

CHAPTER 2 - LITERATURE REVIEW

2.1 UT Service Excellence

UT is a distributor of heavy equipment that places a strong emphasis on providing customers who have purchased heavy equipment with after-sales assistance. Since the customer's heavy equipment purchase serves as the capital tool for production, equipment availability is essential to achieving the customer's production target.

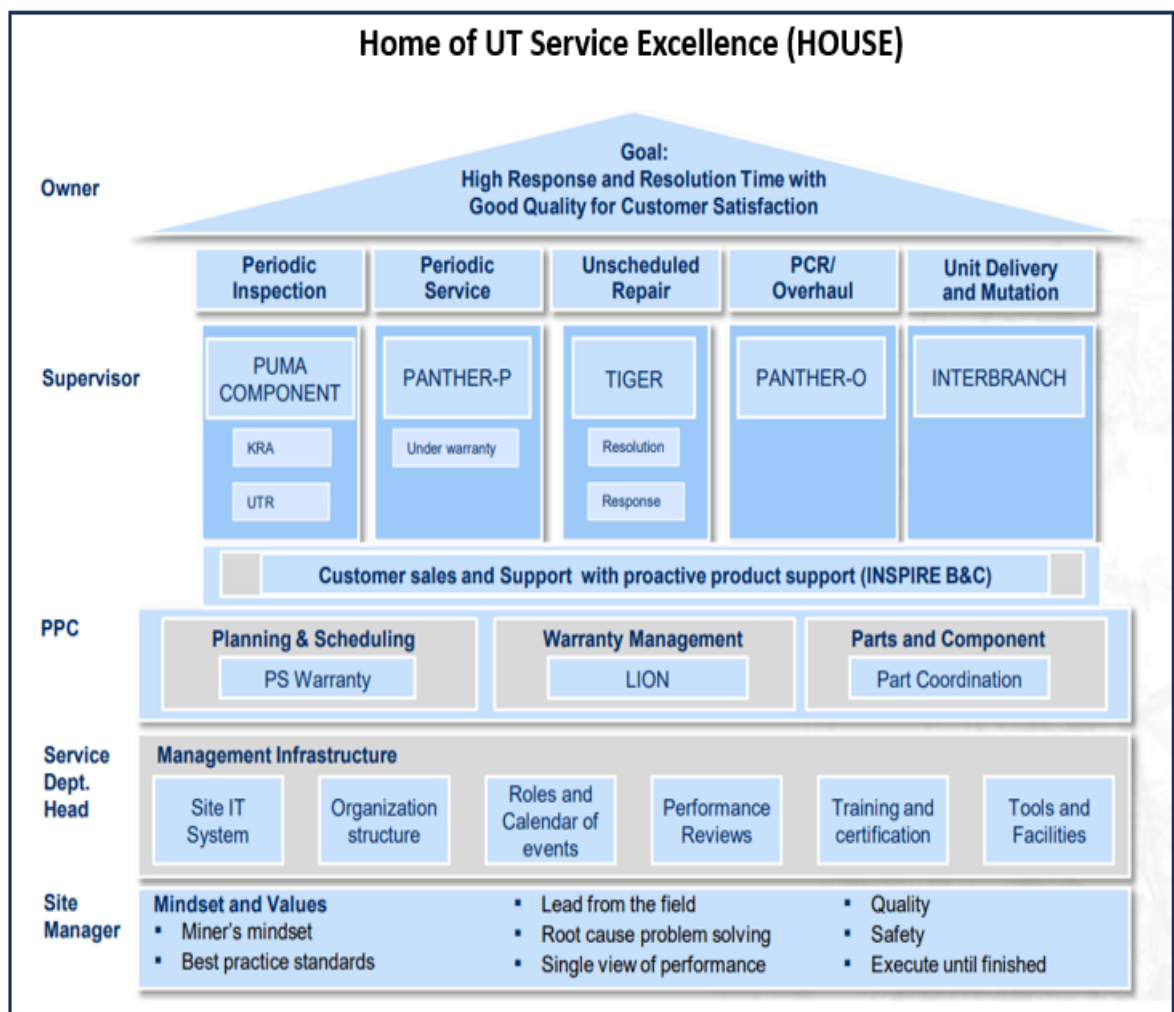


Figure 2. 1 Home of UT Service Excellence (HOUSE)

Customers who acquire heavy machinery from UT will get a warranty for the product they have bought. UT offered the following services throughout the warranty period:

1. Periodical Inspection: UT acquisitions of remanufacturing components are periodically inspected.

2. Regular Maintenance: Three times a year, UT mechanics come to service large machinery.
3. Unscheduled Repair: Work to fix damaged heavy machinery that occurs during the warranty period.
4. PCR (Partial Component Replaced)/Overhaul: extensive repairs of all heavy machinery parts.
5. Unit delivery and mutation: When large pieces of equipment are brought to the customer's place of business or are relocated, this is the unit delivery procedure. If the equipment is under warranty, this service is free for both servicing and replacement parts.

2.2 Product Support Program

Apart from after-sales service during the warranty period, UT provides many other products support program or services to help and support customers. Product support program offered to customers are maintenance contract products including UTFMC (Full Maintenance Contract), UTRMC (Repair and Maintenance Contract), UTPMC (Periodic Maintenance Contract), UTCMC (Customize Maintenance Contract), UTRENTAL (Rental Product). The purposes of maintenance contract services for customer are:

1. Give Solution for Retail Customer to get better Predictive Maintenance Support.
2. Maintenance Contract not only focused on mining customer.
3. Get new demand with propose new scheme of Maintenance Contract from new or existing customer.

Other product support program that can be provided that are included UTPMP (Preventive Maintenance Program), is a bundling product support program given to customers when customers buy new units with a certain agreed period, the purpose of this program is to maintain that during the PMP program period, customer units will always be routinely visited by mechanics to perform unit maintenance and get warranty guarantees for all components during the PMP period. UTPSR (Periodic Service Regular), is a program given to customers for units owned by customers and beyond the warranty period to carry out periodic maintenance processes in accordance with the agreed agreement. UTPPM (Units Inspection Program), Inspection on units aimed at

obtaining top data condition components accurately. Another advantage is to reduce maintenance costs and reduce breakdown time for customer, where when PPM is done, it can be identified damage that will occur and avoid from breakdown time the old one.

UTHOSE, UT HOSE stands for Hydraulic, Optional, Safety and Electrical, which is a product support program provided for customers related to products consisting of

Hydraulic Connectors – Provide a solution in giving the Hydraulic Connectors needed.

Optional – Provide an Optional Product based on International Standard such as Auto Lubrication System, Fire Suppression System, Fast Fuel.

Safety – Provide Safety Devices Products such as Eco Drive, Anti Neutral.

Electrical – Provide a world class Electrical Devices.

UTPAP (Lubricant Analysis Program) or Oil Sampling Analysis is a procedure to take lubricant samples that will be analyzed to determine the condition of the engine in order to identify if there is damage to the components in the unit.

These products and services can be selected by the customer according to the needs and which are most suitable for the operational conditions at the customer.

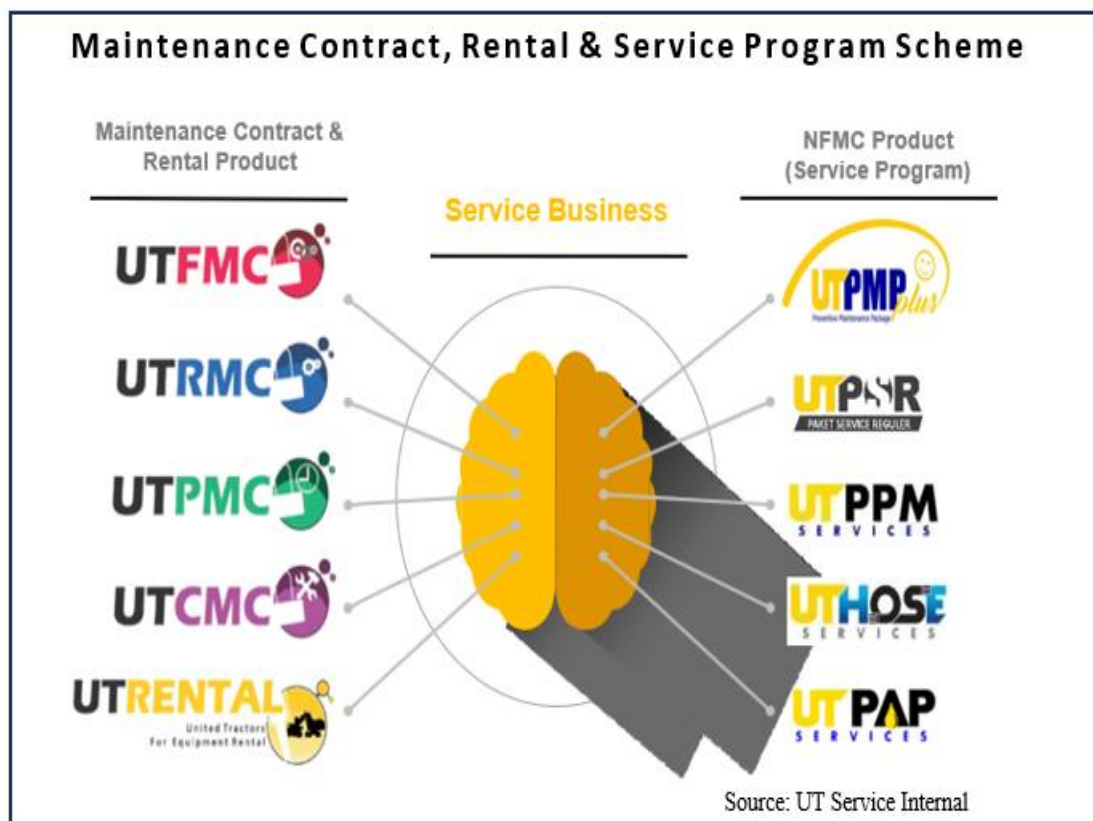


Figure 2. 2 Product Support Program in Service Business

When a heavy equipment unit is purchased by the customer, the customer must prepare mechanics, operators, spare parts, tools, and infrastructure to maintain the heavy equipment unit so that it is always available and when there is damage it can be quickly repaired again. Not all customers have the necessary facilities that can be provided by themselves, for that when UT will offer a product or service program that will help customers overcome their problems and UT gets service revenue from the product or program provided, with this it will continue to maintain engagement with customers until the customer's machines is scrapped and the customer will make another purchase with a new machine.

2.3 Maintain Relationship with Customer

The typical organizational structure shown in Figure 2.3 (a), which is a pyramid with the president at the top, management in the middle, and frontline employees and customers at the bottom, is thought to be outmoded by managers who think that the customer is the only genuine "profit center" of the business.

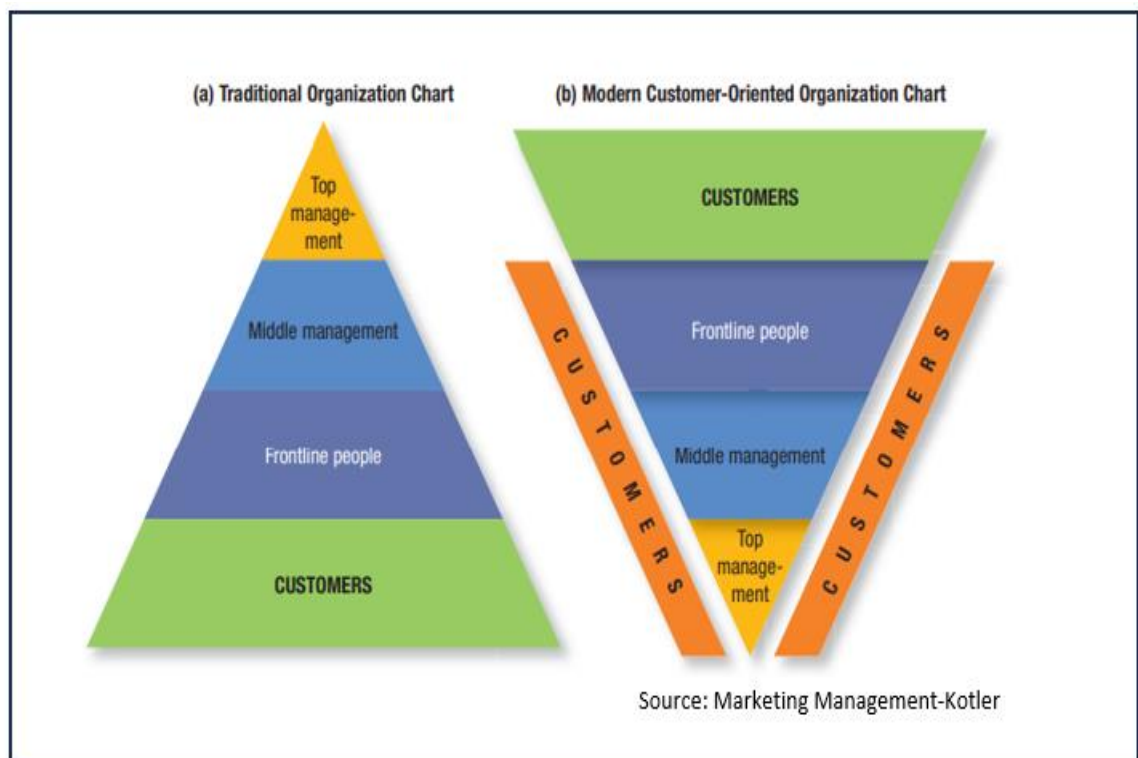
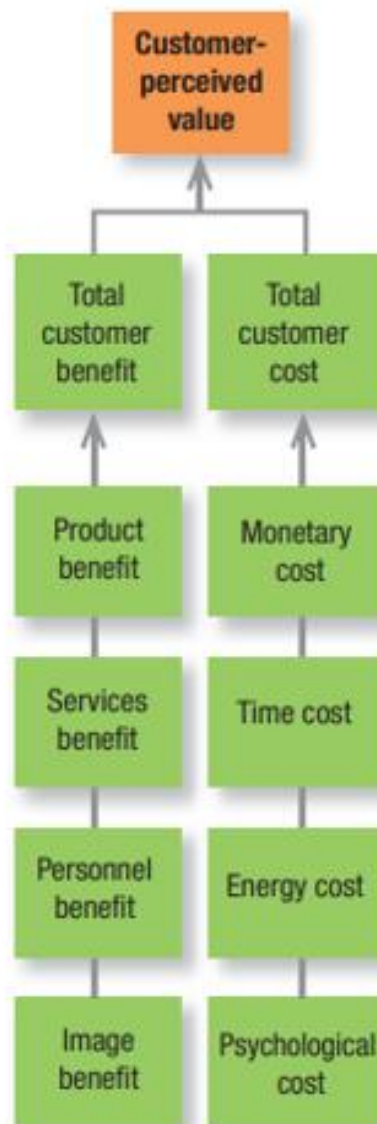


Figure 2. 3 Traditional Organization vs Modern Customer Oriented Organization

Successful marketing firms flip the chart so that it resembles Figure 2.3 (b). Customers come first, followed by frontline employees who greet, assist, and satisfy them, middle managers who support the frontline staff so they can provide excellent customer service, and top management whose responsibility it is to select and support competent middle managers. customers have been placed to the sides of Figure 2.3 (b) to show that managers at all levels must be personally involved in getting to know, interact with, and serve consumers.



Source: Marketing Management-Kotler

Figure 2. 4 Determinants of Customer Perceived Value

Consumers have more information and resources than ever before, enabling them to investigate claims made by companies and choose superior options. Even the most well-managed companies need to be careful not to undervalue its customers.

In the end, how do buyers choose what to purchase? They frequently aim to maximise value within the limitations of search costs and limited knowledge, mobility, and income. For whatever reason, customers choose and take advantage of the offer they believe will deliver the most value (Figure 2.4). Whether the offer lives up to the customer's expectations will determine how happy they are and how likely they are to buy the goods again. In the realm of entrepreneurship, customer relationship management (CRM) has shown to be a highly relevant and effective business management technique as well as a potent company management technology solution. Everywhere it has been used, CRM has produced outstanding returns on investment and helped fuel future growth and aspirations. One of the main drivers of technological and social change in entrepreneurship is the growing usage of CRM in businesses, which is an obvious illustration of how big data can advance society. In today's globalised business environment, customers are at both the start and finish of the value chain in dynamic, ever-changing marketplaces. In a situation such as this, one of the most valuable things that entrepreneurship offers is the ability of the entrepreneur to grasp chances and devise novel ways to satisfy customers. Customers' increased access to information and ability to purchase goods and services offered even outside of national borders are two effects of globalisation (Guerola-Navarro et al., 2019). This indicates that consumer demands, wants, and expectations are evolving, making the market more dynamic and ensuring that only businesses that can adjust to it survive. And in order to do this, you'll need to make investments in research and development as well as have an entrepreneurial mindset that's willing to look for and seize new chances to satisfy people's needs, desires, and expectations. Thus, entrepreneurship becomes one of the forces transforming society, which explains why this topic is receiving more and more attention from researchers (Hills et al., 2008). Customers are now seen as the key to a company's success as well (Díez de Castro et al., 2002). In an environment like this, businesses need to be equipped with the right tools to collect the management data they need to meet customer expectations and needs. They then need to adjust their commercial, logistical, and productive efforts to align with these expectations and needs (Gil-Gomez et al., 2021; Ochoa Laburu, 1996; Vicedo et al.,

2020). In the current business landscape, particularly in the entrepreneurial sphere, where clients are perceived as pivotal and influential figures in decision-making (de Guzmán Miranda, 2014), it is critical to assess the potential effects of each strategy and tool on the management of client knowledge that the organisation has access to (Alfaro Faus, 2004). This allows the organisation to better target its marketing and commercial efforts towards the most effective and suitable goals. Customer relationship management (CRM) is one of the most essential business strategy and business management tools when it comes to tools that have an impact on the marketing domain (Al-Omoush et al., 2021). CRM has shown to be crucial in the development of sales, marketing, and production planning strategies. In the sense of supporting the company's overall efforts with a sense of customer service and acceptable customer needs, this crucial role of CRM is a result of customer-related information that can be collected from all sources of CRM value (García Moreno et al., 2001). Since every instrument and stage of CRM implementation is a real reflection of the philosophy or strategy of CRM itself, CRM refers to both the philosophy of customer relationship management and the technology solutions or methods required for its execution (Chen et al., 2020). According to Guerola-Navarro et al. (2020c) and Ochoa Laburu & Arana Pérez (1997), value chain management thus becomes meaningful and effective when it is founded on knowledge of the customer's key business realities. This also applies to the strategies that follow for manufacturing goods and providing services. One of the most valued aspects of CRM action points is this feature. Menguzzato and Renau (1991) outlined the guidelines that successful organisations' business decision-makers should adhere to in order to maintain their status as industry leaders and shining examples of business success over time while achieving high levels of business performance. Accordingly, it is crucial to understand the importance of entrepreneurial marketing in relation to business performance while researching business management techniques (Miquel Peris et al., 1994). Consequently, any technology that facilitates the gathering of customer management data and the use of that data to strategy formulation, like CRM, is crucial for management (Hills et al., 2008).

Marketing is significantly impacted by the utilisation of creativity and knowledge management to foster entrepreneurial leases, which are made possible by CRM technology solutions (Gil-Gomez et al., 2020). This demonstrates that entrepreneurial processes and culture, rather than any specific managerial action, are the cause of

entrepreneurial marketing (Hills et al., 2008). Entrepreneurial marketing is defined as "the organisational function of marketing with consideration of innovation, risk-taking, pro-active and pursuing opportunities without regard to the resources currently controlled." Kraus et al. (2010) establish that entrepreneurial marketing can be understood as the combination of marketing with an entrepreneurial mindset in the business field of discovering and exploiting new business opportunities that can transform society and improve the overall custo According to Smart and Conant (1994), entrepreneurial enterprises possess a unique set of marketing competencies, which usually involve an enhanced comprehension of client wants, market trends, and market positioning. Together with enterprise resource planning systems, CRM is one of the most cutting-edge corporate management tools for creating efficient customer-centric information management channels and techniques (Vicedo et al., 2020; Oltra-Badenes et al., 2019). Enhancing organisational performance is the primary goal in order to help businesses attain better business outcomes (Guerola-Navarro et al., 2020a). According to Chen and Wu (2016), who offered a simple definition of CRM as "a combination of people, processes, and technology that seeks to understand the company's customers," this contemporary approach differs significantly from earlier approaches. The requirement for thorough management of crucial information for corporate decision makers is taken into account in contemporary studies of information technology and business management.

For this contemporary approach to comprehensive information management and customer expectations, Payne and Frow (2005) established a global conceptual framework that facilitated successful decision-making and the planning of coordinated and successful entrepreneurial marketing strategies to draw in and keep the business's most lucrative clients. CRM is therefore an essential tool (Ayyagari, 2021). CRM's function is highlighted not just for its ability to enhance present management (or exploitation), but also for its potential to foster the capacity for innovation (or exploration). According to Adiwijaya et al. (2017), CRM has the potential to rank among the most potent management technology solutions available for contemporary business management. According to de Guzmán Miranda (2014), loyal consumers are those who consistently purchase specific things from the same retailer, use the same brand, and conduct business with the same company. Relationship marketing's fundamental ideas are as follows (Alfaro Faus, 2004):

- Predicated on tailored or segmented marketing.
- Seeking to yield enduring advantages.
- Denotes a dedication to the long-term development of connections that are mutually beneficial.
- Predicated on ongoing development, addition, and enhancement of value for customers.
- Organising and leading the whole business in the direction of the customers.
- Necessitates intricate and ongoing internal marketing.
- Focusing employee incentive, training, and assessment on raising customer happiness.
- Prioritise customer service above all else in order to achieve client pleasure in every interaction.

Therefore, there is a connection between CRM technology solutions, customer-centric relationship marketing, and business performance in an entrepreneurial setting. CRM is the most important instrument for business management if you want to reap the anticipated benefits of relationship marketing.

2.4 Customer Requirements

Product design has shifted from being innovation/technology centred to being customer oriented during the past ten years (Hsiao et al. 2010; Borgianni et al. 2015). In order to build customer-based products and services, it is crucial to comprehend and recognise customer demands (CR) (Reich and Levy 2007; Lai et al. 2008). However, businesses are under pressure to concentrate on fulfilling crucial customer needs (CCR) because of strict budgets and resources allotted to product development projects (Li et al. 2021). In today's quickly changing market, product creation happens at an ever-faster rate of change (Borgianni and Rotini 2015; Long and Ferguson 2021). According to Chong and Chen (2010) and Cardin et al. (2017), the majority of products are created and used in uncertain contexts, with CR uncertainty being the most significant component. These environments include market prices, natural resources, laws, and technology. Environmental and social changes will lead to changes in CR, and CR that changes frequently will shorten product life cycles, decrease product stability, and raise the cost of redesigns or design modifications (Allen et al. 2016, 2017; Min et al. 2018). This is

the reason why a lot of academics are interested in how CR is changing and evolving (Sun et al. 2020; Zhang et al. 2021). CCRs of high importance and sensitivity can be distinguished based on their varying effects on customer satisfaction and degrees of sensitivity to influencing factors. To our knowledge, there hasn't been much research done on CCR identification that takes CR sensitivity into account. The Kansei technique (Levy 2013; Dong et al. 2021), Quality Function Development (QFD) (Reich and Paz 2008; Franceschini et al. 2015; Kyrgyzov and Kwak 2021; Karasan et al. 2022), and conjoint analysis (Le et al. 2019) are just a few of the popular and practical methods used in CR analysis for product design in previous studies. This approach offers recommendations for designers and industry practitioners and primarily concentrates on harmonising the technical characteristics of the product with respect to CR. Nevertheless, they have built-in shortcomings that highlight only static CR and neglect the dynamic environment that generates CR. This study examines how sensitive CR is to influencing factors in an effort to close this gap.

CCR identification is often accomplished through CR rating or priority. Designers can more easily discover CCRs and optimise design schemes if they have a deeper understanding of the important rating of CR. Three methods are typically used to determine the relevance of CR in the priority area of CR: preference rating, pairwise comparison, and direct assignment (Zheng et al. 2016). Direct assignment is a popular technique in marketing study that asks clients to rate the significance of customer relations (CR) using various metrics, such as point scales, interval counts, linguistic factors, etc. (Wang et al. 2015; Du and Liu 2021; Geng et al. 2021). Pairwise comparison analysis was looked into because it is easier for customers to assess comparative value than absolute value (Song et al. 2013; Neira-Rodado et al. 2020). Prior research has mostly used customer satisfaction/dissatisfaction ratings to analyse the significance of customer relations. But they have built-in shortcomings that overlook a constantly shifting environment. Businesses that solely prioritise static client relations will cause their product to fall short of what customers want, which will impact product performance. In recent decades, academics have associated CCR with factors other than customer pleasure. In order to determine CCRs for customer collaborative production innovation, Wang et al. (2018) presented hybrid competitive priority ranking in response to multiform customer assessment. Liu et al. (2018) clarified CCRs that have a dominant impact on carbon emissions by developing a low-carbon CCR

identification approach using carbon footprint analysis. Du et al. (2022) combined evaluation information and positioning information in online reviews to prioritise cleverly related product CRs with frequency, position, and value of joy and regret because decision-makers may hesitate in a variety of attribute decision-making challenges. Fang et al. (2022) enhanced the bi-cluster algorithm by identifying heterogeneous CRs by detecting a subset of customers who respond to the same subset of CR, taking into account heterogeneity in CRs and consumers. Analysing various client characteristics helps designers determine a product's structure and function during the design process. It also enhances customer happiness by modifying relevant technological features. The association of CCR with common concerns has been demonstrated in earlier research, however evaluations of the dynamic impact of influencing factors on CR are still insufficient. Suh (2001) established the axiomatic design, which states that modifications to the CR will have a domino effect on changes to the functional requirements, design parameters, and process variables. It normally takes a lot of effort and time to modify a product in a way that is appropriate for CR changes, especially when dealing with complex products and systems.

Companies are under increasing pressure to produce solutions that are responsive to the expansion of dynamic customer relationship management (CR). Many researchers concentrate on dynamic CR detection, mining, retrieval, and extraction in order to better understand variations in CR. Dou et al. (2018) employed an optimised grey model to identify dynamic CR and fuzzy Kano models and benchmarking theories to quantify the improvement in satisfaction of each product feature from factors of customer perception and rival performance in order to obtain new CR. Li et al. (2019), believing that customer interactions will result in significant changes in CR, offer a fuzzy Delphi approach to record and assess dynamic CR from the customer's perspective in an open design environment. Zhao et al. (2022) mine dynamic consumer satisfaction (CR) over multi-generational products based on online reviews. They do this by merging customer happiness with its dynamically changing patterns for ongoing product improvement. It is clear that this approach to detecting dynamic CR only considers changes in the external manifestations (such as shifts in customer satisfaction or the significance of CR); the underlying factors that encourage these shifts in CR are not thoroughly examined. In order for businesses to attain long-term competitiveness, it is crucial that they analyse the changes and evolution of corporate resilience (CR), which is

influenced by shifts in the natural and social environments (Zhang et al., 2021). Products cannot continue to satisfy customers without taking changes in CR into account, as Chong and Chen (2010) showed. Therefore, strategies based on artificial immunity and the nervous system are put forth to actively analyse and anticipate CR. Many CRs vary proactively instead of passively adapting to changes in the environment because of client initiative. Min et al. (2018) propose a review-based methodology for analysing dynamic changes in CR based on Kano dynamics. Businesses can use this approach to analyse how specific functions' attributes have evolved over time. Differences in CR interests over time are also a useful technique to portray changes in CR, since CR is a dynamic concept. In order to provide improvement techniques for next-generation product design, Sun et al. (2020) divided CRs into three categories: user characteristics, manufacturing attributes, and generic attributes. They then computed changes in CR importance in each of these three categories using opinion mining and natural language processing. Given that CR on multigenerational products frequently fluctuates, it is worthwhile to investigate the ways via which CR is impacted by erratic elements of influence. There are two types of factors that influence CR fluctuations during the product development process. CRs are connected to one another, yet they are also isolated from one another. Dependencies, both functional and non-functional, can cause the initial modification of one CR to propagate to another (Hein et al. 2021).

In today's competitive market, product design is changing at an ever-increasing rate of speed, and CR will vary in response to changes in the external environment. At the beginning of programme design, customer needs are a key factor in determining the design direction of a new product. The successful design and development of programmes requires a greater understanding of the demands of the target audience as well as a more accurate identification of the attributes of the programme or product. Throughout the design process, precise customer requirements help designers decide on the functionality and structure of the product or programme and increase customer satisfaction by improving product features.

Businesses face the risk of making mistakes at every stage, which could increase costs for product development and consumer unhappiness and result in products that aren't up to par (McKinsey & Company, 2017). To avoid these risks, businesses must establish a systematic process for managing requirements at each stage of the product

development lifecycle. Though effective requirements management is a complex process, we find that high-achieving companies usually shine in three main domains. There are three steps to savvy requirements management.

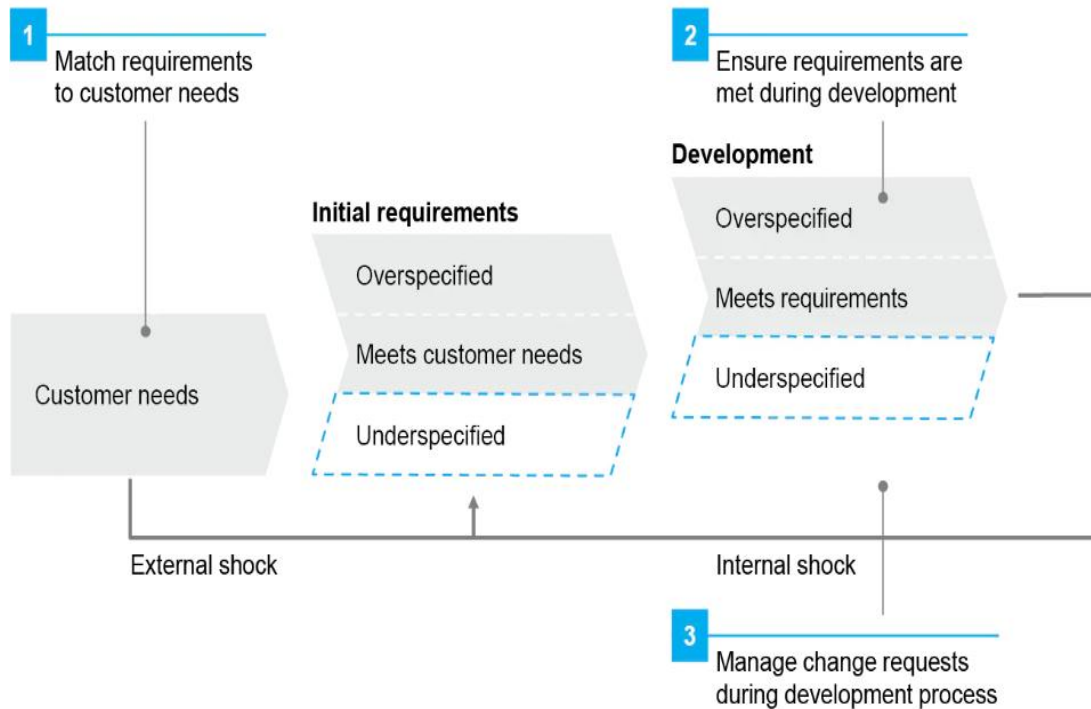


Figure 2. 5 Source Mc Kinsey & Company

1. Aligning specifications with actual consumers needs while developing a concept
2. Making certain that specifications are fulfilled when developing
3. Effectively handling the inescapable modification requests that surface over the course of developing a new product.

Businesses that adeptly handle all three are most likely to minimise their operations while simultaneously meeting and exceeding client expectations. Price. And with higher revenue and lower costs comes the potential for greater profit margins. During the initial stages of product development, such as idea definition, businesses usually envision the general layout of a new or improved product. They also set cost targets and define fundamental specifications that represent the needs of the client (e.g., performance and feature levels of the product). Managers frequently create these initial needs by simply replicating those from the product's predecessor. They then add a few criteria to reflect the new features that are anticipated for next-generation products, and sometimes they even eliminate requirements for out-of-date features. Seldom do they

verify if the criteria are current and what is new and significant for the target client. This may result in an oversized set of legacy needs, which would then affect future product concepts. Even when the customer does not want or want cost overruns to satisfy needless criteria, the development process nonetheless takes this into account. Companies need to adopt a completely different strategy in order to succeed in this area of requirements management: defining product features instead of concepts and establishing requirements based on a precise knowledge of consumer demands and willingness to pay (Figure 2.6). Managers can evaluate the top functional concepts available by utilising sophisticated data analytics tools and techniques. Managers have access to a variety of tools to assist them in meeting this initial set of requirements:

- Reviews of rivals' and the company's products. A business starts by comparing its own products to those of its rivals, which gives it a decent idea of how to translate client demands into requirements. Finding the most precise specification of the requirements is also helpful.

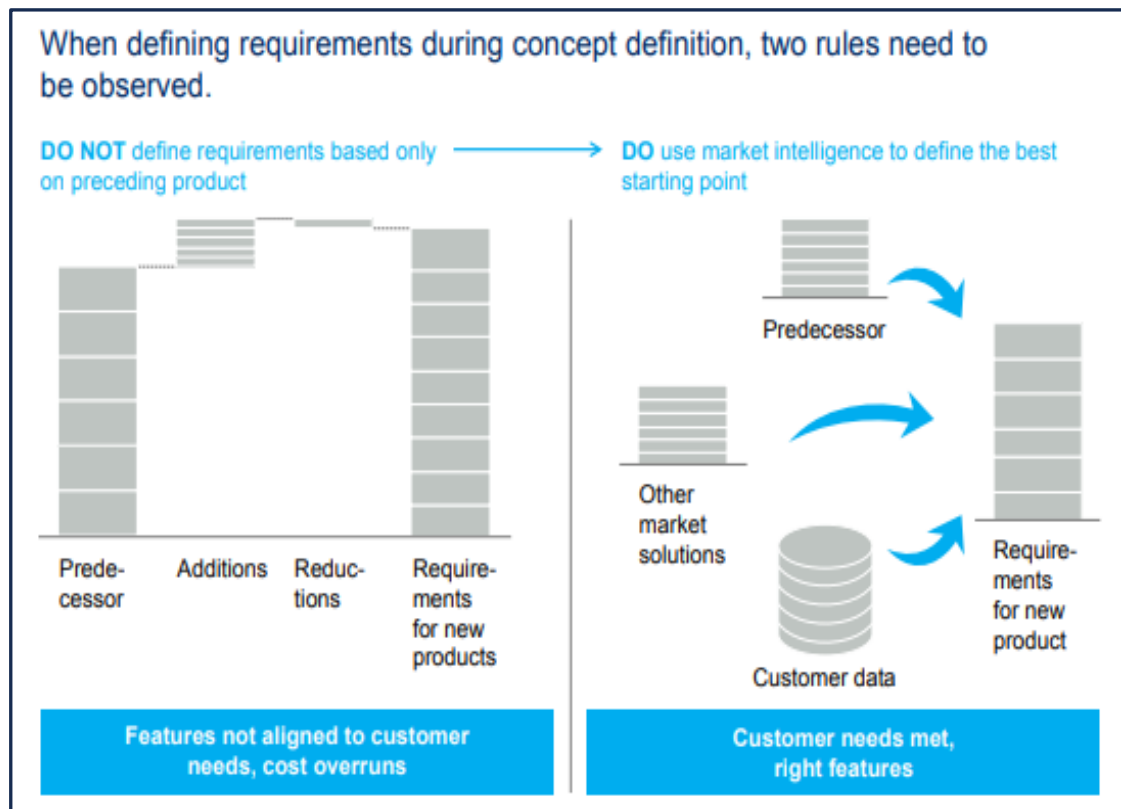


Figure 2. 6 Defining Requirements

- The ideal standard. The business asked to see competitors' concepts and its own comments during the best-of-benchmark endeavour. The business then determines the most economical concept for satisfying customers' needs based on input from suppliers. Additionally, benchmarking allows businesses to comprehend creative concepts from various vendors.
- Prerequisites for databases. Businesses that create databases containing all pertinent current requirements and the best benchmark outcomes have access to a wealth of data that they may use to decide where to start when creating concept requirements.
- Quick customer evaluation. New technologies can support consumer testing and fast prototyping efforts to refine requirements in the early stages of the process, depending on the type of product generated (see sidebar "Highlights on new technologies and big data").

The management shifts attention to the product's development stage after determining the precise starting needs during the idea definition stage. Here, the concept for the product is chosen, and the exact design is finished, even down to the concrete component level. Several items are intricate, consisting of several subsystems, systems, and components. In these situations, the design of the lower-level elements should be guided by the initial product-level requirements, which should be tier-down. Errors may result from poorly handled handoffs at each intersection. The most prevalent one is that, in comparison to the original product-level requirements, the design for low-level elements is either too or underspecified. Those errors ought to be fixed subsequently, at extra financial and temporal expense. Despite its critics, the so-called V-product development model is nevertheless a popular process framework in sectors that prioritise engineering. As a result, during the development stage, it may be beneficial to handle these requirements and create handoffs (Figure 2.7).

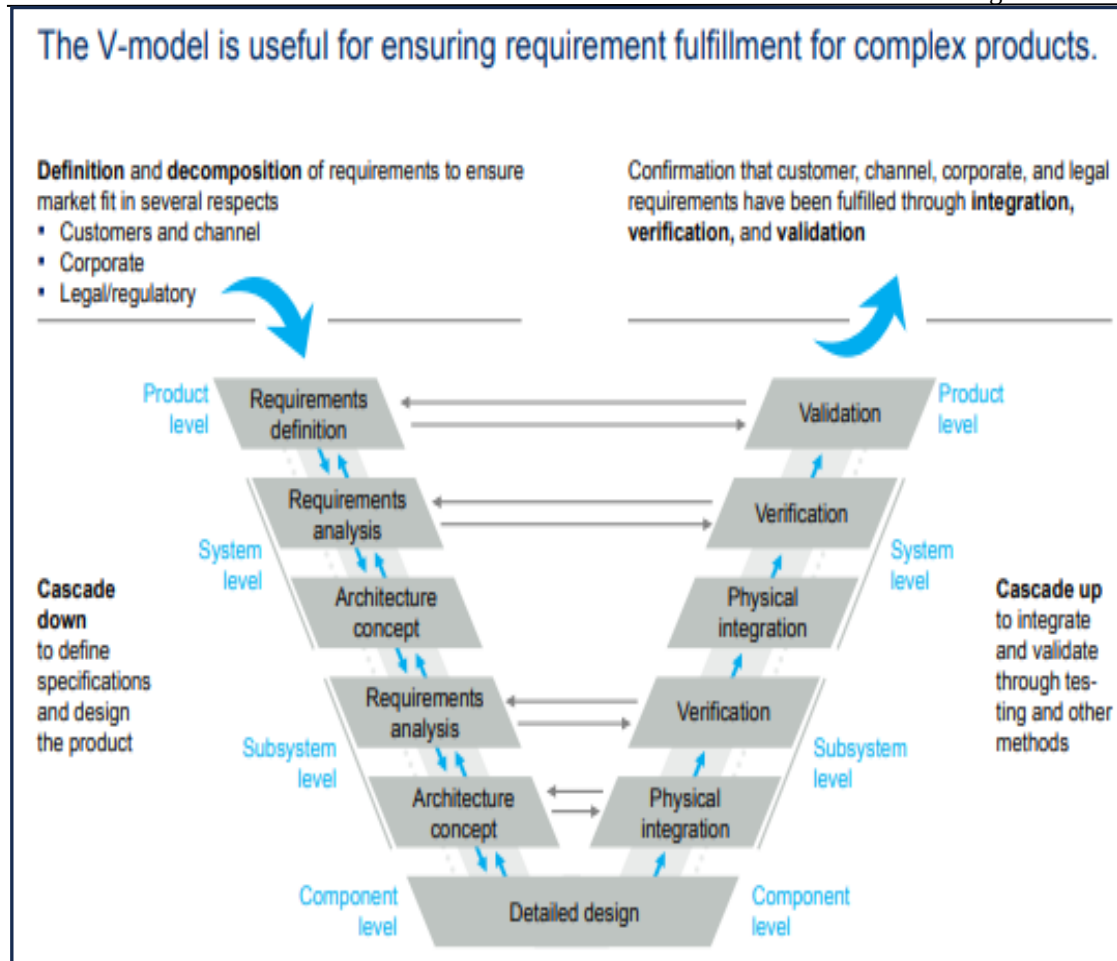


Figure 2. 7 The V-model

Top-notch businesses make sure that structured interfaces are used to transfer needs from product-level requirements to system, subsystem, and component-level requirements. Every time there is a handover, they examine the next level's derivative requirements and assess how well the architectural designs meet the needs at the level immediately above. Businesses can tackle that difficulty using a variety of tools:

- Installing a handover procedure that aligns subsystems and system requirements providers can determine whether damage is adequately repaired using a process checklist.
- Challenge boards can also be installed by businesses at specific stages of the development process. Here, cross-functional teams examine a number of critical requirements, e.g., using data from the requirements database, other companies' existing products, or rival products, and they challenge requirements for both

cost-effectiveness and compliance with client requirements. In addition to ensuring an effective handover of "vertical" requirements, it is important to align requirements along the "horizontal" axis as well. Often, testing and validation.

The processes can provide the same outcome even when they don't adhere to the original set of specifications. create needless modifications to the design of the product or approve a product that does not satisfy customer expectations and requests expensive, late revisions. Regular testing protocols overspecify, causing the product to be held to superfluous implicit requirements. Alternatively, the testing process omitted to test crucial criteria, necessitating last-minute modifications to account for what the design overlooked.

In order to achieve consistency in vertical needs, businesses must therefore develop a system in which testing techniques and targets are frequently questioned and aligned with their respective product requirements, using identical tools. Minimising costs, faults, and delays can be achieved by minimising departures from baseline product level criteria. However, it is an inevitable fact that during the course of development, particularly for projects whose development takes several years, new and unanticipated realities come to light. cutting edge technologies. Rivals new to the game flex their muscles. Consumers desire something unique. And the only things outside of the development process that could cause problems are these. Similar to surprising test findings, internal strength can also have an impact. These alterations may result in the all-too-common fast track modification requests, which might arise at any point in the development process. The management runs the danger of disregarding the original requirements to expedite the implementation of a change, nevertheless, given the demand that emerged at the end of the process. It is all too easy for managers to adopt changes without properly evaluating how they will affect the requirements for the product, regardless of the nature or origin of the changes, many of which are time sensitive. This may cause the final iteration of the product to diverge from the original idea and all of the specifications related to the value and financial implications of each individual customer.

Because of this, businesses must incorporate flexibility into their requirements management strategy, but do it in a methodical manner. Some suggestions for executing this are as follows:

- Verifying requirements affects the processes needed in the engineering change process.
- Establish a user-friendly, easily available database with the essential requirements so that managers may quickly review it when processing change requests.
- To make it easier for managers to evaluate needs across projects that are similar, use databases to promote data transparency.

For businesses looking to become experts in requirements management using the three-step process covered in this article, big data's arrival is a blessing. Build specifications In addition to institutionalising organisational learning on needs, the database can serve as the foundation for defining future product requirements. Simultaneously, client information may be gathered during the product development process by A/B testing initiatives (e.g., focus group testing, online or mobile configurators, etc.) or through real sales of new and similar items. This information can help the business better understand what its customers need, which will make it simpler to establish the proper requirements at the outset of the product development process. Modern technologies, like 3-D printing, also make it possible to test more quickly (for instance, through rapid prototyping) and validate requirements even more quickly. Businesses can also use big data and analytics to foresee the wants of their customers by conducting analytics on blogs, keywords, or customers who are pertinent to the change inquiry. The ensuing insights can assist them in adopting a more knowledgeable and methodical approach to creating next-generation products or foreseeing demands for change that arise throughout development. For all of these reasons, forward-thinking businesses will develop their new technological skills or add them in order to seize chances to provide value for both their clients and themselves.

2.5 Value Proposition Canvas

A key element of the Business Model Canvas (BMC), which focuses on the relationship between client groups and value propositions, is value proposition design, sometimes referred to as the Value Proposition Canvas (VPC) (Osterwalder, Pigneur, Bernanda, & Smith, 2019). The business needs to be able to map client demographics as well as

emerging needs, curiosities, improved behaviour, and atmosphere. The three sections of consumer profiles are called Customer Jobs, Customer Gains, and Customer Pains. Here's an explanation of the profile consumers according to Osterwalder, et al:

a. Customer Jobs

Customer Jobs describes completion of activities carried out in daily life. Among them are tasks functional to be worked on or resolved, needs to be met, or the issue you want to address. When trying to investigate the work of consumers, perspectives that considered important can be different from user.

b. Customer Pains

Customer Pains is described as a thing which becomes a difficulty or things that are felt interrupt consumers in resolving activity. This pain later describes risks that will be faced either bad or bad not.

c. Customer Gains

The advantages here are an illustration regarding the results and take advantage of which will be obtained by consumers. Consumers will expect or want a benefit obtained from a solution. Desire it can be product functionality or services, social needs, or even many costs to be incurred. Companies should bring out these positive values in the eyes by solving their desires.

Two of the BMC's fundamental components, "Customer Segments" and "Value Propositions," are the subject of the VPC, which offers a simple way to assess if a company's value propositions for its business model meet the demands of the actual clients it seeks to serve. As stated on the reverse side of the cover, Value Proposition Design is an excellent cookbook that saves you time and prevents you from creating items that nobody wants. "How to create products and services customers want" is the exact promise made in the first paragraph of Value Proposition Design, which is presented as an approachable manual that is full of useful advice. The Value Proposition Canvas concentrates on producing value for customers, whereas the Business Model Canvas focuses on how to create value for the company. Those who have worked with prior Business Model Canvases will not be unfamiliar with using the Value Proposition Canvas.

Value Proposition Design will help to:

1. Recognise the trends in value generation (Gain Clarity).

2. Make use of your team's abilities and experience (Get Your team aligned).
3. Avoid wasting time on ineffective ideas (Minimize the risk of flop).

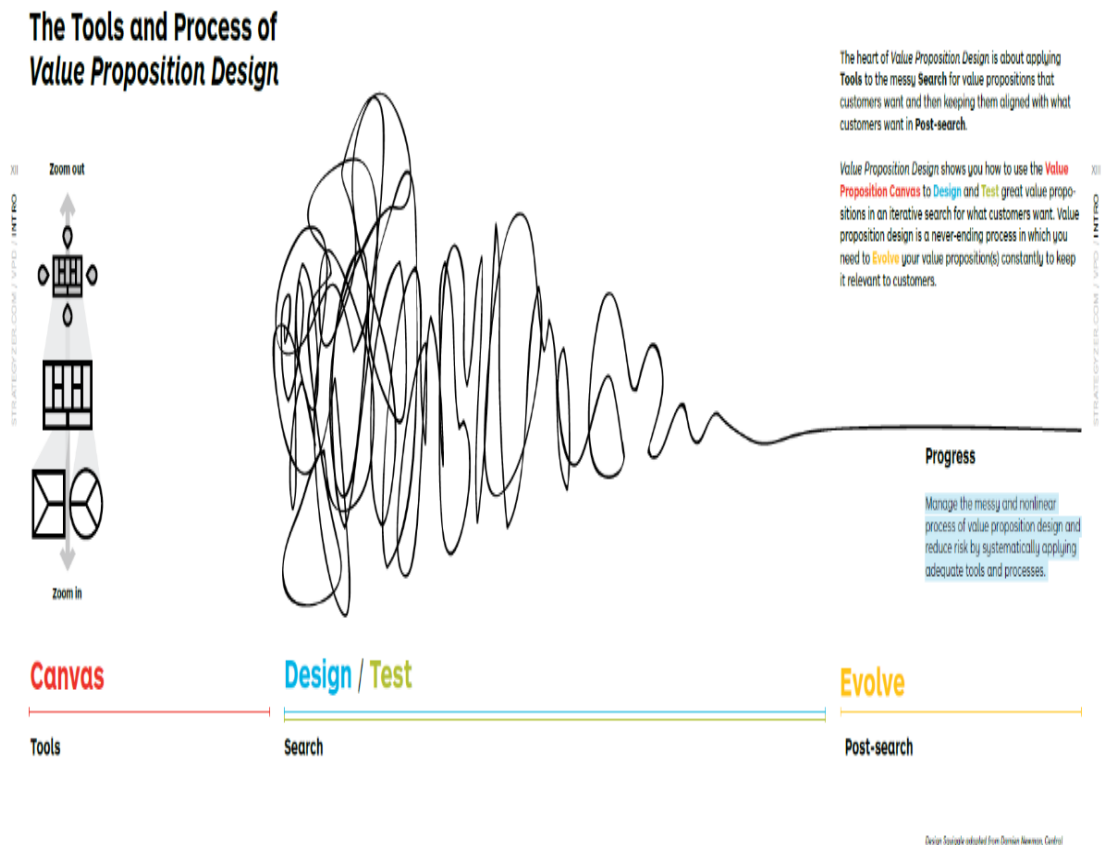


Figure 2. 8 The Tools and Process Of VPD

The business model canvas will be used to create, deliver and capture value. The Value Proposition Canvas and Business Model work in perfect harmony, with the latter acting as a plug-in to the former to let you focus in on the specifics of how you are creating value for customers.

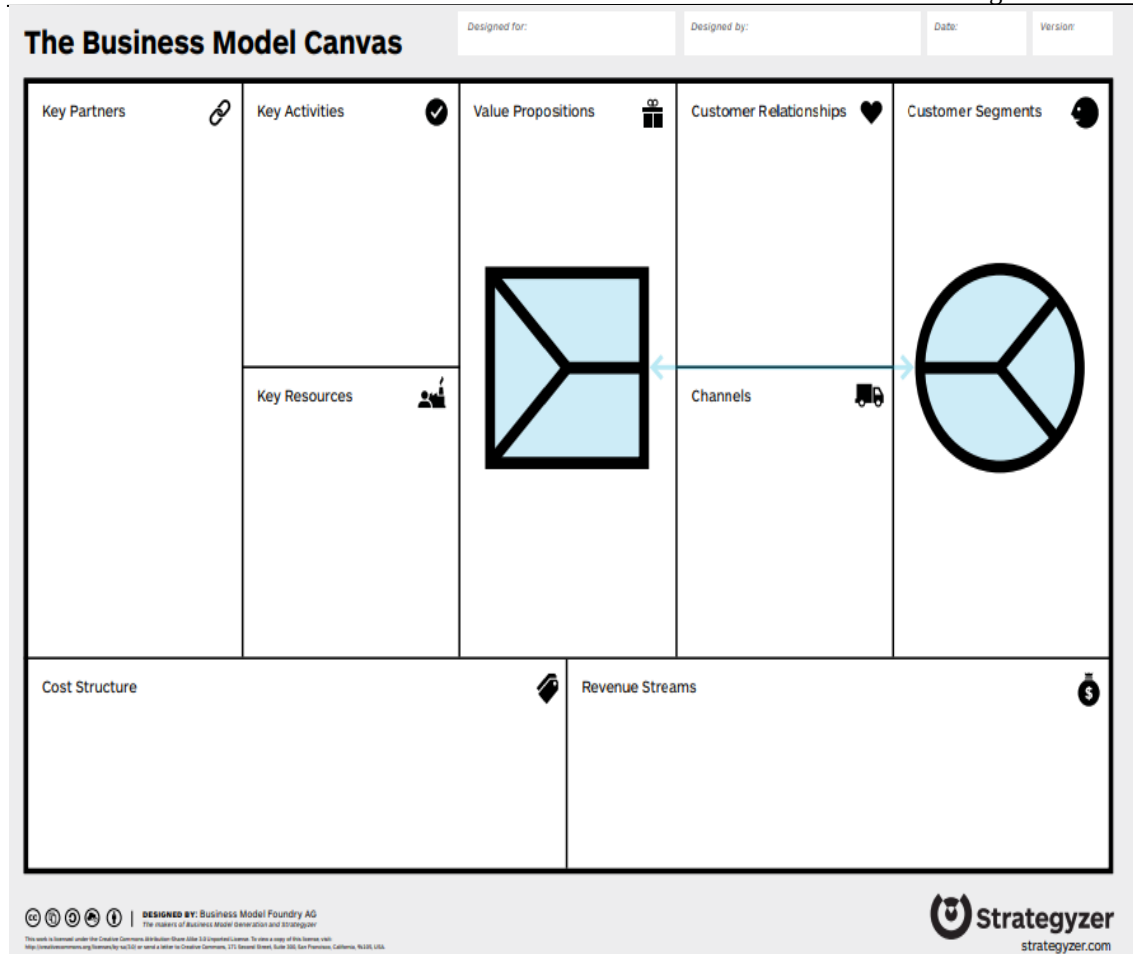


Figure 2. 9 The Business Model Canvas

The Proposition for Value The core of the business model is canvas. Canvas is used to test and build the value proposition based on what the customer wants. It explains the VPC's two sides as follows:

- 1) The section of the customer profile where you elucidate the customer's comprehension.
- 2) The Value Map section, where you outline the value you hope to provide to those clients.

Value proposition canvas is a simple model that shows "pain" the users struggle with, and the "profit" that they make an effort, defend against "pain relief" and "gain" creator" that the organization offers. This clarifies what it means to have FIT between the model's two sides as well. How to create the best value proposal feasible, or more accurately, how to create many value proposition prototypes. Better processes and more and better ideas are guaranteed by the first three concepts:

- 1) Make it apparent and authentic.

2) Accept the mindset of a beginner and don't let prior knowledge get in the way of.

3) Instead of falling in love with the initial concept, come up with a substitute.

Working on too big a detail too early or falling in love with an idea too quickly makes you tied to it. These are lessons that design thinking inspires and instills in us. Value proposition design is an ongoing process that requires constant evolution if you want to maintain your value propositions relevant to customers.

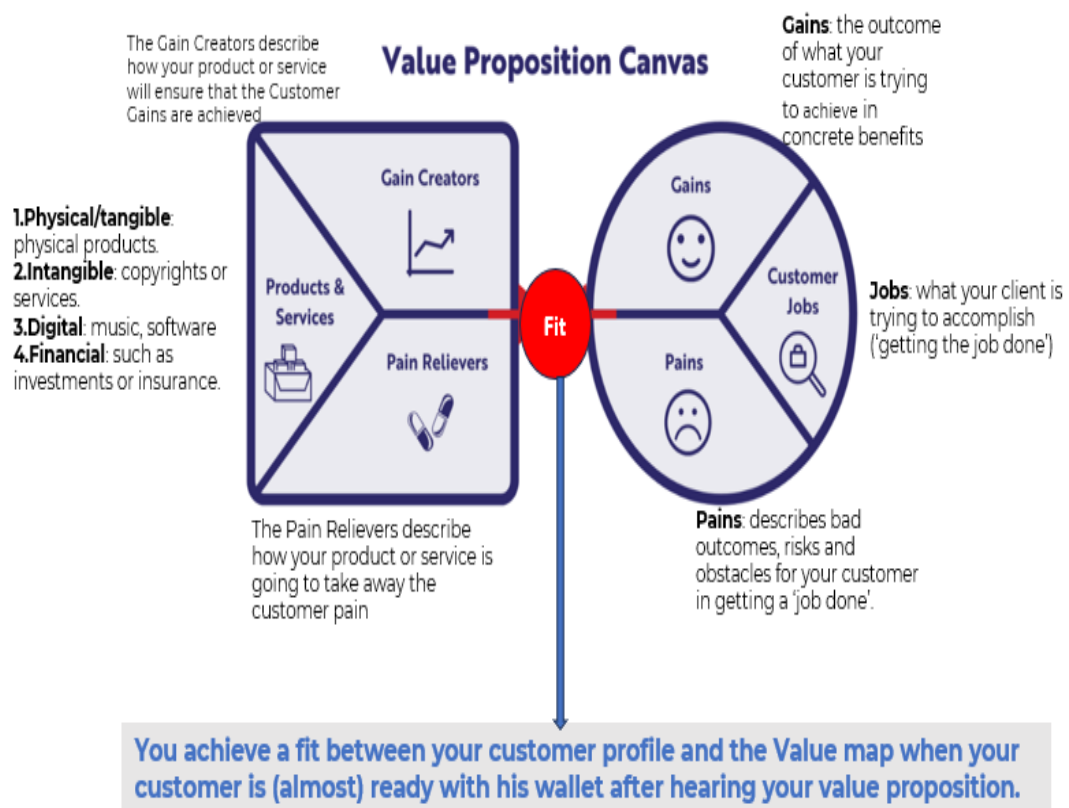


Figure 2. 10 The Value Proposition Canvas

Both customer requirement (CR) method and value proposition canvas (VPC) are useful tools for businesses, but they have different strengths and weaknesses. Customer requirement method is more focused on the customer's needs and expectations, while value proposition canvas is more focused on the product or service's features and benefits. Customer requirement method is more suitable for defining and validating the customer's requirements, while value proposition canvas is more suitable for creating and testing the product or service's value proposition. Customer requirement method is

more data-driven and analytical, while value proposition canvas is more visual and creative.

Therefore, there is no definitive answer to which one is the best method, as it depends on the context and the objectives of the business. However, a possible way to combine the strengths of both tools is to use customer requirement method to identify and prioritize the customer's needs and expectations, and then use value proposition canvas to design and communicate the product or service's value proposition that meets those needs and expectations. This way, the business can ensure that their product or service is aligned with the customer's perspective and creates value for them.

2.6 Focus Group Discussion

FGD is a data collection technique that involves structured discussions between a group of people selected deliberately to obtain information about a particular topic. FGD can be used to explore participants' perceptions, attitudes, experiences and needs related to a problem or phenomenon. FGDs can also be used to test hypotheses, develop theories, or produce recommendations. FGD has several characteristics that differentiate it from other data collection methods, such as:

- FGDs are conducted in a relaxed and informal atmosphere, so that participants feel comfortable sharing their opinions and experiences.
- FGDs utilize social interactions between participants to produce rich and in-depth data. Participants can provide each other with responses, questions, clarification, or support for statements submitted by other participants.
- FGD requires a moderator who acts as a facilitator, director and discussion controller. The moderator must have good communication skills, knowledge of the discussion topic, and the ability to handle difficult situations that may occur during the discussion, such as conflict, dominance, or silence.

FGD has several strengths and limitations as a data collection method, such as:

- FGDs can produce rich, in-depth and varied data, because participants can express their views freely and spontaneously, and get feedback from other participants.

- FGDs can provide insight into the social, cultural, and emotional context that influences participants' behaviour, attitudes, and decisions. FGD can also reveal the values, norms and beliefs that exist in a particular group.
- FGDs can save time, costs and resources, because it can collect data from many people in one meeting. FGDs can also increase participant participation and motivation, because they feel valued and recognized as an important source of information.

FGD has limitations in terms of data representation, reliability and validity. FGD cannot be generalized to a larger population, because participants were selected purposively and not randomly. FGDs can also be influenced by factors such as moderator skill, group dynamics, or personal biases that can affect the quality and quantity of data produced. FGD also requires careful and systematic data analysis, because the data produced is qualitative and unstructured.

FGD can be used in various stages of qualitative research, such as:

- Planning stage: FGDs can be used to determine the research topic, formulate research questions, identify research variables, or determine other data collection methods.
- Implementation stage: FGDs can be used to collect primary or secondary data, test hypotheses, develop theories, or produce recommendations.
- Evaluation stage: FGD can be used to evaluate research results, test the validity and reliability of data, or obtain feedback from participants or stakeholders.

Six contextual and methodological components are covered by Vicsek's framework for the study of focus group results: interactional factors, participant personal traits, the moderator, the environment, time considerations, and the content of FGDs.

Situational Factor	Description
Interactional factors	Psychological and social psychological mechanisms: social influence, conformity, minority influence, individual influence, conflict avoidance, interactions between the moderator (researcher) and the participants.
Personal characteristics of the participants	Demographic backgrounds of the participants; group members' knowledge of the theme discussed, how they behave, and how they feel about being there; roles assumed during the FGDs.
The moderator	The moderator's style, control in the group, professionalism, power, and knowledge of the issue; moderator roles assumed in the session: the expert, the challenger, and the unfamiliar seeking for enlightenment.
The environment	Physical characteristics of the environment where FGDs take place, its latent influence on the outcome, characteristics of the furniture in the room, etc.; how peaceful and separated the environment is from others, its degree of formality.
Time factors	The time of day for conducting a FGD: how long it lasts, how far the participants are able to concentrate on specific questions, for example questions arising at the end of the day.
Content	Elements introduced in the guide or by the moderator in the session; information to participants, language, order and style of questions; the use of techniques; how personal the theme is, expectations among participants or in society.

Table 2. 1 Vicsek's Situational Factor

Vicsek's method argues that these situational factors should be considered in the analysis of the focus group results, as they can affect the quality, validity, and reliability of the data. By acknowledging and incorporating these factors, the analysis can be more comprehensive, contextualized, and nuanced. Vicsek's method also suggests some techniques and tools for analysing the data, such as template analysis, discourse analysis, and content analysis.

2.2 Previous Studies

In previous study was investigates innovative services development for the heavy equipment industry especially for mining industries. In the meanwhile, this research will be done to enhance services (product support program) in the agricultural sector,

particularly for customer in palm oil plantations. which aims to increase service revenue and profitability.

Title	Author	Abstract	Insight	Conclusion
Customer Loyalty and Powerful Brand in Heavy Machinery Industry	<u>Omidreza Ghanadi</u> , European Journal of Business and Management Research www.ejbm.org , June 2021	The heavy machinery industry is experiencing rapid growth, offering customers various options like purchasing new/used equipment or renting. Brands now encompass more than products, impacting consumer behavior.	The concept of a brand extends beyond the product or service itself. A brand's unique value is formed through consumer perceptions, influenced by various factors.	The study is focused on understanding the correlation between the brand and customer repurchases, particularly how the brand's value impacts customer decisions for future purchases.
Service Development in Heavy Equipment Industry	<u>Dyah S.D.</u> , <u>Erik J.W.</u> , (2010)	The paper investigates innovative services development for the heavy equipment industry especially for mining industries. The investigation is based on an extensive literature review and a qualitative research approach which uses interview techniques.	After-sales services are important for enhancing customer satisfaction and loyalty, as well as creating a competitive advantage and increasing profitability.	The paper is about the importance of after-sales services and customer relationship marketing heavy equipment machinery industry. especially for mining industries.
After-Sales Services and Customer Relationship Marketing: A Multiple Case Study Within The Swedish Heavy Equipment Machinery Industry.	<u>Erika E. E.</u> , <u>Khulan, B.</u> , <u>Ting, T.L.</u> (2013)	The thesis investigates how after-sales service activities affect customer relationship marketing among different sizes of heavy equipment machinery providers in Sweden.	The article finds that customer care is the most important and differentiated after-sales service activity, while field technical assistance is the least profitable and most outsourced activity.	The article concludes that after-sales service is vital for customer satisfaction and retention, but there is a need for more strategic and systematic management of after-sales service activities.
Fifteen Years of Customer Engagement Research: A Bibliometric- and Network Analysis, Journal of Product & Brand Management, Forthcoming	<u>Hollebeek, L.</u> , <u>Sharma, T.</u> , <u>Pandey, R.</u> , <u>Sanial, P.</u> , & <u>Clark, M.</u> (2021)	The research paper focuses on the growing significance of customer engagement (CE) with brands in brand management and its positive impact on sales, competitive advantage, and stock returns.	Demonstrating how customer engagement impacts firm sales, competitive advantage, and stock returns, emphasizing its relevance in brand management.	The paper is unique in its approach, utilizing bibliometric and network analysis to map the CE literature and identifying potential avenues for future research.

Table 2. 2 After Sales Service Journal Comparison

From various studies that have been carried out on the role of after sales service in heavy equipment, it shows that after sales service programs are very important in increasing competitive advantage, customer engagement, customer loyalty and increasing profitability. Apart from that, good after sales service will improve the brand image and will determine the customer's desire to make a repeat purchase.