.3. Recommendations of Managing Vehicle Estimation sub-process

According to section 5.2.3.3, waiting, over-processing and non-utilization of talent are the actual wastes of this sub-process. As a result, the solutions and recommendation below will be used to speed up the flow of vehicle estimation, at the same time, the key metrics of each recommendation and the limitation of each proposal action will be identified. Indeed, the future state of each sub-process is designed based on these recommendations in order to fulfil the five operations performance objectives as mentioned earlier.

Table 6.4: Recommendation of managing estimation sub-process

Recommendation of managing estimation sub-process			
Future State		**Current State**	
Highly efficient estimation		**Delay of motor vehicle damage estimation**	
Next actions/Proposal	**Target (Metric)**	**Limitation**	**Ideas comes from**
Provide regular training to case company's estimator	Improve the estimation skills and computer skills, changing the way of work and thinking	Regularly commitment in terms of money, time and efforts	Brainstorming session, support the idea from "Shorten the learning curve with estimator school" (MILLARD, 2009)
Utilise the talent and establish team based approach for estimation	Reduce the "silo" culture problem and bottleneck of the business by integrating estimator, technician and parts manager in an estimator estimation	Loss of staffs, some may not willing to work in team, difficult to manage the productivity of the staff	Brainstorming session, support by the idea from "Lessons from highly efficient shops" (EVANS, 2015a)
Establish estimation planning process	Establishing guidelines for the estimator team in order to follow the standard procedure of estimation	Lack of flexibility during estimation process	Brainstorming session, support the idea of "Training to follow SOPs" (LUCAS, 2009)

Prepare vehicle blueprints for efficient structural repairs	Reduce the workload of repairer, simplify and speed up the vehicle repair process	Require knowledge of blueprint, may lead to regular commitment in terms of money, time and efforts	"Business feature: Blueprint for efficiency", an article from (Nunn, 2008)
Establish electronic part procurement as the part of estimation process	Close down part sourcing department, Embedding the part sourcing into a part of estimator team in order to become more "efficient and effective:"	Loss of staffs, Lead to frustration of other departments	Brainstorming session, support for the idea from "Parts Procurement's new era" (EVANS, 2015b)
Creating a visual estimation board	Visually demonstrate where the vehicle are in the estimation process to improve the flow of work floor	Lack of flexibility in estimation planning	Brainstorming session, support for the idea of "Creating a visual production board" (ZECK, 2015a)

6.3.4. Recommendations of Managing Vehicle Repairing sub-process

From section 5.2.3.5, waiting, delay, motion, incompetent staffs are the main problems of this sub-process. As a result, the solutions and recommendation (see table below) will be used to minimise the main problems of this sub-process, and then, following by introducing the key metrics of each recommendation as well as list out the limitation of each proposal action. Indeed, the future state of each sub-process is designed based on the five operations performance objectives as mentioned earlier.

Table 6.5: Recommendation of managing vehicle repairs sub-process

Recommendation of managing vehicle repairs sub-process	
Future State	**Current State**
Professional handling of vehicle repairing process	**Delay of vehicle repairs**

Next actions/Proposal	Target (Metric)	Limitation	Ideas comes from
Provide regular training to case company's technicians	Improve the repairing skills and changing the way of work and thinking	Regularly commitment in terms of money, time and efforts	Brainstorming session
Utilize the talent and establish a linear repair process with a team based approach	Reduce the bottlenecks of vehicle repair process by integrating technician in a team to improve the efficiency of vehicle repair	Loss of staffs, some may not willing to work in team, difficult to manage the productivity of the staff	Brainstorming session, support for the idea of "Developing a team-base repair process" & implementing a linear repair process (EVANS, 2015a)
Utilising vehicle blueprints for efficient structural repairs	Reduce the workload of repairer, simplify and speed up the vehicle repair process	Require knowledge of blue print, may lead to regular commitment in terms of money, time and efforts	"Business feature: Blueprint for efficiency", an article from (JOHNSON, 2013; Nunn, 2008)
Creating a visual production board	Visually demonstrate where the vehicle is in the estimation process to improve the flow of work floor	Lack of flexibility in repair planning	Brainstorming session, support for the idea of "Creating a visual production board" (ZECK, 2015a, 2015b)
Introducing an express lane for windscreen-focused or minor severity damages vehicle	Segment the vehicle repairs on increasing the efficiency of vehicle repairs	Need to hire more staffs, increase the expenditure	Brainstorming session, support for the idea of "Adding an express lane" (Bender, 2014; Hoerner, 2011)

6.4. To-Be Process

In this section, the new design of vehicle repairs processes will be proposed as To-be process. Indeed, the To-Be process is logically designed and in an appropriate flow, so that the case company able to minimise the non-value added activities and achieve the five operations performance objectives for the future market. The previous section has introduced a variety of recommendations for each sub-process and applying these recommendations into new process design, which allows to re-engineering the traditional vehicle repairs processes into a brand new ***"Customer-centric vehicle repairs process"***, for this reason, case company can eventually transform the traditional business, from a cost-oriented to a customer-centric mindset, which is improving the efficiency and effectiveness of the business as well as increasing the customer satisfaction to fulfil the main objective of this thesis.

Furthermore, To-be process flow will be shown in a detailed process mapping, undoubtedly, this new process flow still maintain the main purposes of two main processes, which are processing vehicle damage insurance claim as well as vehicle repair and delivery; however, new process flow only consists of five sub-process, which is not same as in As-Is process flow, at the same time, the sub-process of authorization insurance claim still unchanged since it's the procedures of insurance company. Indeed, all figures of To-Be process will be shown and the rest of four sub-processes.

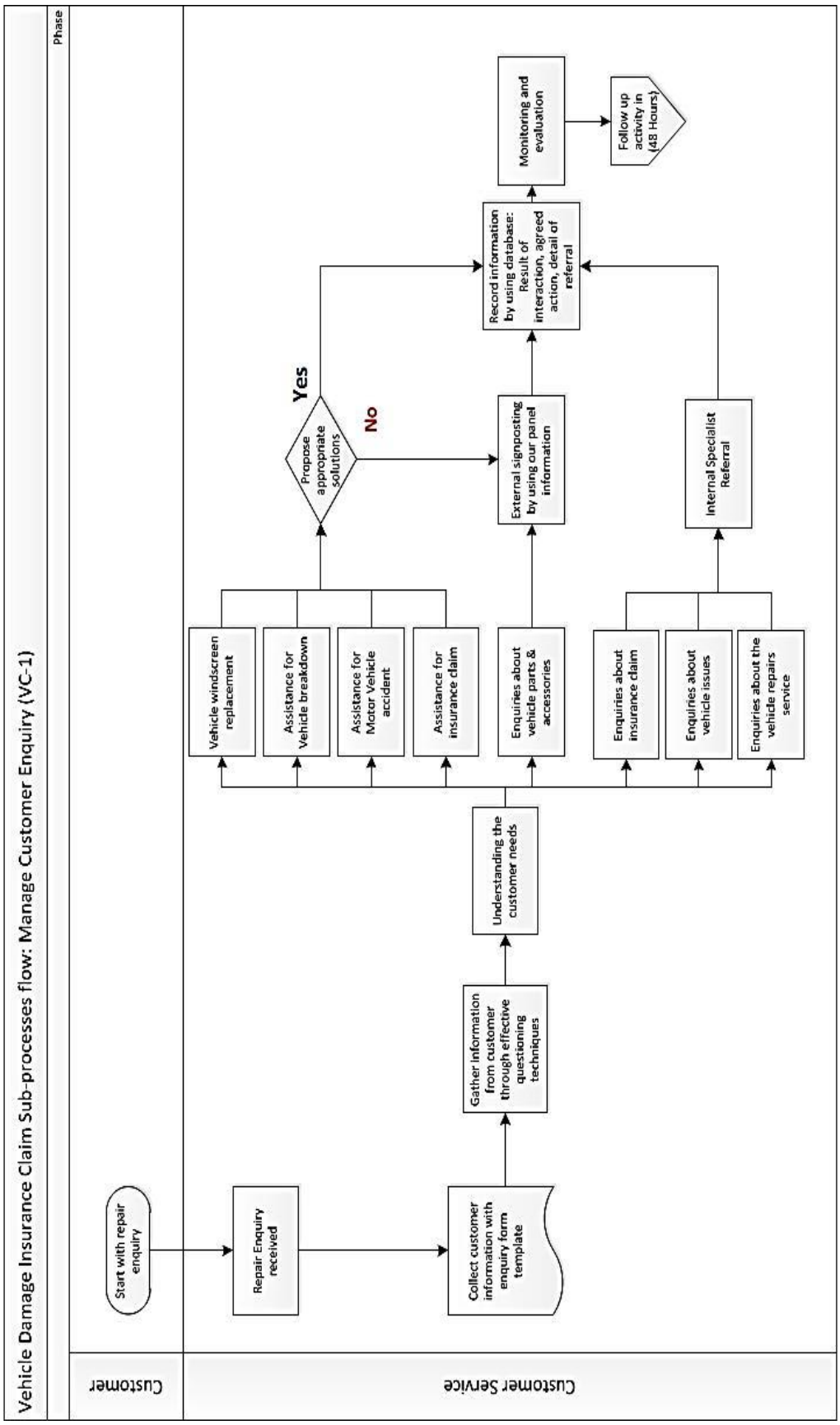


Figure 6.3: New sub-process VC-1: Manage Customer enquiry

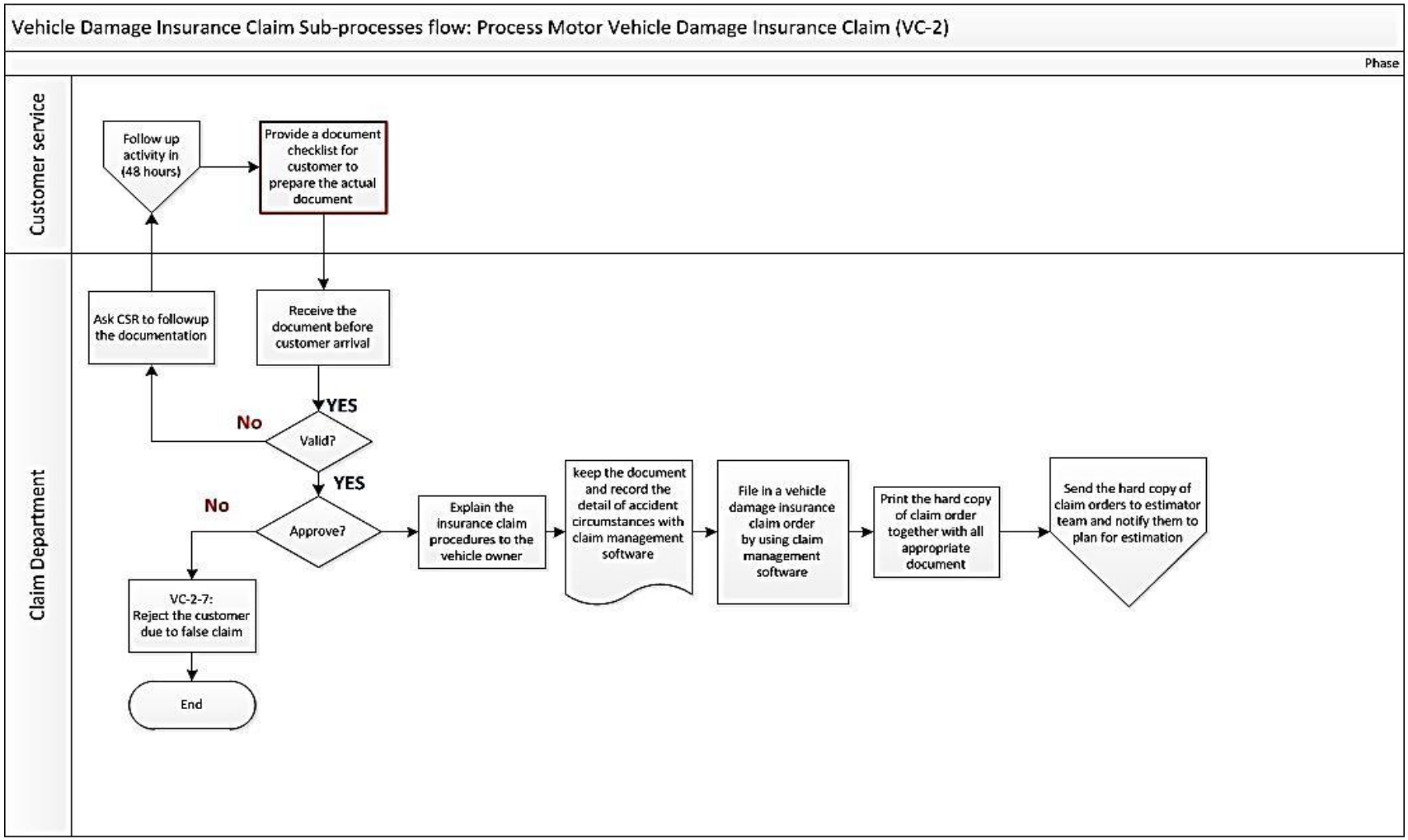


Figure 6.4: New sub-process VC-2: Process Motor Vehicle Insurance Claims

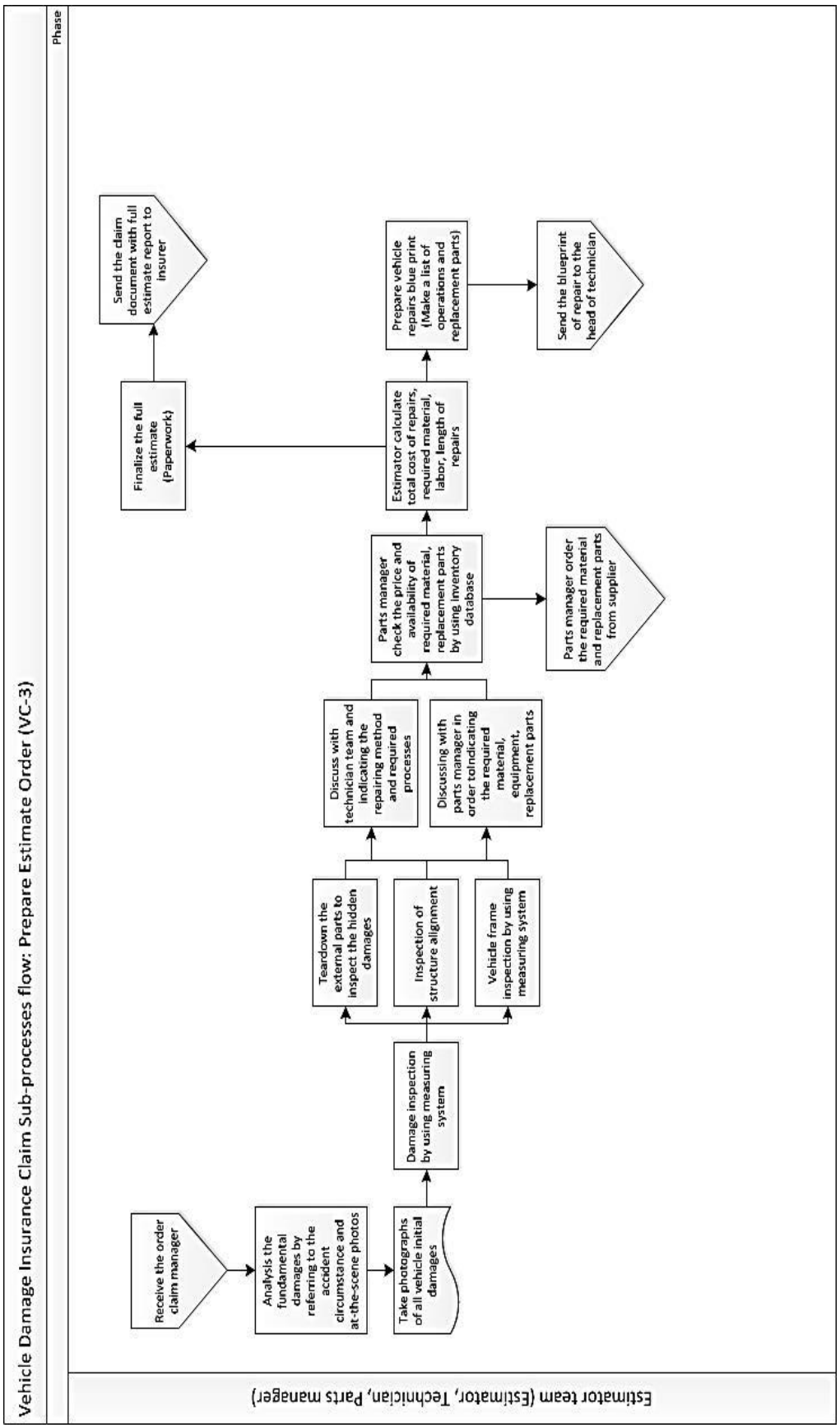


Figure 6.5: New sub-process VC-3: Vehicles Estimation and Part Sourcing

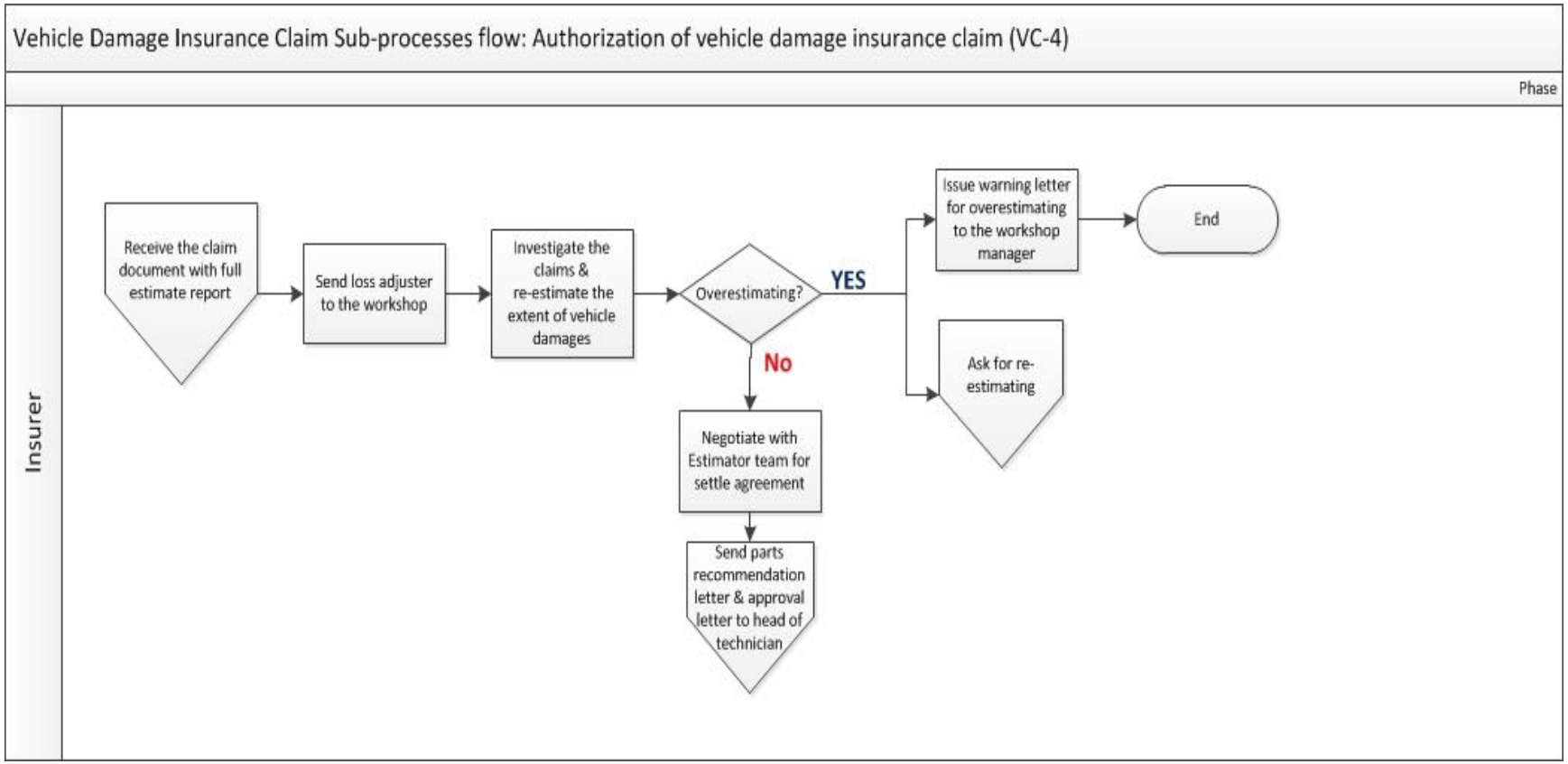


Figure 6.6: New sub-process VC4: Authorization of vehicle damage insurance claim

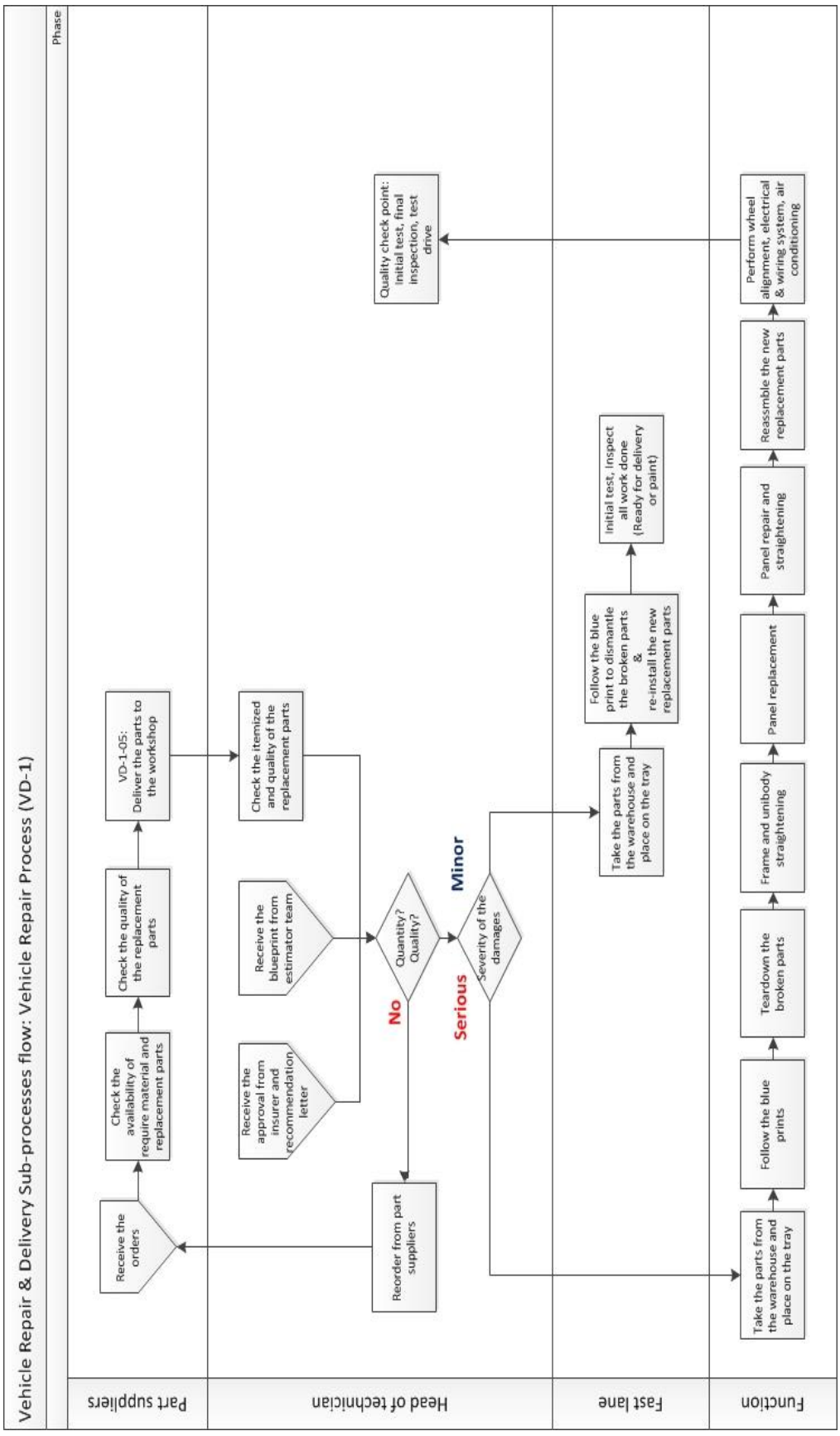
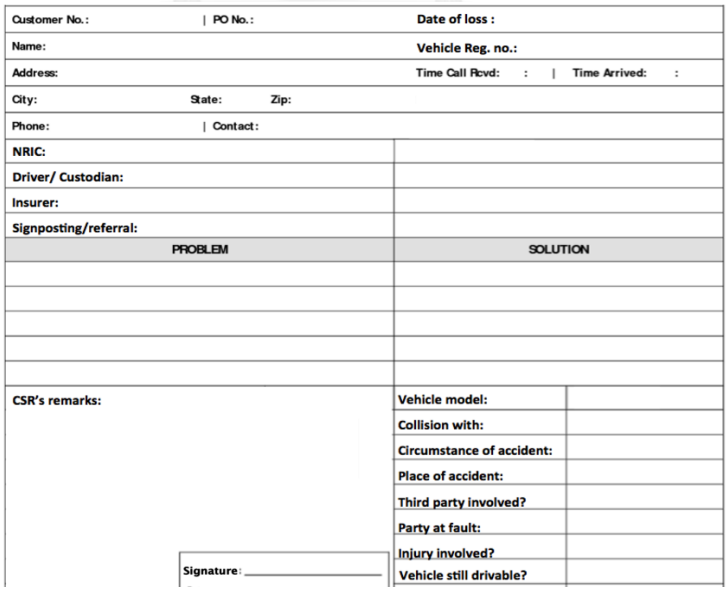


Figure 6.7: New sub-process VD-1: Vehicle Repairs Process

6.4.1. New Sub-Process Design for Manage Customer Enquiry

Obviously, this is the initial point of the entire vehicle repair service processes. As known to all, customers usually make an enquiry via telephone hotline or in–person. Therefore in order to lively explain this sub-process; the author would like to assume that this scenario is an enquiry over the phone. Throughout the interaction, a ***"telephone answering script"*** will be used as a tool to assisting the customer service representative (CSR), so that CSR can interact with the customer with a right tone of voice and greet them politely, professionally as well as the script guides the conversation in way that customer can understand.

Indeed, CSR will respond to the enquiry immediately, therefore scripts will help them to craft some common answers to typical questions so that CSR can have some answers in advance, which is a consistent way to answer the customers' common questions, includes collecting the customer information accordingly. Meanwhile, CSR will use an ***"enquiry form template"*** (see figure below) to accurately record all customer information, for example, where the location of a vehicle accident is occurs, what model of vehicles, who are involved in the vehicle accident scene, the specific request for repairs and so on.



Customer No.:	| PO No.:	Date of loss :	
Name:		Vehicle Reg. no.:	
Address:		Time Call Rcvd: : | Time Arrived: :	
City:	State: Zip:		
Phone:	| Contact:		
NRIC:			
Driver/ Custodian:			
Insurer:			
Signposting/referral:			
PROBLEM		SOLUTION	
CSR's remarks:		Vehicle model:	
		Collision with:	
		Circumstance of accident:	
		Place of accident:	
		Third party involved?	
		Party at fault:	
		Injury involved?	
Signature: _____		Vehicle still drivable?	

Figure 6.8: Enquiry form template, source: case company

Furthermore, CSR will gather the customer information through a series of ***"effective questioning techniques"***, so that CSR can understand what actually customer wants from them. At the same time, CSR will determine the types of enquiry, to be sure, a list of options whether about vehicle windscreen replacement, assistance for motor vehicle accident or perhaps some enquiries regarding insurance claim or repairs services. In this case, initially CSR will propose some appropriate solutions to the customer, and then, let the customer decide whether the solutions are fit for them. If the solution cannot assist any further, CSR will undertake ***"external signposting"*** and discuss the alternative sources that could help the customers to resolve their problem by using other organisation. As can be seen from the process mapping, especially when customer enquiries about the vehicle parts and accessories, CSR will directly recommend an alternative solution for the customers because the enquiries may fall outside the expertise of case company; therefore, CSR will provide case company's vendor information to the potential customers, so that the customer can contacting the vendor in order to know more about the vehicle parts, which is not the core of case company' business.

At this moment, customers may feel case company is professionally handling their enquiries, although the enquiries are not fit the case company's subject area. Of course, external signposting is a way to solve the customer's problems by using other organisation; meanwhile, it may help to boost the sale of other organisation. Undoubtedly, this could help case company to build a strong bonding with other vendors, such as automotive suppliers, small repairs facilities, and vehicle specialists and so on.

On the other hand, when the customers' enquiries is related to insurance claims or vehicle repairs, CSR will responsible to make some necessary arrangements for customer, for example, arrange an appointment for customer, so that the customer can meet up with the claim advisor to discuss insurance claim or divert the phone call to other internal specialists, so that the specialist can fully assist their clients. In fact, this is because CSR is not the specialist of this subject area; however, claim advisor is the specialist for the insurance claim and a technician is the specialist for vehicle repairs.

As a result, customers can get the best solutions or fullest answers from the internal staffs. In fact, "***automated attendant phone system"*** can be leveraged when any incoming call, for this reason, the system can segment the customer enquiries based on a simple menu, for example, a customer can choose to talk directly with internal specialists, the system will automatically divert the phone call to the specialists.

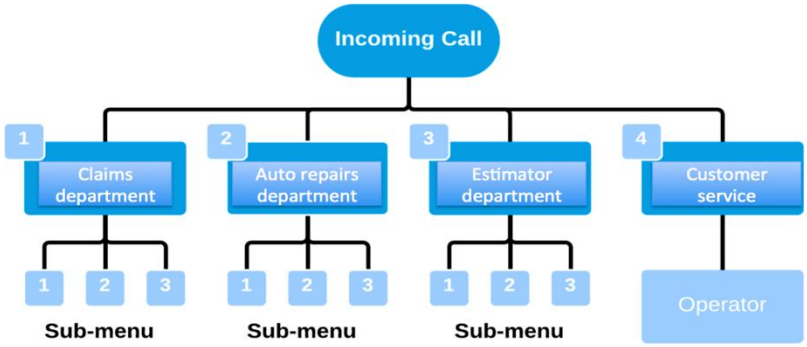


Figure 6.9: Segmentation of customer enquiries

Under circumstances above, whether it is an in-house solution, external signposting or internal referral, CSR is advised to provide the fullest service before referring on or sign posting. And then, following a consistently written procedure to record the information especially during advice sessions, such as the final outcome of the discussion, detail of signposting or referral, any feedbacks or complaints and so on. Besides that, all information will be stored in a database system, so that CSR can easily trace back its customer information in a near future.

Indeed, all conversation will be recorded and stored in the database system, so that CSR manager can evaluate the calls as well as monitoring the CSR performance in customer communication. At last, a follow-up activity will be established and within 48 hours, CSR will follow up the customer enquiries again in order to check whether the customer's problem has been solved or remind its customer to prepare some documents before arrived case company as well as helps to reschedule an appointment. In order to ensure all the workflow within this sub-process is smooth and efficient, CSRs are the key point that responsible for this sub-process; therefore,

case company should provide phone communication training and hire coach team to maintain competency of the CSRs in order to improve the customer satisfaction.

6.4.2. New Sub-Process Design for Processing Motor Vehicle Insurance Claims

When comes to the new sub-process for managing the insurance claims, claim advisor no longer solely handling the insurance claims. As can be seen from the mapping, customer service representative CSR will notify and remind the customers about the scheduled appointment, at the same time, CSR will provide a documentation checklist for its customer, which leads to ***"Customer self-service"*** that allows the customer personally prepare the sufficient amount of appropriate documents based on the document checklist. Furthermore, CSR will advise customers to send the appropriate documents to claim advisor's mailbox or by fax. Before the customer entering case company, claim advisor will check the validity of the documents, if something is not adequate; claim advisor will ask CSR to follow up again.

As can be seen from 5.2.2.3, in the past, claim advisor will fill the claim orders first, and then, only started to check the validity of each document; convincingly, it led to over processing and waiting for customer's document again and again. In this new sub-process, claim advisor will check the validity of each document as the first priority of this process, because the wrong documentation can cause a serious penalty or maybe a false insurance claim.

Once everything is in a correct order, claim advisor will meet up with a customer and discuss the accident circumstances as well as explain how the insurance claim procedures operate. By all means, the customer may not fully understand the procedures; therefore an insurance procedure checklist will be used to facilitate the discussion and it could guide the claim advisor to explain in an appropriate way. To be honest, previously claim advisor is used to manually filling everything and simply store the paperwork on a rack or just placed on the table; therefore, it could lead to inaccurate and missing information, in an environmental perspective, it causes lots of paperwork waste as well.

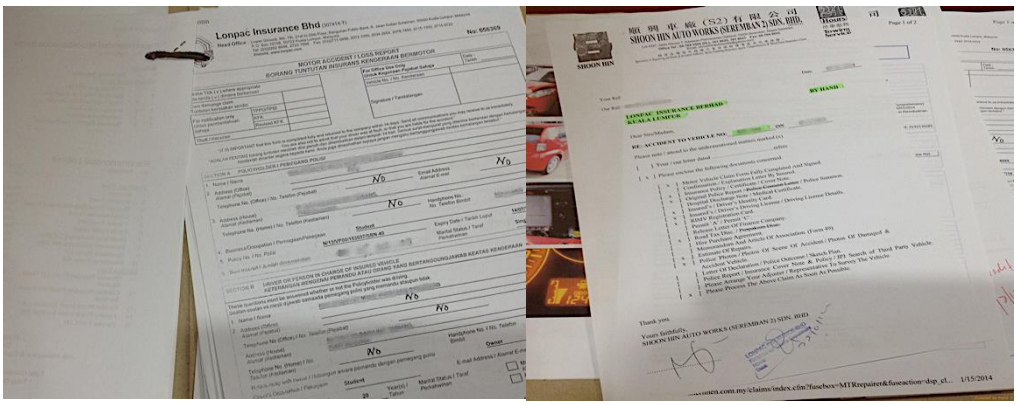


Figure 6.10: Paperwork of insurance claims, source: case company

However in this new sub-process, claim management software (E-claims) and high-speed broadband are the biggest investment to speed up the entire claim processing. In a traditional sense, the technology could be expensive and hassle; however, in reality, it probably reduces the administration time when preparing a claim order as well as reducing the workload of claim advisor. Indeed, this direct method requires computer knowledge and skills, as a result, case company should provide sufficient training and hire a coach to maintain competency of the claim adviser in order to improve the efficiency of claim processing.

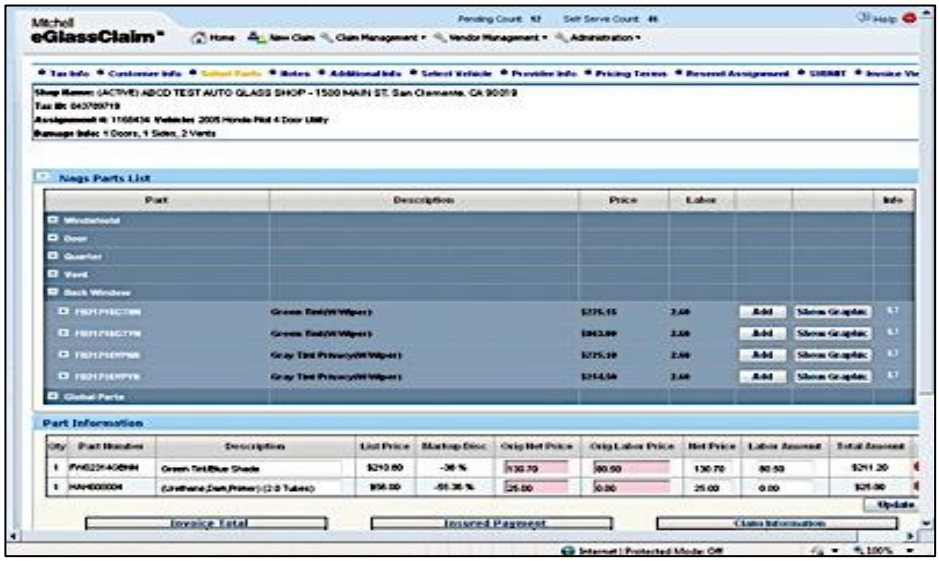


Figure 6.11: A sample of electronic claim system (Mitchell International, 2015)

6.4.3. New Sub-Process Design for Vehicle Estimation and Part Sourcing

According to Duffy 2015, the key objective of estimation is to inspect severity level of vehicle damages and determines the cost of repairing. As a matter of fact, estimation is an important focus area for vehicle repairs business, because it actually helps the customer for decision making on whether to file an insurance claim or not. Therefore, when the estimate is quoted too high cost, which means that the vehicle is heavily damaged, indeed some customers may not able to bear with high repairing cost, and then, they will choose to file an insurance claim instead. Not to repeatedly mention about how new sub-process operates from one point to another one point, the first interesting idea of this new sub-process design is ***"a newly formed coalition team"*** by integrating workshop estimator, parts manager and few technicians in this sub-process.

In the past, case company hired only one estimator to solely handle the entire estimation, which eventually led to a bottleneck for the business, as can be seen from the detail from customer sample analysis; once the estimator is on leave or sick, the whole sub-process will be totally suspended. In this case, previously case company may outsource the vehicle estimation by using other organisation; therefore, case company unable to control the quality of estimation, so it will be a chain effect that impacts the in-house or outsource vehicle repairs, at the end, it leads to quality issues or delivery delay.

Therefore in order to mitigate this bottleneck, research team advised using a team-based approach to repurposing the entire estimation process by leveraging different talents in this sub-process as well as reducing the ***"silo"*** culture. For instance, estimator's key ability is to estimate the cost of work, yet he may not know how to dismantle the damaged vehicle in order to further check the hidden damages or broken parts. That is to say, the estimator should work with few technicians that will disassemble the damage vehicle together and allows the estimator to identify the damage parts accurately and organised what necessary to repair. Indeed, this purpose can reduce any supplement of the estimate, so that the estimator doesn't need to re-estimate or re-diagnosis the damage vehicle. Since all damage has been identified,

estimator can discuss with technician team in order to indicate the appropriate repairing method and what repair procedures are required to repair the vehicle back to its pre-accident condition; convincingly, this purpose could help to prepare a well-established repair plan and recommended the step by step repair procedures by using two different expertises.

On the other side, vehicle estimator also needs to map all damages parts and any necessary repair items on estimate report along this sub-process, but estimator may not know the prices, auto parts code number and the availability of the parts, that's the reason why he also need to work with parts procurement at this moment. As a result, integrating procurement team in this sub-process will help to break down the parts sourcing department of case company; for this reason, the previous part sourcing process, from 5.2.2.6 will be removed. Since estimation process is requiring a diverse mix of expertise, the estimator team will be formed in a matrix structure so that it allows more effective communication and better integration across the functional department as well as an efficiently use of resources. Figure below shows the matrix structure of estimator team.

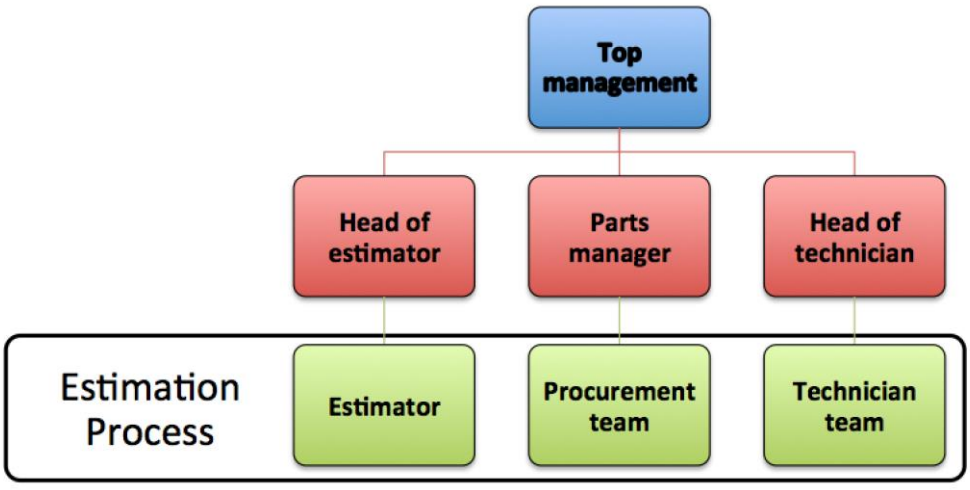


Figure 6.12: Matrix structure for estimation process

However, some experienced technicians may not want to work in a team, and eventually lead to loss of staffs; and to be honest, it's quite difficult to manage the staff's productivity in a team approach. Indeed, this is the limitation of this thesis, where this objective of thesis is to create a transformation plan to guide the executive on how to transform the vehicle repairs business thru re-engineering its vehicle repairs processes in order to achieve sustainability of the business; however, the human resource management is not the main concern of this research, perhaps how to manage the people in organization during business transformation could be a sensible topic for further study.

Additionally, another interesting idea in this new sub-process design is about creating a written ***"blueprint"***; indeed, this blueprint is ***"a complete and accurate representation of everything required to restore the vehicle to pre-loss condition"***. Indeed, the blueprint is combining a well-established repair plan and a cart of damaged parts, so that the technician can understand what exactly they supposed to do during vehicle repairs and it allows the technician to know what repair procedures and materials are required to repair the vehicle back to its pre-loss condition in a logical sequence, includes each part, material and operation are listed in. As can be seen from here, an estimate is a just an approximate cost of repairs work, however, blueprint is ***"a detailed, line-by-line road map for vehicle repair"***, which is used to improve the efficiency of vehicle repairs.

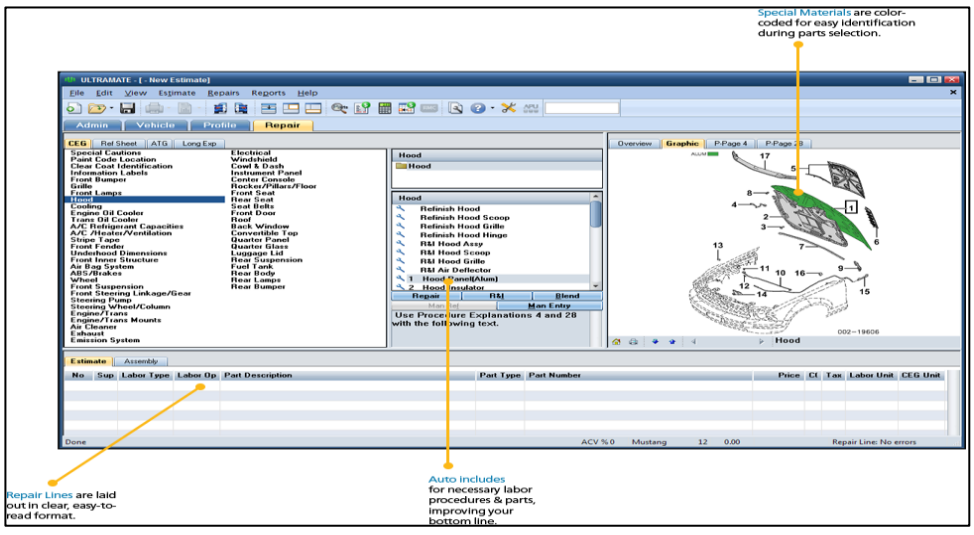


Figure 6.13: A sample of estimation software (Mitchell International, 2015)

Throughout this sub-process, technology also plays its own roles to improve efficiency and accuracy of estimation. For example, advanced measuring equipment can help estimator to identify the variation of vehicle damages professionally. Furthermore, the estimating software system can help the estimator to prepare the blueprint efficiently (see figure above).

6.4.4. New Sub-Process Design for Vehicle Repairing Process

As we known, vehicle repair process is the last process, which is the most significant operational process throughout the workshop business. The first interesting idea of this new sub-process design is to propose ***"An express lane for vehicle repairs"***. As can be seen from the mapping, technician team leader will decide the severity of each vehicle damages based on the blueprint and the recommendation plan from insurer's report. If the vehicle damages are just minor, therefore team leader will allocate the minor damage vehicle to ***"express lane"*** for any minor repairs (See figure 6.14). Usually, minor repairs are just replacing some parts and refinishing, so it does not require any structural repair or replacement of any welded on the panels, which means that it just require disassembly and installation of new parts. Of course, an express lane can speed up the repairing process for minor repairs, such as broken parts replacement, windscreen replacement and so on. The figure below is an example of the quick lane model, adopted from Car West Auto Body.

Figure 6.14: An express lane, source: Car West Auto Body, (Bender, 2014)

Furthermore, the next point is implementing "***a linear repair process with a team-based approach"***. In order to reduce the bottleneck of this traditional model, a linear repair process with a team-based approach is a new way to operate the vehicle repair process; remarkably, the flow of work or each activity is continually moving in the same direction in the linear repair process, which means that it is similar to a chain of goods production line, so that each technician no longer handles a vehicle repair at one time, conversely, each technician will handles each step within a linear repair process. To elaborate this concept of linear repair process in a production manner, a vehicle is an input of production process, while the linear repair process is a transformation process of adding values to its input. Throughout the whole process, each technician handles each repair activities or step until the vehicle is completely repaired. The figure below is an example of the linear repair process model, adopted from Marshall Auto Body.

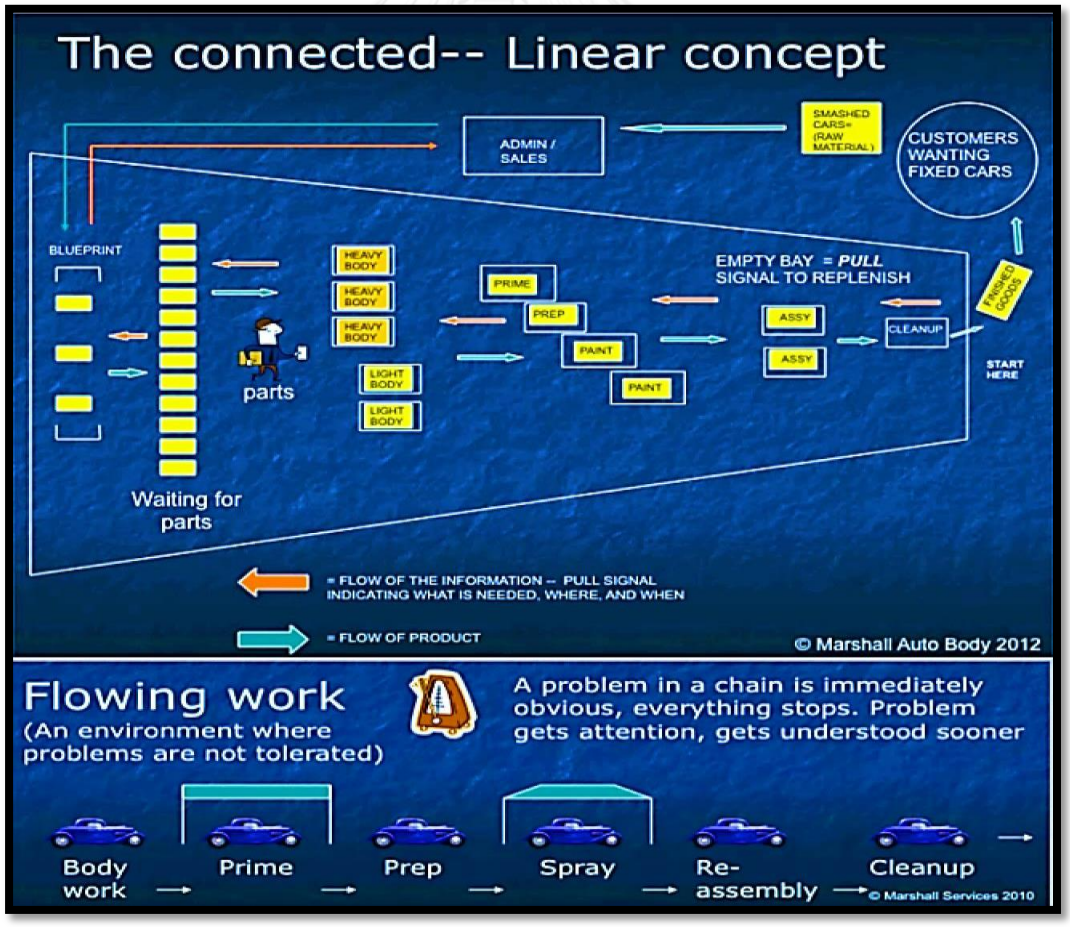


Figure 6.15: Connected linear concept of vehicle repair processes (Marshall, 2014)

As can be seen from figure 6.15, this concept is designed by Marshall Auto Body based on mass production operation perspective, however, this linear concept of vehicle repair is still adopting ***"lean thinking"*** and introduce a synchronise pull and a smooth flow of the repair process. Indeed, this model is fit for case company's vehicle repairs process and the continuous workflow could help to speed up the entire vehicle repair process. Indeed, transforming the existing vehicle repair process to this concept, it's not an easy task and probably it may consume a lot of time, money and efforts.

Additionally, the next interesting point is to create a "***visual production board"*** for case company. According to Jay Pope, an operation director at DCR systems collision shops, he stated that visual production board is to improve the shop floor's efficiency throughout the repair process because most of the staffs can aware the vehicle status in the repair process. Indeed, this visual scheduling technique is a lean technique to identify where the inputs and scheduling for an input through a process, of course, this technique can simple by using a normal whiteboard or even more complex by using an electronic display.

Figure 6.16: A sample of electronic visual board (ZECK, 2015b)

Indeed, in order to maintain to a flow of the process, people aspect are very important in vehicle repair process. This is because vehicle repair business is a service delivery system, the shop floor staffs are the one who handles each business activities to facilitate the process in order to provide the final outcomes to its customer, this is totally unlike production business, automated and standardised machine produces the tangibles goods for its customer.

6.5. Determining the Impact upon Business Performance

When comes to determine the impacts from the business transformation upon business performance, most of the time people tend to think about the traditional financial performance measurement are the best way that determines whether the company is able to achieve certain financial status. Instead, standalone financial terms are inevitably inadequate; as is known to all, financial measures can be easily found on any balance sheets, and it just reflects the past financial performance of a company. However, in this case, financial measures are still unable to demonstrate holistically what truly goes on in the entire business and financial performance doesn't actually motivates everyone in a business as well as it does not help to build any company's competencies for tomorrow, especially in terms of people, technology, process or skills. As a result, many executives need to use a different combination of performance measurement to comprehend the overall business performance in different perspective, especially when framing strategic focus for its operations as well as financial priorities.

When comes back to this section, "**Balanced Scorecard"** will be used as an essential methodology to predict the business direction of case company and determine the desired impacts from the business transformation upon case company's business performance (Robert S.Kaplan and Norton, 1992). According to (Robert S. Kaplan and Norton, 1992), Balance Scorecard is ***"indicators in an aeroplane cockpit",*** which means that it could simultaneously provide detailed information as an indicator to several areas for a company, especially the balance in financial or nonfinancial objectives.

Indeed, financial goals are important for profit pursuing business; however, as (Robert S. Kaplan and Norton, 1992) stated, the key driver of future financial performance are about the operational priorities that actually need to be achieved in terms of three specific measures: customer satisfaction, internal proficiency and organisation innovation. Combining these three measures with financial measures, Balance Scorecard allows the executives to exploit the overview of business performance, includes the external and internal factors and carried out a series of questions, which

is focusing on these four different perspectives, such as customer perspective, internal perspective, financial perspective, as well as innovation and learning perspective (Robert S. Kaplan and Norton, 1992). These four major questions will be shown in four different indicators and presented in point forms:

- How could the customers see us in future? **(Customer perspective)**
- What at least we must excel at? **(Internal perspective)**
- Could we continue to improve and create values? **(Innovation and learning perspective)**
- How could shareholders look to us? **(Financial perspective)**

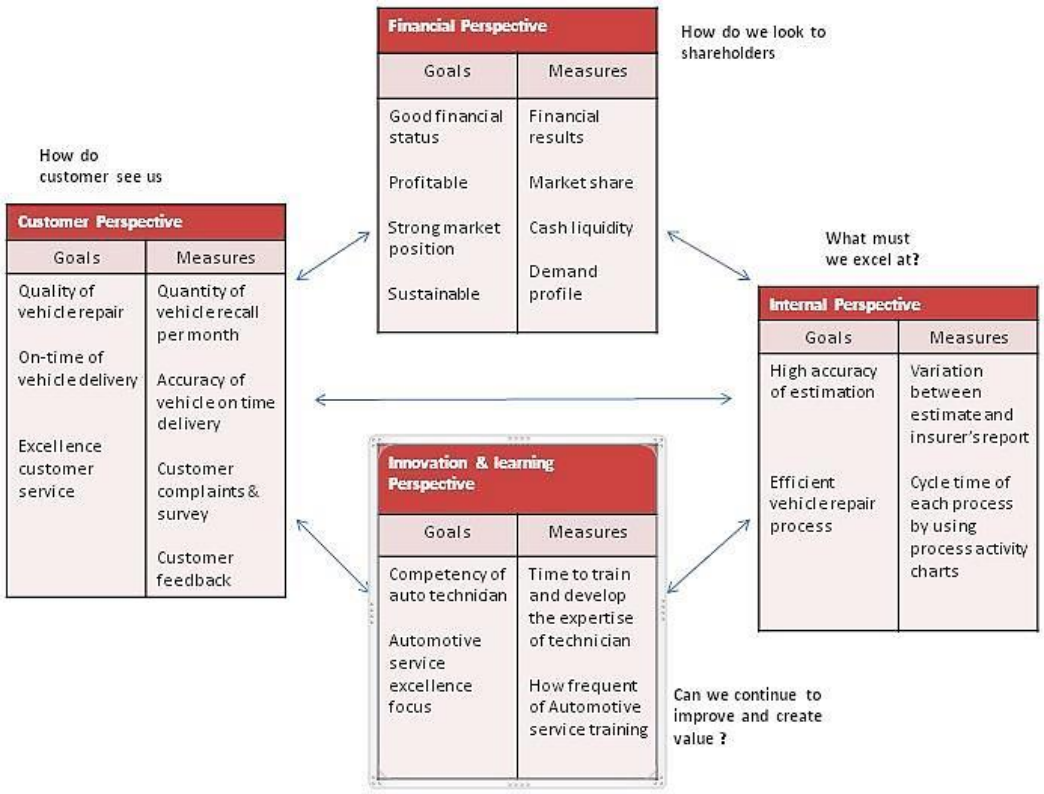


Figure 6.17: Balance Scorecard for case company

As can be seen from figure 6.17, case company could use Balance Scorecard as a business indicator in order to attain the goals and requirements for the future. For example, in customer perspective, executives tend to think about what customer actually desire in the case company transformation, definitely, quality of the vehicle repair and on-time of vehicle delivery will be viewed as the first priority of customer values.

Of course in order to maintain good quality and on-time delivery from the customers' eyes, Balance Scorecard can be used as a directional tool to helps case company to translate the business improvement strategy into any further improvement action in order to increase the internal proficiency. For instance with a simple example, case company could purchase vehicle damage estimating system to improve the estimating method, which actually minimise variation of the estimation to achieve high accuracy of estimation.

As is known to all, high accuracy of estimation can reduce the lead time of vehicle repair processes, and highly accuracy of estimation can draw up an accurate list of vehicle parts on the repair blueprint, so that the technician can immediately understand what damage parts have to be removed first, and followed by a clear instruction on new parts installation. This scenario demonstrates that high accuracy of estimation could speed up the vehicle delivery and indirectly helps to reduce quality issues, especially the quality issues that came from the hidden damages of a vehicle.

Indeed in order improve the internal proficiency, especially in innovation and learning perspective, employees' competency should be maintained from time to time; as mentioned above, technicians also need to learn how to use new system or improving their skills in order to facilitate the vehicle repair process to improve the vehicle repair quality as well as deliver the vehicle on time. As can be seen from here, Balance Scorecard is not just reacted as a performance measurement system or business indicator for case company; in fact, it provides an insight that Balance Scorecard leverages the balance of company competencies within its underlying operations that fuels the future of case company. At the end, Balance Scorecard could help case company to map its strategy and translated into actions, starting from overall learning targets to internal performance measures, and followed by customer objectives that generate the financial goals.

6.6. Validation of Conceptual Transformation Plan

In order to validate this transformation plan, the researcher has been meeting with the top executives of case company in order to discuss the feasibility of this thesis whether the newly proposed idea from this thesis provides any insights or guidance to help them to understand the current situation of the business, especially from different perspectives as well as how this thesis guiding them to envision the future of case company in order to improve the bottom-line of business. Therefore, the researcher here summarised a comparison between the case company's traditional business models in contrast with the newly proposed plan shown in a table below.

Attributes	Case company's existing model	The newly proposed plan and ideas
Business philosophy	• Product focused: Produce a repaired vehicle • Cost focused • Making some excuses • Lacks of strategic direction	• Efficiency: Waste Elimination • Professionalism: Customer Drive • Service quality: Continuous improvement
Focus area (The way of looking at things)	Inside to Outside (Focus on problem solving)	Outside to Inside (Focus on prevention)
Key activities	Reducing cost, cut workforce, outsourcing core of business	Process improvement, quality control, co-creation
Mindset	Traditional, Close minded (Step by step, based on past experience or assumption)	Resilient, Changeability, flexibility
Key resources	Workforces and equipment	Knowledge of workforce

Required investment	No	Yes, required lots of training and technology implants

Table 6.6: Comparison between case company's traditional model in contrast with new ideas

According to table 6.6, the first thing to be remembered is case company lacks a clear strategic direction in the past as well as their traditional business philosophy is more focusing on "Cost" and "Product". As case company's business executives argued, due to lacks of business knowledge, they only knew that producing a repaired vehicle is the most important value in their market area. At the same time, they also knew that they must continue strive to improve for maintaining a vehicle repair business; however, they do not concern about the importance of customer values and experience. Within the information of this study, they started to comprehend that vehicle repair business is a service provider who actually delivers the vehicle repairs service; indeed from customer consumption map, they realised that any deficiency of business operation could seriously affect its customer experience, especially it may cause the customer to consume extra more in terms of money, efforts and time.

Furthermore in the past, the executives thought that the people still could tolerance with the constant way they doing business as well as their inadequate competencies. As reminded, they were doing business based on the past experience and assumptions; within this study, they started to realise that the business is far behind at the time, yet they still worry about transformation is a trap due to a large investment and totally change the way they doing business. However, the financial result of case company gradually telling the truth, which allows the executives started to think about the reasoning behind those unforeseen troubles coming. Moreover, executives acknowledged that the workforce and equipment are the key resources of the business, as can be seen from the Balance Scorecard; but, they always think that up-to-date knowledge or modern equipment requires a large investment in terms of money, time and efforts, even though it help them to improve the business as well as build their competencies. In the study, they believed that a very traditional way of thinking and

stereotype threats are the main causes of resistance to change, and it is also a major obstacle to restrain any continuous improvement or business transformation.

Regarding the newly proposed ideas from this research, they claimed that this study is feasible enough to provide them with a reflection of the business, from out-to-inside perspective. Throughout each analysis from the thesis, they emphasised that this study involves lots of evaluation of the real fact and information relative to vehicle repair industry, especially from the customer side. Of course, they also argued that it involves the process for critical thinking based on direct observation, various analysing, evaluating information gather from as well as conceptualising a transformation plan as a guide for the executives to identify the internal problems of business, from customer's eyes, learn to envision the future of the business and understand the key success factors for a vehicle repair business.

On the other hand, executives also believed that "Efficiency", "Professionalism" and "Service quality" could be the best values that describe the future vehicle repair business, especially produced a repaired vehicle in an efficient and professional way as well as offering high service quality to its customer. Moreover, they argued that based on various analyses, they believed that this thesis is integrating a combination of lean thinking and change management to transform a traditional business, at the same time, they argued that this study could be more feasible for large automotive repair workshops, instead of a small and tiny repair shop, especially without adequate of capital. Furthermore, they stressed that the new process design and recommendation of tools and techniques can be implemented in the future; but it could be an iterative and experimental process because it may require lots of time for trials and error, employees training and requires high investment in terms of time, money, workforce and efforts. Besides that, business executives also think that if there is a prioritisation tool that could help them to develop an action plan to prioritise and choose the improvement activities intelligently could be an adding value to this research. Finally, force field analysis is a decision making techniques to help the business executives to make a decision for business transformation by analysing the

forces for and against the change. Figure 6.18 shows the result of force field analysis for case company.

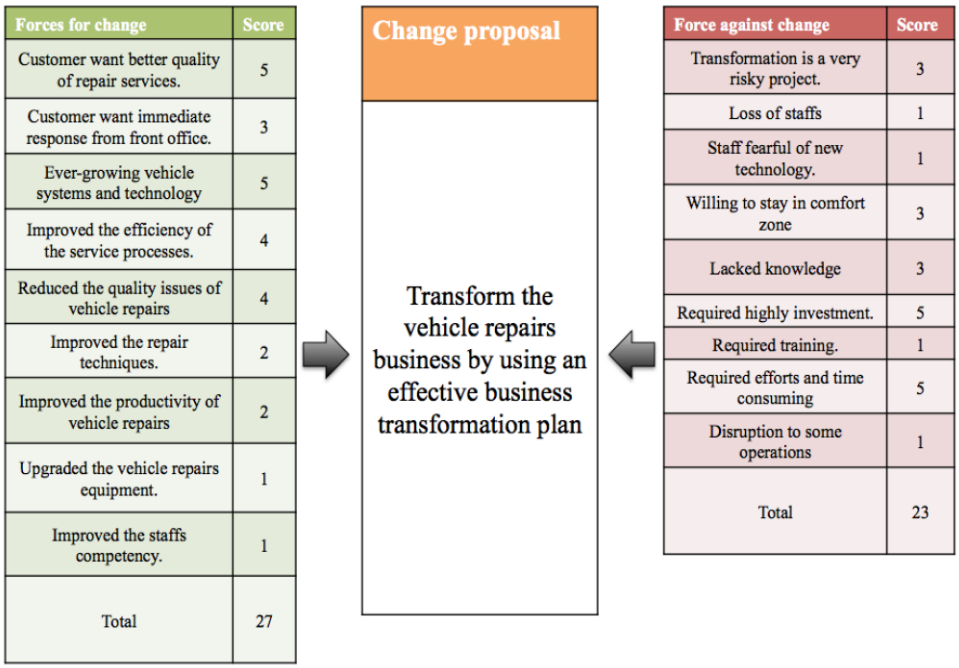


Figure 6.18: Force field analysis for case company

As can be seen from figure 6.18, it is clearly illustrating that business executives should go ahead with a change decision because business transformation significantly turnaround the business by improving the efficiency and effectiveness of the business based on what actually the customer wants; therefore, all stakeholders could benefit from the change, especially the customer could receive better quality for repair services and staff competency improved to maintain the profit pursuing business.

On the other side, some of the staffs may against the change due to fearful of new technology, unwilling to change the way they do and rather stay in comfort zone; therefore, business transformation could lead to a risk of staff turnover as well as the major risk of business transformation is requiring lots of investment in terms time, money and efforts as well as none can predict the final result of business transformation. Throughout this analysis, business executives can make a better decision for business transformation, at the same time, they can strengthen the actual forces that support the change and convincing those staffs who actually against it.

6.7. Conclusion

Within the information from chapter 4 and 5, senior executives should be able to truly understand the business situation, starting from external environment until the internal deficiencies of its business process as well as comprehended on how the operation could impact its customer's experience. By integrating the findings and discussions from the both chapters, it's obvious to show that chapter 6 is envisioning and designing the future state of case company. Tactically, chapter 6 is still focusing on the existing strength of case company, positioning the process improvement objectives and forged the customer's emotional connections to transform the case company's core processes to foster customer satisfaction for long-term viability (Michelli, 2013). As can be seen from chapter 6, each recommendation of new process design is outcome-focused and it may successfully apply by some companies; however, in this case, it may not easy applied to case company due to culture difference, each recommendation comes with its limitations, efforts, money and time consuming, especially relevant in financial aspect, human resource, technology and so on. As (Ashkenas, 2015) argued that no one can actually guarantee the success of transformation, yet change is an inevitable.

CHAPTER 7

Conclusion and Further study

7.1. Discussion

When comes to designing a transformation plan, most of the people may think about an action plan or any feasible plan with a length of time. According to a famous example, General Electric has used a two-decade time to facilitate its business transformation under the guidance of the famous leadership guru, Jack Welch (Bartlett & Wozny, 1999). Furthermore, according to (Michelli, 2013), the researchers has shared about that Starbucks was using different perspectives and established different actionable principles as the transformation agenda to enhance the customer experience during the time of economic crisis. Evidently, these examples illustrate every business transformation has its own journey, circumstances, choices and decisions; this is same goes for case company as well. During business transformation, business executives still on a learning path and learn how to handles this high risk and tough mission. Therefore as can be seen from here, business transformation plan can be generated in a different kind of formats; sensibly, transformation plan is not a dictionary, undoubtedly, it does not provide every answer to the problems of transformation in the business world.

In fact, this thesis is an academic research that acting as a transformation guide by following the structured transformation framework that was designed by recent lean practitioners, (Nightingale & Srinivasan, 2011). Obviously, it can help the business executives to understand the business environment in terms of emerging trends and its impacts in effect. As can be seen from chapter 4, PESTLE, SWOT and Porter's five forces demonstrated the case company's business situation in different perspectives, which is uncovering the uncertainty of the business situation. Dramatically, these methods provide a big picture of the business environment, so that it could help executives in business decision making, for instance, choosing the right set of

business objectives and executing the appropriate strategies in accordance with the business situation. Indeed, case company is not possible to take advantage of each business opportunity because each opportunity may have its own problems which needed to be comprehended, as Winston Churchill said, ***"A pessimist sees the difficulty in every opportunity; an optimist sees the opportunity in every difficulty"*** (LANGWORTH, 2012).

At the same time, designing a transformation plan is not just preparing multiple pages of a written plan; in fact, a transformation plan actually helps the business executives to convey the right message to the right person in order to *"Changing"* at the right time. Therefore in chapter 4, stakeholder analysis used to helps business executives to identify the right person by understanding the importance and values of its business stakeholders. In this case, customers are actually the highest priority of vehicle repair business's stakeholder; as known to all, vehicle repair business is working as a service delivery system while a customer is the one who pay the money to exchange for the values provided by a vehicle repair business. Additionally, customer sample analysis provides an overview of the company performance in terms of operation performance and customer satisfaction. Again, customer consumption map allows business executives to understand how customer consumes its products or services; at the same time, it shows how the company operation could affect its customer consumption.

From outside to inside perspective, process analysis allows the business executives to choose its own tools to study the current business operation on a different level of perspective as well as goes deeper into the chain of each business activity. By capturing and sharing own findings, it helps business executives discover the internal deficiencies and obstacles from process analysis as well as understand the impacts of process deficiencies.

Last but not least, every business transformation has its own journey; this same goes to the journey of designing transformation plan. Therefore, this thesis is purely of academic research, undoubtedly, the development of different tools, different

decisions and circumstances ultimately shape the findings, discoveries and insights with substantial evidence and collective experiences.

7.2. Conclusion

Business Transformation is absolutely a radical change for a company by reinventing the whole business model and restructuring the existing business process in order to attain the competitive advantage in the business word. However, a transformation may consume a lot of money, time, knowledge and efforts, at the same time, most of the people would like to stay in comfort zone even they see the troubles coming.

The main objective of this thesis is to design an effective business transformation plan for a Malaysian vehicle repair workshop. The main reason for designing this plan is because the case company is no longer able to compete with industrial standard, due to the trend of social factors and there are many non-value added activities in the internal process. Indeed, this business transformation plan is to help the executives of case company to learn how to identify the needs of a change from the current business environment, customer perspective and so on. At the same time, it allows them to understand inefficiency and ineffectiveness of the business could actually trouble its existing customer, especially the customer has to use the extra money, time or efforts for something is not valuable to them until deep rooting a bad experience in customers' mind. Of course, there are many kinds of literature and journals have been reviewed; however, some of the tools or techniques are logically suitable for direct execution, so that, it's quite difficult to see the result of the techniques as well as the impact upon the business. By academically reviewing the transformation approach, the lean enterprise transformation model that proposed by (Nightingale & Srinivasan, 2011), it's a holistic approach to business transformation. Therefore, a planning cycle of this approach has been considered as the framework for designing this business transformation plan for case company. To perform this project, adopted planning cycle provides roadmap (See appendix C), which described as follow:

1. **Initiating the project research team:** Initiating research team as a foundation of this research to understand the needs of change and the background of case

company, identify the product and service, understand the demand profile of case company as well as the differences between vehicle damages severity level are the steps of this phase. Section 4.2 of this thesis illustrates the deliverables of this phase.

2. **Understanding the current state:** Before looking into the internal process, executives provide some insights about the factors that actually impact upon the business performance; therefore, related literature and journals have been reviewed, and then, the case company's current situation and environments have been analysed by using multiple tools, such as SWOT, PESTLE, Porter's 5 forces, lean consumption mapping and customer sample analysis. At the end, an As-Is process has been established to illustrated the existing vehicle repair process and each sub-processes as well as the root cause analysis has been carried out to identify the internal problems of each sub-process.

3. **Visioning the future of the business:** Understand the financial and operational aim of the vehicle repair business and translating the trends of customer requirements into operational performance objective, visioning the future of the business operation (future state) are the key steps of this phase. Section 6.2 is the deliverables of this phase.

4. **Recommend the new processes of the business:** Brainstorming the real life techniques and tools that can be applicable to enhance the vehicle repair process, listing each limitation and metrics of each proposed techniques, and then, identify where the ideas come from for each proposed techniques are the major steps of this phase. Section 6.3 is the deliverables of this phase. At the end, To-be process has been established to illustrate the new design of each sub-process in order to facilitate the vehicle repair process to be an effective and efficiency process.

5. **Determine the impact upon business performance:** Brainstorming the impact upon business performance by using four different perspectives in terms of customer, internal, financial and learning, and then, Balance Scorecard have been

used to integrate the financial and operational measures in order to introduce a comprehensive performance measurement system for case company. Section 6.5 is the deliverables of this phase.

7.3. Further study

Since this project is focusing on the planning cycle, the feasibility of this plan is unable to be evaluated in terms of financial and operational measurement. Therefore, the possible further study would be about the execution of this plan and study about the feasibility of the plan as well as evaluating the plan upon the business performance, which means that the topics of next phase would be brought this plan into a real life business transformation for improving the efficiency and effectiveness of the business.

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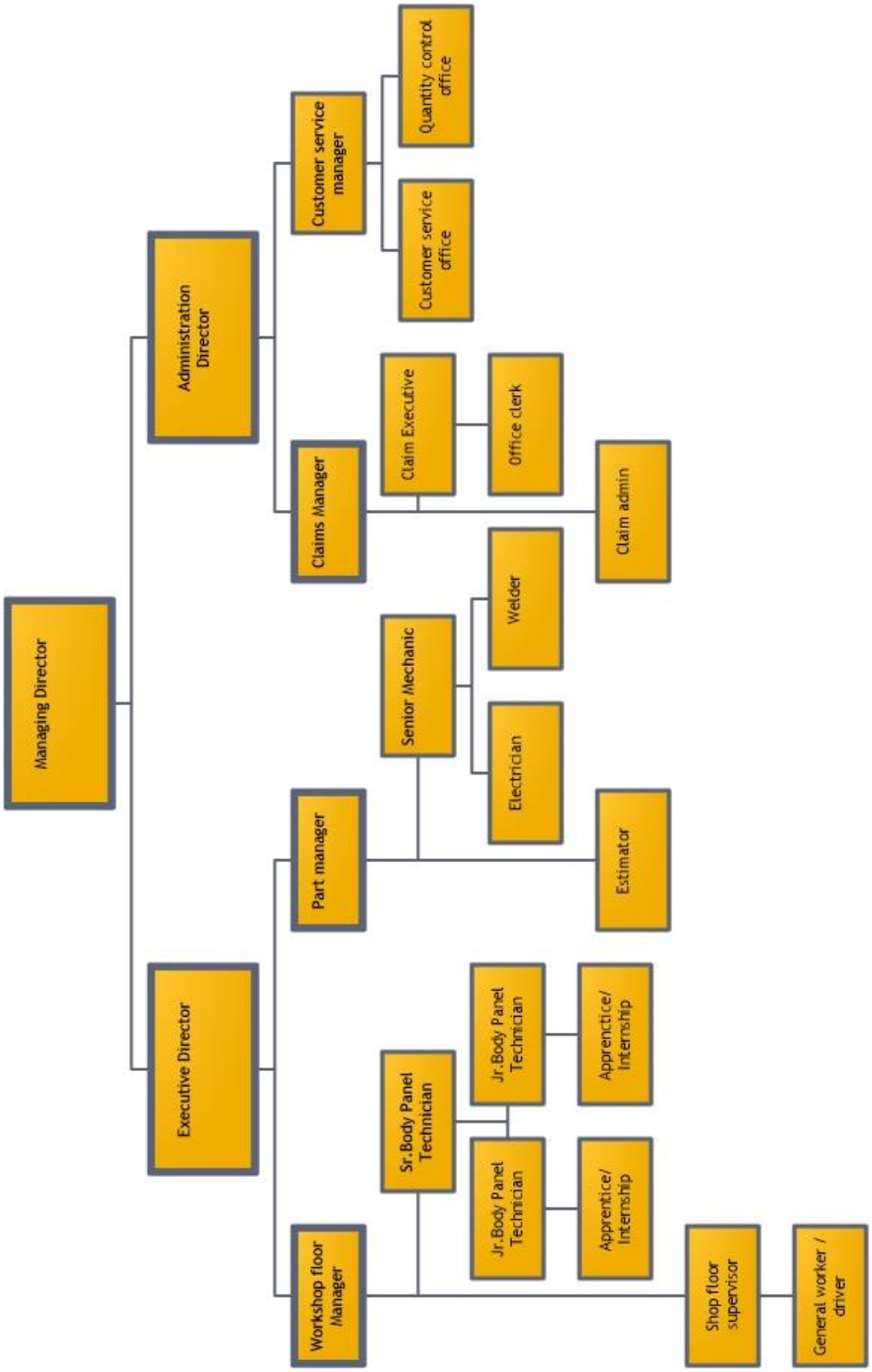
APPENDIX

APPENDIX A: Organization chart of case company



APPENDIX B: Customer sample data from random hundred (100) job orders

Job No.	Vehicle No.	Vehicle Type	Insurance Company	Traffic collision severity level	INITIAL EST. AMOUNT	ARRIVAL DATE	EST.SUBMITTED DATE	APPROVAL DATE	DUE DATE	RETURN DATE	LEAD TIME (DAYS)	IN-HOUSE Repair OR OUTSOURCE REPAIR?	WAS THE CAR HANDED BACK ON TIME? (CUSTOMER PERSPECTIVE)	WAS ANY ADDITIONAL WORK FOUND?	ANY QUALITY FAULTS REPORTED BY THE END OF FIRST MONTH?
1	BJE 9402	Compact	LONPAC	L	THB 40,000.00	02-Jan	06-Jan	8-Jan	15-Jan	13-Jan	-2	IN	YES	NO	NO
2	NCP 7223	4X4	AXA	H	THB 200,000.00	03-Jan	03-Jan	9-Jan	30-Jan	10-Feb	11	IN	NO	YES	NO
3	NBD 1222	Passenger	AXA	M	THB 50,000.00	03-Jan	11-Jan	11-Jan	18-Jan	15-Jan	-3	IN	YES	NO	NO
4	NBV8971	Pickup	AXA	M	THB 50,000.00	03-Jan	10-Jan	11-Jan	18-Jan	17-Jan	-1	IN	YES	NO	NO
5	WGA 1833	Passenger	TUNE	L	THB 30,000.00	12-Jan	31-Jan	31-Jan	7-Feb	14-Feb	7	OUT	NO	NO	NO
6	WXQ 3375	Compact	TUNE	S	THB 500,000.00	12-Jan	24-Jan	25-Jan	25-Feb	13-Mar	16	IN	NO	YES	NO
7	BJD 6567	4X4	MULTI	S	THB 300,000.00	01-Jan	15-Jan	17-Jan	17-Feb	8-Mar	19	OUT	NO	YES	NO
8	NBM 9926	Compact	AXA	M	THB 100,000.00	18-Jan	26-Jan	29-Jan	12-Feb	19-Feb	7	OUT	NO	NO	NO
9	JFR 30	Passenger	UNIASIA	M	THB 80,000.00	20-Jan	30-Jan	6-Feb	20-Feb	4-Mar	12	OUT	NO	NO	NO
10	NCM 3767	Passenger	AXA	H	THB 125,000.00	29-Jan	06-Mar	7-Mar	28-Mar	15-Mar	-13	IN	YES	NO	YES
11	NCP 9298	Passenger	AXA	H	THB 200,000.00	30-Jan	07-Feb	7-Feb	28-Feb	5-Mar	-5	IN	NO	NO	NO
12	NBK 9618	Compact	MCIS ZURICH	L	THB 40,000.00	31-Jan	23-Feb	25-Feb	4-Mar	5-Mar	1	IN	NO	NO	NO
13	NBH 2620	Passenger	P&O	M	THB 80,000.00	01-Feb	26-Feb	4-Mar	18-Mar	21-Mar	3	IN	NO	YES	NO
14	NBK 8956	Compact	MSIG	L	THB 40,000.00	04-Feb	21-Feb	21-Feb	28-Feb	2-Mar	2	OUT	NO	NO	NO
15	NBL 7141	Compact	RHB	L	THB 30,000.00	05-Feb	21-Feb	21-Feb	28-Feb	1-Mar	1	IN	NO	NO	NO
16	NCA 7707	Compact	ETIQA	M	THB 60,000.00	21-Feb	27-Feb	28-Feb	14-Mar	11-Mar	-3	OUT	YES	NO	NO
17	WIU 6551	PASSENGER	TOKIO MARINE	L	THB 30,000.00	08-Mar	23-Apr	23-Apr	30-Apr	26-Apr	-4	OUT	YES	NO	NO
18	WHP 2710	PASSENGER	AXA	M	THB 50,000.00	18-Mar	23-Mar	23-Mar	30-Mar	26-Mar	-4	IN	YES	NO	NO
19	NBV 9481	Compact	MCIS ZURICH	L	THB 30,000.00	27-Mar	27-Mar	27-Mar	3-Apr	31-Mar	-3	IN	YES	NO	NO
20	NBC 3555	Passenger	AXA	L	THB 30,000.00	31-Mar	15-Apr	15-Apr	22-Apr	21-Apr	-1	IN	YES	NO	NO
21	JKO 5543	Passenger	UNIASIA	M	THB 50,000.00	05-Apr	30-Apr	30-Apr	7-May	5-May	-2	OUT	YES	NO	NO
22	WGT 3372	PASSENGER	AXA	M	THB 100,000.00	11-Apr	27-Apr	29-Apr	13-May	18-May	5	OUT	NO	YES	NO
23	NCD 4372	PASSENGER	UNIASIA	H	THB 125,000.00	17-Apr	27-Apr	4-May	25-May	1-Jun	7	OUT	NO	YES	NO
24	JAW 5819	Passenger	TUNE	L	THB 40,000.00	18-Apr	03-May	6-May	13-May	12-May	-1	IN	YES	NO	NO
25	NCD 9907	Passenger	AXA	H	THB 150,000.00	20-Apr	10-May	13-May	4-Jun	18-Jun	14	IN	NO	YES	NO
26	NBK 9926	PASSENGER	AXA	L	THB 40,000.00	22-Apr	08-May	9-May	16-May	18-May	2	IN	NO	NO	NO
27	WYB 3953	Compact	TUNE	M	THB 70,000.00	26-Apr	14-May	16-May	30-May	8-Jun	9	IN	NO	YES	NO
28	JNB 4298	Passenger	UNIASIA	M	THB 80,000.00	05-May	25-May	27-May	10-Jun	31-May	-10	IN	YES	NO	YES
29	WSQ 3747	4X4	AXA	L	THB 40,000.00	08-May	08 Jul	8-Jul	15-Jul	11-Jul	-4	IN	YES	NO	NO
30	MBN 5486	PASSENGER	MCIS ZURICH	M	THB 50,000.00	25-May	04-Jun	5-Jun	12-Jun	10-Jun	-2	IN	YES	NO	NO
31	NCS 210	Compact	UNIASIA	M	THB 50,000.00	28-May	17-Jun	19-Jun	26-Jun	23-Jun	-3	IN	YES	NO	NO
32	MAX 8191	Compact	AXA	M	THB 50,000.00	06-Jun	27-Jun	28-Jun	5-Jul	4-Jul	-1	IN	YES	NO	NO
33	WVF 9106	Compact	MAA	M	THB 80,000.00	07-Jun	10-Jun	11-Jun	25-Jun	19-Jul	24	OUT	NO	YES	NO
34	JMU 1918	PASSENGER	MCIS ZURICH	M	THB 100,000.00	09-Jun	02-Jul	5-Jul	19-Jul	30-Jul	11	IN	NO	NO	NO
35	BHK 6583	PASSENGER	ETIQA	H	THB 150,000.00	14-Jun	21-Jun	21-Jun	12-Jul	14-Jul	2	IN	NO	NO	NO
36	NBJ 9382	PASSENGER	TOKIO MARINE	H	THB 125,000.00	22-Jun	03-Jul	4-Jul	18-Jul	30-Jul	12	IN	NO	YES	NO
37	WSU 9676	SUV	ETIQA	S	THB 250,000.00	25-Jun	05-Jul	8-Jul	9-Aug	25-Aug	16	IN	YES	YES	NO
38	NAT 3805	Compact	AXA	M	THB 70,000.00	01-Jul	12-Jul	13-Jul	27-Jul	17-Jul	-10	IN	YES	NO	YES
39	NBR 9693	4X4	LONPAC	M	THB 90,000.00	07-Jul	20-Jul	22-Jul	5-Aug	27-Jul	-9	OUT	YES	NO	NO
40	WXD 1254	SUV	AXA	S	THB 300,000.00	14-Jul	22-Jul	23-Jul	23-Aug	7-Sep	15	IN	NO	NO	NO
41	AUM 1806	Compact	ETIQA	M	THB 80,000.00	15-Jul	22-Jul	23-Jul	6-Aug	30-Jul	-7	IN	YES	NO	NO
42	BGB 3117	PASSENGER	ETIQA	H	THB 150,000.00	20-Jul	09-Aug	10-Aug	31-Aug	1-Sep	1	OUT	NO	NO	NO
43	WKB 8141	PASSENGER	UNIASIA	L	THB 40,000.00	22-Jul	30-Jul	1-Aug	8-Aug	7-Aug	-1	IN	YES	NO	NO
44	NBM 9926	Compact	AXA	L	THB 30,000.00	24-Jul	29-Oct	29-Oct	5-Nov	1-Nov	-4	IN	YES	NO	YES
45	NBX 8668	SUV	ETIQA	H	THB 110,000.00	29-Jul	10-Aug	12-Aug	26-Aug	13-Sep	18	IN	NO	YES	NO
46	NAU 8048	PASSENGER	MSIG	L	THB 30,000.00	01-Aug	10-Aug	12-Jul	19-Jul	18-Jul	-1	IN	YES	NO	NO
47	NCQ 1776	Compact	AXA	L	THB 40,000.00	07-Aug	20-Aug	21-Aug	28-Aug	24-Aug	-4	IN	YES	NO	NO
48	WVF7722	4X4	BERJAYA	S	THB 250,000.00	07-Aug	21-Aug	23-Aug	23-Sep	5-Oct	12	IN	NO	NO	NO
49	NBB 8256	PASSENGER	AXA	L	THB 40,000.00	10-Aug	21-Aug	22-Aug	29-Aug	29-Aug	0	IN	YES	NO	YES
50	WEG 8414	Compact	UNIASIA	L	THB 40,000.00	10-Aug	04-Sep	5-Sep	12-Sep	12-Sep	0	IN	YES	NO	NO
51	WXM 9260	PASSENGER	MULTI	H	THB 175,000.00	13-Aug	26-Aug	28-Aug	18-Sep	1-Oct	13	OUT	NO	YES	NO
52	PJA 9001	Compact	UNIASIA	M	THB 70,000.00	14-Aug	01-Oct	4-Oct	18-Oct	12-Oct	-6	IN	YES	NO	NO
53	NBF 3836	Compact	AXA	L	THB 30,000.00	18-Aug	30-Aug	30-Aug	6-Sep	3-Sep	-3	IN	YES	NO	NO
54	NCU 2328	PASSENGER	LONPAC	M	THB 80,000.00	19-Aug	29-Aug	30-Aug	13-Sep	10-Sep	-3	IN	YES	NO	NO
55	NCB 9233	PASSENGER	AXA	S	THB 400,000.00	19-Aug	04-Sep	5-Sep	6-Oct	10-Oct	4	IN	NO	YES	NO
56	WWJ 5541	Compact	AXA	M	THB 100,000.00	23-Aug	25-Aug	26-Aug	9-Sep	8-Sep	-1	IN	YES	NO	NO
57	NCL 2992	4X4	UNIASIA	S	THB 500,000.00	23-Aug	07-Sep	12-Sep	13-Oct	16-Oct	3	IN	NO	YES	NO
58	NBK3576	PASSENGER	ETIQA	L	THB 20,000.00	28-Aug	17-Sep	17-Sep	24-Sep	20-Sep	-4	IN	YES	NO	YES
59	NBY 9331	Compact	LONPAC	L	THB 40,000.00	29-Aug	09-Sep	10-Sep	17-Sep	18-Sep	1	IN	NO	NO	NO
60	NCP 3679	Compact	MSIG	M	THB 60,000.00	04-Sep	11-Sep	16-Sep	30-Sep	23-Sep	-7	IN	YES	NO	NO
61	NCH 8237	Compact	UNIASIA	M	THB 50,000.00	06-Sep	17-Sep	18-Sep	25-Sep	25-Sep	0	IN	YES	NO	NO
62	BLH 901	VAN	MULTI	S	THB 250,000.00	07-Sep	27-Sep	28-Sep	30-Oct	19-Nov	20	OUT	NO	YES	NO
63	NCH 862	PASSNGER	AXA	M	THB 100,000.00	07-Sep	04-Oct	8-Oct	22-Oct	20-Oct	-2	IN	YES	NO	NO
64	WXA 881	Compact	UNIASIA	L	THB 30,000.00	10-Sep	10-Sep	11-Sep	18-Sep	20-Sep	2	IN	NO	NO	NO
65	WPG 3628	PASSENGER	MSIG	M	THB 90,000.00	10-Sep	20-Sep	24-Sep	8-Oct	30-Sep	-8	IN	YES	NO	YES
66	NCT 6566	PASSENGER	MCIS ZURICH	M	THB 90,000.00	12-Sep	24-Sep	27-Sep	11-Oct	4-Oct	-7	IN	YES	NO	NO
67	BJE 3323	PASSENGER	TOKIO MARINE	S	THB 270,000.00	18-Sep	25-Sep	28-Sep	28-Oct	16-Nov	19	IN	NO	YES	NO
68	WQU 5692	PASSENGER	MCIS ZURICH	M	THB 70,000.00	19-Sep	08-Oct	9-Oct	23-Oct	14-Oct	-9	IN	YES	NO	NO
69	NCR 7286	Compact	ETIQA	M	THB 100,000.00	25-Sep	08-Oct	9-Oct	23-Oct	21-Oct	-2	IN	YES	NO	NO

70	WND 6121	PASSENGER	AXA	L	THB	30,000.00	27-Sep	08-Oct	9-Oct	16-Oct	16-Oct	0	IN	YES	NO	NO
71	WWE 1341	Compact	AXA	L	THB	40,000.00	28-Sep	21-Oct	23-Oct	30-Oct	28-Oct	-2	IN	YES	NO	NO
72	NBL 8362	PASSENGER	AXA	L	THB	30,000.00	29-Sep	29-Sep	29-Sep	6-Oct	5-Oct	-1	IN	YES	NO	NO
73	WSS 8686	4X4	AXA	L	THB	40,000.00	05-Oct	16-Oct	18-Oct	25-Oct	25-Oct	0	IN	YES	NO	NO
74	NCA 6398	Compact	ETIQA	L	THB	30,000.00	06-Oct	14-Oct	15-Oct	22-Oct	19-Oct	-3	IN	YES	NO	YES
75	NBS 3565	PASSENGER	LONPAC	L	THB	40,000.00	08-Oct	18-Oct	19-Oct	26-Oct	25-Oct	-1	IN	YES	NO	YES
76	NCY 5581	4X4	MCIS ZURICH	M	THB	100,000.00	10-Oct	31-Oct	4-Nov	18-Nov	29-Nov	11	IN	NO	YES	NO
77	NCU 4752	SUV	ETIQA	L	THB	40,000.00	14-Oct	23-Oct	24-Oct	31-Oct	29-Oct	-2	IN	YES	NO	NO
78	NBD 8826	PASSENGER	UNIASIA	L	THB	40,000.00	14-Oct	30-Oct	30-Oct	6-Nov	6-Nov	0	IN	YES	NO	NO
79	JEB 6399	4X4	AXA	M	THB	100,000.00	25-Oct	07-Nov	8-Nov	22-Nov	20-Nov	-2	IN	YES	NO	NO
80	NCG 8376	PASSENGER	UNIASIA	M	THB	90,000.00	27-Oct	01-Nov	4-Nov	18-Nov	11-Nov	-7	IN	YES	NO	NO
81	WQB 8921	SUV	LONPAC	M	THB	100,000.00	27-Oct	01-Nov	3-Nov	17-Nov	15-Nov	-2	IN	YES	NO	NO
82	BJV 6510	Compact	ETIQA	L	THB	30,000.00	29-Oct	12-Nov	13-Nov	20-Nov	17-Nov	-3	IN	YES	NO	NO
83	NBY 7567	PASSENGER	ETIQA	H	THB	110,000.00	30-Oct	08-Nov	10-Nov	24-Nov	18-Nov	-6	IN	YES	NO	YES
84	WWE 1341	Compact	AXA	M	THB	100,000.00	31-Oct	12-Nov	14-Nov	28-Nov	15-Dec	17	IN	NO	YES	NO
85	WMP 1028	PASSENGER	AXA	L	THB	40,000.00	02-Nov	13-Nov	14-Nov	21-Nov	21-Nov	0	IN	YES	NO	NO
86	NBN 2752	Compact	AXA	L	THB	40,000.00	03-Nov	13-Nov	14-Nov	21-Nov	19-Nov	-2	IN	YES	NO	NO
87	WKE 6223	PASSENGER	AIA	S	THB	370,000.00	04-Nov	15-Nov	26-Nov	26-Dec	2-Jan	7	OUT	NO	YES	NO
88	NCC 8143	PASSENGER	UNIASIA	M	THB	70,000.00	07-Nov	08-Nov	9-Nov	23-Nov	16-Nov	-7	IN	YES	NO	NO
89	NBH 8378	PASSENGER	AXA	L	THB	40,000.00	15-Nov	21-Nov	21-Nov	28-Nov	28-Nov	0	IN	YES	NO	NO
90	NCA 309	Compact	TUNE	L	THB	30,000.00	18-Nov	04-Dec	6-Dec	13-Dec	13-Dec	0	IN	YES	NO	NO
91	BEA 1495	Compact	BERJAYA	M	THB	70,000.00	21-Nov	30-Nov	2-Dec	16-Dec	24-Dec	8	OUT	NO	NO	NO
92	NBL 8998	PASSENGER	ETIQA	L	THB	40,000.00	21-Nov	29-Nov	30-Nov	7-Dec	7-Dec	0	IN	YES	NO	YES
93	NBQ 9204	4X4	LONPAC	M	THB	60,000.00	23-Nov	06-Dec	9-Dec	23-Dec	20-Dec	-3	IN	YES	NO	NO
94	WVN1800	PASSENGER	TOKIO MARINE	M	THB	60,000.00	02-Dec	12-Dec	16-Dec	30-Dec	25-Dec	-5	IN	YES	NO	NO
95	NBL 6808	PASSENGER	TOKIO MARINE	L	THB	40,000.00	04-Dec	12-Dec	13-Dec	20-Dec	19-Dec	-1	IN	YES	NO	NO
96	BGW 4754	PASSENGER	RHB	M	THB	70,000.00	06-Dec	23-Dec	26-Dec	9-Jan	31-Dec	-9	OUT	YES	NO	YES
97	NBP 55	PASSENGER	AXA	H	THB	175,000.00	12-Dec	16-Dec	19-Dec	9-Jan	13-Jan	4	OUT	NO	NO	NO
98	NBW 3163	PASSENGER	TOKIO MARINE	M	THB	100,000.00	19-Dec	30-Dec	30-Dec	13-Jan	12-Jan	-1	OUT	YES	NO	NO
99	AHJ 3553	Compact	TUNE	M	THB	60,000.00	22-Dec	30-Dec	31-Dec	14-Jan	13-Jan	-1	OUT	YES	NO	NO
100	WWE 1341	Compact	AXA	M	THB	80,000.00	23-Dec	27-Dec	30-Dec	13-Jan	8-Jan	-5	IN	YES	NO	YES

VITA

Ee Hoong Liew was born on March 19th, 1989 in Kuala Lumpur, Malaysia. He graduated in Bachelor of Engineering (Hons) Electronics majoring in nanotechnology from Multimedia University, Malaysia in year 2012. He had an internship with ON Semiconductor during the final year of his bachelor studies. Later in year 2012, he decided to enroll in the Dual-Master's Degree in engineering management at Faculty of engineering, Chulalongkorn University, Thailand as well as engineering business management at University of Warwick, United Kingdom.

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