Carving out New Turf in Saturated Markets

TRIZ POWER TOOLS

Job # 1
Discovering Markets

May 2015 Edition

Carving out New Turf in Saturated Markets
Acknowledgements
This book is the work of a collaborative group of coauthors.

Coauthors
Larry Ball
David Troness
Kartik Ariyur
Jason Huang
Petr Krupansky
Steve Hickman
S. Robert Lang
Don Rossi

Editors
Erika Ball
Larry Ball
David Troness
Paul Dwyer
S. Robert Lang

Illustrators
Larry Ball
David Troness

Other Authors, Theoreticians, Practitioners Whose Writings or Teachings have Impacted This Work

Genrich Altshuller
Ellen Domb
Roni Horowitz
John Terninko
Alla Zusman
Boris Zlotin
Lev Shulyak

Yuri Salamatov
Victor Fey
Eugene Rivin
Darrell Mann
Sergei Ikovenko
Simon Litvin
Peter Ulan

Lane Desborough
Clayton Christensen
Renee Mauborgne
Kim Chan
The Algorithm

Introduction ........................................................................................................................................... v
L1-Where Will the Business Play? ........................................................................................................ 1
L2-Is the Sandbox Known? ................................................................................................................... 11
L2-Identify Key Decision Makers ........................................................................................................ 16
L2-(Resources) Willing to Expand the Brand? .................................................................................. 17
L2-(Resources) Willing to Expand to New Customers? ..................................................................... 18
L2-(Resources) Willing to Expand Technologies? ............................................................................ 19
L2-(Resources) Willing to Expand or Change the Service or Delivery Model? .................................. 20
L2-(Resources) Willing to Expand Capital Assets? .......................................................................... 20
L2-(Resources) Willing to Expand Human Assets? .......................................................................... 20
L2-(Processes) Willing to Change Core Processes? ....................................................................... 21
L2-(Processes) Willing to Expand or Change its Business Model? ................................................ 21
L2-(Processes) Willing to Consider Separate Businesses? .............................................................. 22
L2-(Processes) Willing to Expand the Value Chain? ....................................................................... 24
L2-(Values) What are the Stated Values of Your Company? ............................................................. 24
L2-(Values) What are the Unstated Values of Your Company? .......................................................... 25
L2-(Values) Willing to Consider New Margin Thresholds? ............................................................ 25
L2-Clarify the Conditions of Satisfaction ......................................................................................... 26
L2-Commitment from Key Decision Makers .................................................................................... 26
L1-Identify the Industry or Brand ...................................................................................................... 29
L1-Identify the New or Existing Markets (Jobs to Be Done) ................................................................ 31
L2-Familiar Core Jobs or Experiences ............................................................................................... 34
L2-Jobs that Reinforce or Enlarge Your Brand ................................................................................. 35
L2-Problematic Jobs in the Product Life Cycle ................................................................................. 36
L2-Jobs Indirectly Related to The Core Job ....................................................................................... 38
L2-Customers that Modify or Use Your Product or Service for Unexpected Jobs ............................ 39
TRIZ Power Tools

L2-Similar Jobs ..................................................................................................................40
L2-New or Added User Experiences ................................................................................41
L2- Loyalty, Identification and Identity .........................................................................43
L2-New Jobs for New Products .......................................................................................44
L2-New Jobs to Facilitate New Regulations ...................................................................47
L2-Check whether there is a Better Job ..........................................................................48
L1-Hypothesize Potential Market Segments ...................................................................49
L2-Identify Existing Market Segments ............................................................................54
L2-(Features) Demanding High-End Customers ..............................................................54
L2-(Features) Existing Products are Not Personalized or Adaptable Enough ....................55
L2-(Features) Existing Offerings are Painful or Uncomfortable ......................................56
L2-(Features) Jobs Cause Human Burdens ......................................................................56
L2-(Features) Concurrent Jobs are a Distraction ..............................................................57
L2-(Features) Lack of Knowledge .....................................................................................58
L2-(Features) Job Hampered by Regulations ...................................................................58
L2-(Features) Cultural Restrictions ..................................................................................59
L2-(Features) Personal Limitations ..................................................................................59
L2-(Features) Dangerous Jobs ..........................................................................................60
L2-(Features) Jobs in Harsh Environments .......................................................................61
L2-(Features) Very Inconvenient but Urgent Jobs .............................................................63
L2-(Features) Boring Jobs ..............................................................................................64
L2-(Features) Customers that Modify or Use Your Product to make them Work Better .................................................................................................................................................................65
L2-(Features) Job is Time Consuming .............................................................................65
L2-(Features) Job Wastes Materials .................................................................................66
L2-(Features) Job Wastes Space ......................................................................................66
L2-(Features) Job is Unpredictable Unreliable .................................................................66
L2-(Features) Job Wastes Energy .....................................................................................67
L2-(Features) Job Creates Harmful Functions ..................................................................67
L2-(Features) Customers That Oppose the Job ...............................................................68
L2-(Features-Business Model) Jobs in New and Interesting Environments .....................69
L2-(Features-Business Model) Job Problems Caused by Market Trends .........................69
L2-(Features-Business Model) Job Wastes Money ............................................................70
L2-(Features-Business Model) Supporting Jobs are Hampered .......................................70
L1-(Features-Business Model) Hampered Business-to-Business Customers ........................................ 73
L2-(Features-Business Model) Performed by Inconvenient or Inaccessible Experts ................................ 73
L2-(Features-Business Model) High Switching Costs ............................................................................. 75
L2-(Features-Business Model) Customers with Constantly Changing Needs ........................................ 76
L2-(Features-Business Model) Customers the Industry prefers to not Serve ....................................... 76
L2-(Features-Business Model) Job Costs too Much ................................................................................ 77
L2-(Business Model) Consumer not Converted to Job or Job is Unknown ............................................. 78
L2-(Business Model) Job Not Provided in the Geographical Region ..................................................... 79
L2-(Business Model) Job Not Try-Able .................................................................................................. 79
L2-(Business Model) Customers Consume in Surprising Quantities ................................................... 80
L2-(Business Model) Customers that Purchase your Products through Uncommon Channels ................ 81
L2-(Business Model) Customers Needing Excessive Service or Support .............................................. 81
L2-(Business Model) Distasteful Providers ............................................................................................... 82
L2-(Business Model) Fears of Conflicts-of-Interest ............................................................................... 82
L2-(Deliberate Changes) ASIT Power Tools ......................................................................................... 85
L2-(Exploit Existing Products) Breakthroughs in Efficiency or Effectiveness ........................................ 88
L2-(Exploit Existing Products) Useful Information for Other Markets ................................................. 89
L2-(Exploit Existing Products) Unique Jobs ......................................................................................... 89
L2-(Exploit Existing Products) Unique Technologies ............................................................................ 90
L2-(Discoveries) Serendipitous Discoveries .......................................................................................... 90
L2-(Deliberate Changes) Personal and Customer Irritants ................................................................... 91
L2-(Deliberate Changes) ASIT Sacrifice Tool ....................................................................................... 91
L2-(Deliberate Changes) ASIT Parasite Tool ....................................................................................... 92
L2-(Deliberate Changes) ASIT Unification Tool ................................................................................... 93
L2-(Deliberate Changes) Competing Objects ....................................................................................... 94
L2-(Deliberate Changes) Absorb the Anti-Function ............................................................................ 95
L2-(Deliberate Changes) ASIT Multiplication Tool ............................................................................... 96
L2-(Deliberate Changes) ASIT Division Tool ....................................................................................... 97
L2-(Deliberate Changes) ASIT Breaking Symmetry Tool ..................................................................... 98
L2-Identify Potentially Grateful Market Segments .............................................................................. 99
L1-Choose the Target Market Segment(s) ........................................................................................... 107
L2-Summarize the Potential Segments ................................................................................................. 108
L2-Filter for Team Enthusiasm ............................................................................................................. 108
TRIZ Power Tools

L2-Filter for Potential Market Size ................................................................. 108
L2-Filter for how Well the Market is already being Served .............................. 109
L2-Filter for Intensity of Consumer Dilemma .................................................. 110
L2-Filter by where the Business is willing to Play .......................................... 110
L2-Choose the Target Market Segment(s) ...................................................... 111
L1-New Branding if Necessary ........................................................................ 112
Summary ........................................................................................................ 113
Introduction

(If you are reading the PDF format—navigate the algorithms with the “Bookmarks” to the left. L1, L2, L3 correspond to levels of the algorithm. The levels are hierarchal; you can go as deeply as required to resolve your problem. Lower levels (L1, L2) have consolidated methods. If you are using the book then use the Table of Contents for the Algorithm)

All of the books in the TRIZ Power Tools book series are designed to be used as an algorithm. The algorithm can be as detailed or simple as required. This is done by going up or down in the hierarchy of the process steps. The top level (L1) of the bookmarks is the highest level. If more detail is required, the user can go to deeper levels (L2 and L3). A “Cheat Sheet” is separately provided at www.opensourcetriz.com which can be used to help the problem solver remember the details of the algorithm that are difficult to commit to memory.

Where the Book Materials Come From

Much of the material for this book was inspired by the thought leaders referenced. The original intent was to codify the insights of these thought leaders, but the exercise of codification ultimately led to the synthesis of other experimental processes. This is because codification required recognizing patterns of similarity of tools. Once this was achieved, the various tools were grouped with key decisions. Decisions require and create information which flows to the next decisions. Patterns and gaps became visible during this formative process. Experimental methods were inserted into the gaps. It is hoped that the reader will recognize that most “established” innovation processes are actually still experimental. The proof of these experimental methods is in whether they help the reader to identify new and feasible target market segments that would have been missed.

Definition of Industry, Market and Market Segment

Traditional methods of defining markets and market segments often begin with categorizing products and different demographic groups of people that might use their products. For instance people that buy flowers would traditionally be considered a market. This market might be segmented into men, women or teenagers that buy flowers. This method of identifying markets and market segments does little to help us identify underserved markets or market segments. For instance, the market segment of women includes both those who are well served and those that are blocked from buying flowers.

In this book, we are going to define markets and market segments differently. An industry will be defined as a group of jobs or tasks that are associated. The health care industry is identified with many jobs related to helping humans (and animals) improve their health. A market is defined as a job and job executors1 within an industry. People within this group may be using completely different products or services from each other depending upon the demographics and their various situations. A market segment will be defined as that group of people within the

1 Tony Ulwick—Why Your Idea is Worth Nothing, and How to Create Growth Plans that Work-online presentation 9/22/2011
TRIZ Power Tools

market that are hampered from performing the job by the same impediment. These definitions directly address the need to identify groups of underserved people who would be compelled to consider their product or service whether they are already consumers or are new consumers.

Going back to our example of buying flowers, the job might be to memorialize someone who has passed away, particularly in graveyards. The impediment is doing this job in climates that would damage flowers by wind, snow or frost. The market segment is those who are hampered due to living in difficult climates that destroy flowers in graveyards. Note that immediately, we have a problem to solve. The product or service that can overcome this problem will be desirable to this market segment.

The goal of this book

Now that we have talked about jobs, we note that this book concerns a job that inventors do. The job is to identify target market segments that we want to serve. The output is a target market segment that we will attempt to satisfy or even delight with new products or services. In the next book, we will determine the requirements of the product or service which will meet the needs of both the business and the target market segment. Our products and services will be designed specifically for the target market so that they will be most attractive to them.

Unfortunately, this step is often skipped by inventors. It is more typical to identify a problem and resolve it with a new product or service without identifying the target market segment. This is how many product development projects are started; with a solution in search of a market. This can result in a culture of selling what you can make rather than making what you can sell.

Given that products-in-search-of-markets is not the best approach, it is recognized that it is not unusual to come upon a “solution” before a target market segment is identified. This just happens as a part of life when people solve problems for themselves. Serendipitous discoveries can also occur and it would be unreasonable to expect innovators to ignore these discoveries simply because they have not identified a market. For this reason, a reverse approach is given to identifying target markets related to contrived solutions.

A warning is given that the more successful approaches usually come from identifying the target market and understanding what is keeping them from consuming before a solution is generated. This is because “solutions” should be directed toward a common goal. The target market wants to get a job done and we want to help them to get a job done. They want to consume and we want them to consume. In order to do this, we have to understand what is hindering them. This is the “solution” that we provide. When we provide the more common “solution” of a performance enhancement, we are only helping those who are hindered because of a performance problem. This may be a smaller market. Larger markets may have a different problem. For instance, cost, availability or convenience. Regardless of the approach to identifying a target market, this is an important step that we will build on in order to understand the product features that will be appreciated by this market. We need to know our audience first!

Markets are Composed of Consumers and Non-Consumers

As we have mentioned, a given market is a group of people that have a job-to-be-done. Some are able to perform the job though they may not be able to do it the way that they would like. Consumers consume because the means are provided for them to perform the job that they want to do in a way that is acceptable to them.

Non-consumers do not perform the job because of three reasons: they are unaware of the job; they are not converted to the importance of performing the job; or they are blocked from performing the job. One thing that blocks them is that there are no products or services available to facilitate the job. The industry does not yet recognize their needs.
We recognize that many non-consumers may never want to perform a given job so, with one exception that we will talk about later, we do not include these in our potential markets. We only include those that would consume once they were converted to performing the job.

The above chart does not do service to the inability of people to perform a job world-wide. The consumer section should be shown as a sliver when it comes to many jobs. How many in Africa or India have flown on a plane, taken a picture, used a computer, driven a car, or used GPS? If one believes that a market is saturated, all they need to do is to expand their view to the non-consumers of the world to see that we have barely scratched the surface of many markets.

One of the reasons that we make a distinction between consuming and non-consuming markets is because most marketing tools are designed around studying consuming markets. In order to understand a consuming market, we need to study those that own the product or use the service. Because they are consuming, we know who they are and that they are experienced with the existing products or services. They can be identified because they are owners of the product or users of the services. It is likely that they have developed opinions of products. In contrast, non-consumers are more difficult to study. Since they are not consuming we cannot identify them by their use of the product or service. They may not have strong opinions of what features they would like. They may have no idea of what is even available. Many are completely blocked from performing the function and consequently have put the option out of their minds.

**Sustaining and Growth Consumers**

Consuming markets can be divided into sustaining and growth consumers. Growth consumers come from non-consumers that have been freed to perform their job. Unfortunately, growth cannot last forever. Eventually, certain market segments become saturated within regions of the world and growth is limited. These segments transition to sustaining market segments within these regions. In sustaining market segments, the volume of product or service in use is held at a relatively constant level.

**Sustaining Markets**

An example of a sustaining segment is vitamins for adults in developed countries. The job-to-be-done is to provide needed nourishment that processed foods do not provide. The impediment to performing this is identifying the missing nutrients and then providing foods to supplement the diet. This process is time consuming. Vitamins “solve” this problem by providing low doses of nutrients so that a minimum daily level can be achieved. When a person in a developed country runs out of vitamins, they buy more thus replacing or “sustaining” the level of vitamins in the community. This market segment is saturated and no longer represents a growth market. Under these conditions, gaining market share or selling more expensive vitamins is the way that businesses try to grow revenue. Unfortunately, competition places severe limits on the ability to grow using either of these methods.

**Why Pursue Sustaining Market Segments?**

As mentioned earlier, pursuing sustaining markets is usually an easier pill for a business to swallow. Thus, attempts by internal or external innovators to produce products or services for consuming markets will likely be more welcomed. Companies need the large revenues from sustaining markets to satisfy financial stakeholders and to keep

---

2 Clayton Christensen – The Innovators Dilemma — Harper Business Essentials
TRIZ Power Tools

operations going. Without constant attention to sustaining markets, market share is lost, along with needed revenues. Innovation in sustaining markets allows the company to maintain high cash flow and can also provide the fuel for developing growth or non-consuming markets. If you are an innovator working on products for established sustaining markets, you are in the majority.

The reluctance of companies to go into new markets can also come as great news to those that want to license their ideas. The quest to develop products for licensing is most efficiently accomplished by identifying market segments which are already consuming in high amounts and then creating products for these markets. Prospective licensing companies are generally more interested in preserving or increasing shelf space than they are in going after new markets. They want to sell products that are similar to what they are making because it makes comparative shopping easier for customers. They also want to create these products with the minimum expenditure and changes to their manufacturing systems.

Disadvantages of Sustaining Market Segments

It is easy to convince ourselves that all sales represent growth. While established markets often bring the large revenues required to keep businesses operating, they do not provide needed growth which investors demand. Unfortunately, many established markets stop growing at an equilibrium point where customers are merely replacing expended products. This equilibrium is caused by retiring or consuming products at the same rate that they are bought. We retire the old car and buy a new car, thus the volume sold is sustained.

A second disadvantage is that sustaining market segments usually deal with fierce competition. Consequently growth is nearly impossible unless a large sustained competitive advantage can be mounted. While it is generally not a good idea to ignore sustaining market segments, it is also not a good idea to ignore growth. Businesses do not grow by serving sustaining market segments. The statement “We will grow by constantly delighting our customers” is usually hollow if your customers are mostly from sustaining market segments.

Growth Market Segments

Growth segments come from non-consuming segments which have finally been recognized by companies large enough to adequately facilitate the job. Growth consumers are usually a welcome addition to any company, however, they may be in competition for company resources with sustaining consumers that we have just talked about.

Growth market segments can be old or new. The potential of growth markets may not be fully tested as growth of new markets is always slow in the beginning and volumes are usually low. As a growth market matures, the pace of growth usually increases along with the volume. The current volume of a growth market has practical implications when it comes to business decisions around acquisitions of businesses or licensing new products or product improvements.

Why Pursue Growth Market Segments?

If new products introductions are not continually balanced with sustaining product introductions, a company will find itself in the situation of having high revenues and needing correspondingly high growth to satisfy investors. The growth that analysts require is “unexpected” growth, which outpaces the economy and, if possible, the industry. If revenues are high and growth markets have been neglected, then it is nearly impossible to re-ignite an unexpected growth increase. The required jump in sales volume is almost impossible. This is because growth markets begin

3 Stephen Key—One Simple Idea—McGraw Hill page 23 “Successful companies of all sizes know the importance of shelf space. They also know shelf space for “me too” products is extremely limited… So to secure shelf space for their products and to ensure continued shelf space for future products… companies strive to continually innovate… to always stay ahead of the competition.”
small. Consequently, it is imperative that the company have a constant crop of growth products in the pipeline to satisfy future growth requirements.

Some companies get around the need to produce organic growth by purchasing companies which are supporting growth markets. They wait until a separate business takes the risks of a non-consuming market and succeeds and then purchase the business. While it is possible to do this, care should be taken to determine whether the business model of the purchased company is integral to serving this growth market. Often, a business will assimilate another company and then insist that their own business model will be used. This is done in order to create economies of scale and to avoid the disruptive business models of the assimilated company. This can be disastrous since the customer impediments to performing the job may be related to the business model itself. Another problem that often arises is that the purchasing company insists that their supply chain will be used in order to achieve economy of scale. This can also be disastrous since it pits the needs of the growth customers against the needs of established customers. When growth and sustaining customers compete for resources, the sustaining customers usually win due to the high revenues that they represent.

A further advantage of growth segments is that they can be studied if they have been served for a sufficient time (since they own and operate the products and services that allow them to get their jobs done). They are not yet considered sustaining customers because the barriers to their consumption have been recently overcome and many non-consumers need to recognize the need for the job and be converted to its benefits. For this group of people, the reasons for non-consumption have been overcome. Non-consuming segments that realize that the restraints have been removed begin to consume. Growth income is enabled when the industry begins providing products and services that meet the needs of non-consuming segments. In essence, the business is trying to convert the non-consuming customers to their products or services. Growth is about getting non-consumers to begin consuming.

From the viewpoint of the company, anytime is a good time to nurture growth markets. Whether a company is growing rapidly or is seeing its sales stall or decline, it is necessary to constantly balance products for sustaining and growth markets. Ironically, the easiest time to add these products is while the company has strong revenue. This is because the resources are available and the company can afford to be patient for growth. However, the importance of nurturing growth markets may be obscured by the success of the business. When this occurs, it is difficult to concentrate resources on new ventures.

From the viewpoint of licensing your products or services, growth market segments can have high potential if the growth has been sustained for some period and competition between companies is fierce.

Disadvantages of Growth Markets

When a product or service is introduced to address a growth market segment, it often performs poorly with sustaining markets. Such products and services often have a performance problem that the established market will not overlook. Over time, the product that was originally designed for the non-consuming market gains the resources necessary to improve in ways that the established market appreciates. Eventually the performance begins to meet the needs of the original sustaining market and low-end customers begin to buy. Finally, the high-end market also accepts the new products. Now the product can command high margins. The products and services that do this are often referred to as “disruptive”, since they disrupt the status quo of the sustaining market, including all services and the entire product delivery process. They are also considered disruptive because the incumbent suppliers usually cannot disrupt their own businesses in order to catch up. For this reason, it is possible that products developed for growth markets will eventually cannibalize products for sustaining markets. This is probably not sufficient reason to avoid growth markets, but it should be taken into account.

If the growth market is not very old, it may be a poor place to license your products or services. It is usually necessary that any market ripe for licensing command a large amount of shelf space. If the growth is recent, then there may be
insufficient time to have developed any amount of shelf space. Also, there should be some competitors in the market or potential licensees may not feel the need to improve their products with your innovative improvements.

Why Pursue Non-Consumers?

The fact that a group of people are trying to perform the same job does not dictate that any product or service provider has an offering to help them in the way that they want. In fact, un-served markets abound. Serving non-consuming markets is a good approach to starting or growing a business. It avoids the complications of competition and actually has a higher likelihood of success than entering established markets or trying to usurp market share. Non-consuming markets are more forgiving. Since there is no competition, businesses can set the prices at level that correspond with the value that customers feel they are receiving. While initial margins are low, these margins increase rapidly as the business discovers the correct channels to reach potential customers.

Many readers are reading this book because they want to identify potential growth markets. We can generally equate non-consuming markets with potential growth markets. Studies indicate that the highest returns and the highest likelihood of startup success come from meeting the needs of non-consuming markets. It is easier and less risky to begin a new startup with a growth market than an existing market with significant competition.

A compelling reason to pursue non-consuming markets is that first movers are often in a position to continue the dominance for many years.

An example of a non-consuming market is parents who would like their children to clean their own clothes. The products and services available to do this are not simple enough for children. The job is washing clothes. The impediment is the complexity of performing the operation. The elderly and the handicapped share this same impediment and are therefore in the same market segment.

Another poorly served market segment is families desiring to travel by air. Few families can afford air travel for vacations. The job is moving the family to a vacation area. The impediment is the cost of travel. There are many people that share this impediment along with families. A further extension of this poorly served market segment is people in regions with poor economies.

Disadvantages of Non-Consuming Markets

One downside to pursuing non-consuming markets is that they are difficult to study. It is easy enough to identify non-consumers, but it is difficult to tell if they would consume given the barriers were removed. One approach to study these markets involves learning rather than execution. In this case, we reverse the normal strategy and establish what constitutes economic success. Working backwards, we determine the assumptions that must be proven to reach this success. What follows is a low cost learning and experimentation process to determine whether these assumptions are correct. This requires developing trial products or prototypes and testing them on potential customers. This takes time, but it allows for a higher probability of success.

In this book, we start the learning process with the assumption that a non-consuming market actually exists in sufficient numbers to make business with them profitable. Given the caveats that we have just discussed, we need to realize that the tools used in this step can help us to know where to look, but learning will be required to determine whether they actually exist.

It takes a lot of convincing to get a company to invest in non-consuming markets due to the disruptive nature of such changes. These changes include using different business models to satisfy the new markets, expenditures for new

---

4 Clayton Christensen—The Innovator’s Dilemma has statistics on the probability of success for products designed for non-consuming markets versus sustaining markets.

5 Clayton Christensen—Seeing What’s Next—HBS Press page 288
personnel and equipment. In short, while non-consuming markets are easy to please, they create a great hurdle for established businesses. Non-consumers may also demand to be served in ways that are different from your company’s current service or business model. This is quite disruptive to the business. In some cases, the company may need to start a new business to overcome the problems related to disrupting the current business model.

If your goal is to license your product or service ideas, growth markets are generally a poor choice. This is due to the high level of change that a business will have to undergo to serve these markets. Additionally, the new needs of these markets may not be obvious and difficult to explain to prospective licensees.  

Gift Givers

So far, we have assumed that market and market segments exist because people want to get a job done. Because a person purchases a product or service, does not mean that they necessarily want to perform the job themselves. Remember that gift giving represents the bulk of purchases for many products. For the purposes of this book we will assume that these people are purchasing the items because they have been prompted by the true consumers, although we know that this is not always true, especially in certain cultures and during certain celebrations.

Aligning the Business with the Customer

The goal of this book is to target a market segment so that we can later provide a product or service that satisfies this segment. The market segment is a group of people that are trying to get a job done (market) but are hampered or blocked. We want to provide a compelling product or service that helps overcome the barriers to getting their job done. In this way, the business aligns itself with its customers. The business provides a means for the customer to get a job done. Consumption is in the best interest of the business and its clients. The customer and the business have to be satisfied with the outcome.

Summary of the Market Discussion

It is generally not in the best interests of the innovator to be at odds with the business that you are trying to serve. It takes more effort than most innovators can muster to change the company culture at the same time that they are trying to create new products and services. Regardless of the markets which the business is willing to serve, there is usually sufficient work for the innovator.

Markets that appear to be hindered by existing service and business models will be the most disruptive to businesses with mature and inflexible business models. These particular markets will also be the least attractive to potential licensees due to the potential disruption. Licensees will also be reluctant to pursue very new growth markets.

On the other hand, new businesses should definitely avoid entrenched sustaining markets and potentially mature growth markets as the competition may be too difficult to overcome. The probability of success is much greater with new growth markets or non-consumers. As we shall discuss later, it is best to assume a posture of learning rather than execution when dealing with the uncertainty of non-consumers.

In summary, the markets that you choose to serve should reflect your goals. If your goal is quick success or licensing, then you should be considering established and hot market segments. If your goal is move a business into new and

---

6 Stephen Key—One Simple Idea—McGraw Hill page 58 “Just because an idea is clever doesn’t mean it will sell. If an idea is too much of a departure from other products in the market or if the technology is too new or complicated, you could invest a lot of your time and hard work for nothing—only to discover that no company wants to license it.” Page 71 “Companies don’t want to educate the market about a product or create a new market for a product. They’re like me: they like ideas that are simple to explain and easy to show its unique value.”
TRIZ Power Tools

If you are serving a sustaining market or a newly discovered growth market, be certain that you are clear on the market that you are serving. If this is the case, then you only need to be clear on what job this market is trying to accomplish, and the circumstances under which they are trying to do the job.

Working with Jobs and Functions

Throughout this book, we will be working with the concept of “Function” and “Job”, so it is important to understand the definition of these two terms as they are used in this book. Functions are shorthand for a process in which something gets modified. When we ask “What is the function of that object?” we generally want to know what it does. What something does usually means how it changes or controls something.

Jobs are actually a collection of functions that operate in the same way on a collection of objects. When I say that I am going to do yard work, this is a job which is different from household to household. I have in mind what changes I want to make. I want to trim the grass and some bushes. I want to collect debris and move soil around. I want to plant some plants and water them. All of these describe changes to objects, whether it is their height or position or existence. The entire collection of functions that are performed is a job. We will use this concept of job throughout the book.

Functional Nomenclature

A system is not what it looks like. A system is what it does. Functional language is a convenient and compact way to describe what a system does.

It is recognized that the proliferation of TRIZ terms is objectionable and makes it difficult for the new student to translate between different authors. Sometimes different terms are used to mean the same thing. In order for the reader to “translate” while reading this text, a consistent nomenclature will be established. It is hoped that this nomenclature will already be familiar to most readers.

A System is a collection of physical objects that deliver a primary function. Examples of a system might be a toaster or a car. Many different objects make up a system, and they all work together to deliver a function to the user which helps to perform a job or task. Objects in the system act upon each other. In function analysis, interactions between two objects are investigated one at a time. To the right is a generic function diagram of a single function showing its parts.

The physical element that is acted on will be referred to as the Product. (In other texts, it may be referred to as the object or artifact.) The object that acts on the Product is referred to as the Tool. What the tool does to the product will be referred to as the Modification. (In some texts, this is referred to as the Action). It is usually a verb. The use of the term “Modification” will be new to many readers; however it is used to stress the requirement that the action verb must describe a change or control of the attribute of the product. This is sometimes difficult for beginners to grasp.

Beginners are encouraged, to use a longhand form of the modification. The longhand form begins with “Changes” or “Controls.” For example, we can describe the action that occurs between a tool “liquid” and a product “thermometer” which is immersed in the liquid. The short

\[ \text{Liquid} \rightarrow \text{Heats} \rightarrow \text{Thermometer} \]

and the longhand form is

\[ \text{Liquid} \rightarrow \text{Changes the Temperature of} \rightarrow \text{Thermometer} \]
form of the modification is “heats” or “cools.” The longhand form of the modification would be “changes the temperature.”

The use of the term “modification” helps the beginner to understand that the tool and product must be physical elements. It also helps to correctly describe “confusing functions,” such as how paint protects wood. Beginners often write: Paint → Protects → Wood, which is incorrect. The real function of the paint is to act on things that can damage the wood such as moisture or insects. For example: Paint → Stops → Moisture.

**Systems of Functions can describe Jobs**

By linking together functions, we can create systems of functions that describe a situation. We might want to describe the super-system or job that our system is helping to do (the job). We might want to describe the system of functions between subsystem elements. In any case, when we start linking together functions, we will refer to this as a “function diagram”.

Let’s first depict the super-system (job) with a function diagram. The super-system is composed of the functions related to a job that someone is trying to do. It also contains a few elements usually found in the environment where the job takes place. Our system is one functional element of the super-system. A functional element performs a discrete useful function in the function diagram. Because our system is part of the super-system it performs select functions within the job. In rare cases, it may perform all of the functions of the job. One special element of the super-system is called the system product. Our system acts directly on this system product to modify it (shown here in yellow).

To the right is a function diagram for the job of cleaning clothes. We are looking at the job of cleaning clothes from the perspective of the super-system or job. All of the elements shown are elements of the super-system. The system elements are shown in red. The rest of the elements are other super-system elements. The dirt is the system product which is another super-system element. Here we color it yellow to illustrate the process and to keep it as the focus of the system. This is the system product that our system (the washer and the dryer) modifies.

Let’s pretend that we make clothes washers and dryers. We have design authority over both the washer and dryer and all of the components or subsystems of the washer and dryer. Because we control the water, and have full authority over it (we can even replace it if we would like) we also consider the water part of our system. While we can recommend the soap that is to be used, the amount and type that is used is not under our control so we consider this
to be a super-system element. Notice that the function of the dryer is to move water. If it had nothing to do with the clothes, it might more ideal because of the harmful functions that result whenever there is contact between the tool and the product.

The system product is the stuff that becomes attached to the clothes (stains, dirt, perspiration, etc which we will refer to as dirt for brevity). This may be a little confusing that our system is not actually designed to operate on clothes, but rather on the dirt and the water. Again, think of the job as what we hire a clothes washer to do. We don’t hire the washer to modify the clothes. Our washer should be called a “dirt mover” rather than a “clothes washer”. The dirt is also a part of the super-system. We don’t have control over where it comes from. While our job is to eliminate the dirt, we do not have authority over how much is present and how difficult it will be to remove.

In addition to the useful function of moving dirt, the water of our system also wrinkles the clothing (which is showed as a harmful function). In addition to the useful function of moving water, the dryer also wrinkles the clothes, which is a harmful function. The person who is involved in washing the clothes is involved in moving them and dispensing the soap.

Even though we call our system a clothes washer, the clothes are not the system product. The clothes have a harmful function of holding or supporting the dirt. If the clothes were doing their job properly, they would not hold the dirt! Because we have no control over the clothes, and they are not directly part of the washer, they are an element in the super-system.

The process of creating this diagram teaches us a lot about the job of cleaning clothes. Each element in the system carries its burdens. For instance, the clothes have the burden of holding the dirt. The water and dryer wrinkle the clothes. The person has the job of moving clothing and detergent about. So much could be done to simplify this system from the viewpoint of the person who needs to take care of the clothes. Unfortunately, this is covered in another book, “TRIZ Power Tools—Job #4 Simplifying.”
TRIZ Power Tools

L1-Where Will the Business Play?

The first step of discovering markets is to determine just how far the business will go in order to grow. New markets come in a variety of flavors and most businesses will find it difficult to pursue certain markets, even if these markets would normally be associated with the products that they already sell.

We could have used this step as a filter for potential markets, but it makes more sense to know where the business will play before we go too far down the path of a potential market. Also, when we get this step out of the way for one effort, what we learn can be applicable for several years.

One of the goals of this book is to help innovators develop more control over their innovation careers. This is more likely when we understand the forces and conflicts that drive business decisions related to product development. Many innovators do not understand these forces and conflicts, nor do they have sufficient control to do anything about them. This lack of understanding can lead to frustration and counterproductive behaviors. In this chapter, we explore some of these forces and conflicts.

The need to grow by discovering and exploiting new markets may seem obvious, but most large established companies struggle to ignite organic growth. Like innovators, business leaders often do not understand the forces which drive and disrupt growth. Consequently, the same management practices that helped to grow a business can be misapplied to oppose growth.

Just as innovators find that there are many dilemmas that influence the development of a product or process, businesses and product development managers also face dilemmas. Attempts to improve one aspect of the business may have serious side effects elsewhere. We know from TRIZ that it is possible to resolve conflicts, whether they be product or business related. But, one must be in a position to control the factors that create the conflict in order to resolve them.

The Resources, Processes and Values (RPV) Theory helps explain why company management act as they do:

--Why companies have difficulty dealing with disruptive threats and are ultimately unable to make necessary change until it is too late.

--Why innovators and inventors often find themselves swimming upstream with what they believe should be obviously great ideas.

--Why great ideas are often ignored or snuffed out before they have an opportunity to bloom and flourish.

--Why disruptive technologies are “crammed” into markets, why they don’t work there and are eventually abandoned.

7 Clayton Christensen—Seeing What’s Next—HBS Press page 279
While most business leaders recognize the need for innovation, resources are often prioritized to put innovation on the back burner. Innovators may see this as short-sighted, but managers and leaders feel that they are acting on common sense to the benefit of their company. How can this be?

Completely new businesses usually start with minimal resources and survival is in the balance. With scarce resources, the day-to-day activities of any one person can vary greatly. Leaders and managers often have to prioritize resources in ways that would appear chaotic to managers of large established companies.

Unlike established businesses, new businesses are excited over small sales with small margins. An incumbent firm would not look twice at such small margins and volumes. There are important reasons that ventures into new growth markets fail in large established organizations—they assume that the resources, processes and values of a large incumbent organization can be transferred to new businesses with new markets.

Likewise, those who have successfully started a small venture are often confused by the seeming lack of “common sense” displayed by incumbent firms when trying to launch products within well established companies. Innovators are bewildered and discouraged by decisions to delay or kill projects before they have a chance to flourish; decisions to divert resources from promising growth products; decisions to revert back to “classic” products and abandon newer technologies; decisions to fund incremental innovations over transformational technologies and decisions to streamline products back to their “core competency.”

The RPV theory states that as companies successfully tackle problems, they develop Values and Processes that prioritize their Resources in such a way as to successfully attack similar problems in the future. Resources include skills, people, technologies, facilities, equipment, vendor relations, distributor relationships, cash and intellectual property.

Processes include how products are developed and manufactured; how people are hired; how budgeting and planning is done and how intellectual property will be handled. Values include acceptable margins and sales volumes, importance of various customers and ethics. The RPV theory further states that these resources, processes and values define both the strengths and weaknesses of a company.

The figure to the right displays the growth of a company from infancy to incumbency. During the initial stages, (startup region) a small company must successfully tackle a different set of problems than an incumbent company (operating in the execution region). As these problems are solved, the processes and values become “common sense”. As the small company becomes more established, the problems that must be solved are different. “Standard processes” begin to replace the more hectic processes of the early startup that were necessary in order to learn what works.

As time progresses, the need for managers and leaders, who were capable of solving the problems of the startups, are no longer needed. An awkward stage ensues where the early managers may seem incapable of adapting to the newer world of standardized processes and values that are necessary for a company to become established and to grow the newly found market. An innovator can feel like a fish out of water. Thus we see that over the course of time, the resources, processes and values change until they are very different from the small startup organization.

While innovators see their own point of view, they find themselves increasingly frustrated by the “lack of vision or enlightenment” shown by company leaders and managers. However, given the same set of problems to solve, the
TRIZ Power Tools

innovator might buckle to the same pressures. Managers of incumbent companies face a set of dilemmas that are overwhelming when it comes to innovation:

1. High sales and high growth are required in order to satisfy investors. If a company has focused on the growth of existing products and markets and has not constantly reached out to new markets, then it finds that it is nearly impossible to generate instantaneous growth on already-high sales volumes. It is a deep hole to climb out of and few companies have done this successfully.

2. It is easy to forget that almost all products that eventually generated large growth in new markets, started very small. In established markets, small orders are insufficient to generate enthusiasm compared to the large orders of incumbent customers. Managers find it difficult to prioritize the scant resources so that the new growth product can survive. Under these conditions, people make decisions which seem in accordance with the best interests of the company, their best customers and themselves. One might say that the company is held hostage to these legacy customers. All values, organizational structures, reporting structures, management principles and resources are aligned to sustain them. Unfortunately, the very act of satisfying legacy customers drives against growth. Innovators, who try to satisfy new customers, will find that they cannot compete with the needs of entrenched customers. Resources will always be drawn away, and little excitement will be generated by the small orders of new products.

3. Because incumbent companies need high growth numbers, they will eventually start massive programs to launch new products into new markets. Because they are spending large amounts of money, they cannot afford to be patient for long. In this climate, they tend to make assumptions about non-consumers that are usually incorrect. When the growth does not materialize, they cut the project and return to their “core competency” further entrenching themselves. Innovation has a black eye and must take a back seat. In this sour climate, it is very difficult for innovators to introduce new products.

4. Most marketing tools are developed around understanding the needs of a consuming market. Marketing tools for non-consuming markets are not well understood. For this reason, it is often more productive to use a learning approach to develop products for new markets. This approach is the reverse of the more traditional approach, which assumes that much is known about the market. Instead, the assumptions required for success are put forth and then the organization tries to determine whether these assumptions are correct.

5. Over time, most incumbents have been successful at increasing margins as they push up-market to increasingly demanding customers that are capable of paying the higher margins in order to solve their more demanding problems. Unfortunately, margins generally start small for new markets. This is especially true as non-consuming markets must become educated to the advantages of these new products or services. Companies in well established markets generally cannot reprioritize their resources and processes to accept small margins on small sales volumes.

In summary of the RPV Theory, it is a sad note that these forces are nearly inescapable for companies in established markets.

The Motivation-Ability Framework Theory\(^8\) helps to explain how non-market factors affect the ability of companies to innovate. The theory holds that if either motivation or ability is stifled, innovation is not likely to flourish. Non-market forces generally strive to increase innovation, but may inadvertently have a negative effect on either motivation or ability.

\(^8\) Clayton Christensen—Seeing What’s Next—HBS Press page 289
In summary, when we know where the business is willing to play and the forces that drive these decisions, innovators can be more adaptive. It is then possible to steer clear of markets that the business cannot or will not support.

Is the Business Willing to Expand Core Resources?

Core resources are the company brands, current customer accounts, technologies, capitol assets and human assets. These are the assets most commonly recognized when companies are bought and sold. Processes and values often come with the deal, but they are not often recognized or valued as much.

It is important to understand the dilemma that companies face as they grow. As companies mature, resources go through growth, stabilization and retraction. When the economy is poor, a company may feel the need to reduce certain resources in order to survive. When times are good, the company may need to expand resources in order to stabilize processes or grow. Of the resources named above, the only resource which is not usually a target for reduction is the brand. Many companies are reluctant to reduce the technologies. This can happen when human assets are reduced. Consequently, most companies tend to hold on to key people during difficult economic times.

Because resources go through phases of growth, the timing for new ideas can be critical. Most new product or service ideas require changes to resources, processes and values. Sometimes it is better to hold off on an idea until the resources to make that idea work are more available. Innovators need to be conscious of the availability of resources and patient for their return. Much work can be done in the background in preparation for the time that they do return.

Is the Business Willing to Expand Core Processes?

Core processes will be defined as the processes which are brought to bear to solve the typical problems that arise and must be solved over and over. These problems are usually related to critical customer needs.

Consider a situation where the conditions under which an industry’s products must operate are very harsh. No products, from any company in this industry, are able to survive these harsh conditions for long. The entire industry suffers from poor reliability in the eyes of the most demanding customers. One of the competitors decides to become the leader in reliability. They realize that the most demanding customers are also the highest paying. In order to increase the reliability, the company nurtures and develops the problem solvers with excellent problem solving abilities. As the problem solvers improve their skills and tools, each solution improves the product reliability enough to move ahead of the competition in the eyes of these very demanding customers. The value that this reliability brings to these customers easily justifies large price increases which enable high margins. This company becomes known for pricey but reliable products.

Without realizing it, a culture is being created. It is built on the core processes which allow them to meet the high reliability demands of the customer and around the high margins that this reliability enables. The problem solving processes and expectation of high margins becomes entrenched. The problem solving process is a core process and the expectation of high margins is a core value.

In addition, other core processes are developed which allow the company to deal well with these demanding customers. One of the most important is the business model which allows the company to handle the daily financial and business interactions. Large customers or customer segments can demand changes to these business processes. The business model becomes wrapped around the way that the big customers want to do business. Due to the inflexible transactions systems, any changes to a business model are made slowly and carefully. Large changes are seen as highly disruptive.

The inflexibility of the business model can be highly annoying to innovators who see the company as being inflexible in going after new markets. They often do not see the dilemma that this causes. The missing information for most innovators is that new markets generally require new business models which can allow the company to interact with these new customers in the way that they prefer.
While the company would like to grow, it cannot disrupt its business model without distracting itself from its primary customers. Since new growth opportunities grow slowly, the immediate gains do not justify the large disruptions to important customers. Managers see themselves as keeping the business going while innovators often see this as unenlightened or short sighted.

Innovators need to keep in mind that these dilemmas represent difficult unresolved business contradictions. Any business that can gracefully resolve these difficult contradictions has a promising and profitable future. Business models must be changed to grow and they must not be changed in order to meet the needs of important customers.

For those not familiar with resolving contradictions, please refer to TRIZ Power Tools Job 5 Resolving Problems. There are ways to resolve this important contradiction and known solutions, but the business must see this as an important problem and devote the necessary resources. In the event that the business is not willing to change core processes, the innovator should know this and either be reconciled to going with the flow or devoting a lot of time to resolving this important business contradiction.

Is the Business Willing to Expand Core Values?

When businesses begin, the core values of the business are reflections of the principals who start the business. Due to the low margins and low volumes of startup businesses, it is usually necessary to tolerate these conditions for some time. As the business grows and processes become more efficient, the margins begin to increase. The company begins to expect these larger margins. It becomes more and more difficult to go back to the margins of the early days which were necessary for new products and services. Business leaders assume that the business can use “proven” processes which resulted in the margins which they have come to expect. Unfortunately, new markets require new business models with their attendant reconnections of interactions. Many processes need to change as a new business model is formed.

Because an incumbent business has been successful with one market, the assumption is that resources, processes and values can be transferred to the new markets. These resources, processes and values represent strengths in the incumbent markets but represent disabilities in the new growth markets. This is because new resources, processes and values are required to serve the new markets.

The success in the incumbent markets leads to the assumption that they have the secret sauce and this recipe works everywhere. A culture is created, of religious proportions. Changing company values is like converting to a new religion, especially if these values were necessary to create success in the incumbent markets.

In this section, we will investigate some of the most difficult values to change.

### L1-Method

**Step 1:** Identify and contact the key decision makers and ask the following questions:

- **Step 2:** Is the business willing to expand its brand?
- **Step 3:** Is the business willing to expand to new customers?
- **Step 4:** Is the business willing to expand its service or delivery model
- **Step 5:** Is the business willing to expand capital and human assets?
- **Step 6:** Is the business willing to change the business model or consider separate businesses?
- **Step 7:** Is the business willing to expand the providers in its value chain?
- **Step 8:** Is the business willing to consider new margin thresholds?
L2-Is the Sandbox Known?

Do you already know where the business is willing to play? If the answer is “yes” go to the next chapter. (But don’t be too quick to make this judgment)

A lot of time, effort, money and hopes are often wasted on a cavalier answer to this question. It is very easy to put your heart and soul into a new product or service only to discover that you were doomed before you began.

The decision to swim against the flow is a decision to fight or even change the culture of the company. Unless you are dealing with a small company, the decision to change the culture usually comes from the top. (Even if the battle is won at the top, it can take years to trickle down to the lower levels of a large company). Struggling from the bottom to change the culture of a company is a full-time battle which will compete for your time to create new products and services. It is difficult enough to get acceptance for ideas that fit within the existing culture without adding a new layer of problems. It may be hard to admit that your business is not enlightened enough to move into new growth areas. It may be hard to admit that you feel trapped in a company that is only willing to look at new products and services that do not expand the core resources, processes and values of your company. Seeing the raw truth in the light of day, no matter how ugly, is always better than operating on false premises. If the truth is unacceptable, you may want to consider looking for employment elsewhere.

On the other hand, you may find that there is ample room for creativity within known markets. In the next section on discovering markets, we will see that there are many customers within the existing customer base that are not consuming. These customers are often within the scope of incumbent companies and represent large growth opportunities. Take heart, there may be some fun left.

It may be tempting to rely on the support of a few key individuals that seem to like your ideas. Unfortunately a critical mass is required to make a new product or service work. Many “key” people must give willing support for each phase of the development and deployment of a new product or service. Consequently, it is necessary to test the waters up and down the chain of command and in the various areas where your product or service will reside. Difficulties will arise and support and vision is required to make it through each difficulty. Remember that there is no guarantee that these key people will be around to protect your ideas, especially if the product development cycle is several years.

The knowledge of where the business will play will affect all ideas that follow. Standing on firm ground can save you from a lot of frustration.

Method

*Do you already know where the business is willing to play? If so then go to the next Level 1 step.*

L2-Identify Key Decision Makers

The decision to expand into new markets or new market segments is an important decision because it can be disruptive to the company. Consequently, it takes a strong hand to make and keep the decision to move into new markets. It does little good to get commitments from people who only influence the decision makers. Remember, you are about to embark on a long journey that will consume valuable resources, including your time. You want the highest probability of success possible. It is important that key decision makers make the firm commitment to pursue the chosen markets.
TRIZ Power Tools

Method

Step 1: Identify Key Decision makers. Sometimes there needs to be a consensus between several people. Ask “is there someone else that will need to approve this given you are satisfied with our agreed-upon conditions for satisfaction?

Step 2: Determine the answers to the following questions.

L2-(Resources) Willing to Expand the Brand?

A company’s brand is a reminder to consumers of what jobs they help facilitate. It is a beacon that attracts customers. This beacon is spread by word-of-mouth in almost any venue. A good brand with a good reputation is one of the most important resources that a company has. When asked what a business’s brand means to its customers, many people will respond by explaining the products that are associated with the business. “They (or we) make toasters or jet engines or bridges.” Unfortunately, this does not fully encompass what a brand represents. Potential customers do not think in terms of products, but rather in terms of the jobs or tasks that they are trying to get done. They see products and services as necessary to perform the functions of the job. When I want to have a bridge located in a certain place, I ask “who can provide the most resources and know-how to get this job done”? Company brands will come to mind. In this book, we will define a brand as a “representative” or “proxy” for a collection of customer jobs that the business is known for. Ask yourself, what jobs does my company help people to do? The brand is the proxy for these jobs.

Startup companies may not have had time to develop a well known brand. On the other hand, they have more freedom in determining what they will be known for. Unfortunately, not having a brand in the first place slows down the customers from coming to them. The jobs that startups facilitate will establish their names and logos over time.

Incumbent companies may have an established brand that their current customers recognize and trust. Changing what a company is known for can be tricky business, especially if their brand is widely known for facilitating certain jobs. Even if the company takes on new jobs, the existing customers will continue to associate the brand with the jobs that they have historically been known for. On the other hand, new customers will not associate them with new unrelated jobs. Their problem is now similar to the branding problem of a startup company. “How can I help potential customers see our company in a new light”?

There are two approaches to changing what a company is known for. The first approach is to change the jobs that you help people do. A major change in the jobs will often necessitate a change to the brand name. This change will indicate to customers that the jobs have been greatly expanded or changed entirely. For example GE Financial Services is a brand associating a new job with a well-known brand which was not known for financial services. Notice that “Financial Services” was added to indicate a change in jobs. This method of rebranding is becoming more common. It does not draw people to the company, but rather helps people understand the new capabilities after they have somehow discovered the new brand. Once they understand the change, the new brand becomes a proxy for the new jobs.

A more gentle approach is to think in terms of expanding an existing brand. Can we create an expanded view of the jobs that the company’s products or services help people to do? We do this by creating a more general view of the jobs that we already help people to do and then expand the processes and products into this new generalized space. If my company is Fram, then we are known for products such as air filters and spark plugs. More specifically, Fram is known for the specific jobs of changing air filters and spark plugs. A more general view is “automotive maintenance”.

Where will the Business Play
TRIZ Power Tools

Were Fram to expand into rust control, this would be a natural expansion into the new space that “automotive maintenance” opens up. The good name of Fram and its high quality filters and spark plugs would be easily associated with excellent rust inhibitors. All of these products could be found at auto parts outlets.

Expanding the brand takes a little abstraction involving the functions that your products or services provide. Functions are like mini jobs. Many functions come together to help a job get done. Following is an approach for identifying a more general or expanded brand.

Method

Step 1: What specific brands do you have?
Step 2: Related to each brand, what functions do your products or services provide?
Step 3: What customer jobs are these functions related to?
Step 4: What higher level jobs are these jobs a part of?
Step 5: With these lower and higher level jobs in mind, brainstorm to find a more general job that your brand could be associated with. This is the expanded job which new products and services can grow into.

Step 6: Are company executives willing to identify with this more expanded brand?
Step 7: Is the company willing to expand to completely unrelated jobs? If this is the case then consider changing the brand in a way that associates it with the new job. (GE Financial Services is an example of this).

Step 8: Would the key decision makers be excited about expanding the brand, and to what level?

L2-(Resources) Willing to Expand to New Customers?

The customers represent hard fought victories over many years. Startup companies may have few customers and are usually willing to expand as rapidly as possible. Incumbent companies are usually willing to take on more customers, but this is depending upon the type of business that you are in. In some businesses, resources may have to be committed for each new customer. For instance, customer and field representatives may be required at each customer site. There may be expenses attached to each representative. Any expansion of customers will then require an expansion of these related resources. In other words, the ability to add customers may depend upon the availability of money and sometimes upon the availability of select talent.
TRIZ Power Tools

Method

Step 1: Make a list of your customers. If this list is too long then identify a profile of your most common customers.

Step 2: Does your company have to make investments in each new customer?

Step 3: Is the timing right? Are there financial and human resources available to expand to new customers?

Step 4: Would the key decision makers be excited about expanding to new customers and to what level?

Step 5: Is management willing to invest resources to truly understand their customers, face to face and understand their environment?

L2-(Resources) Willing to Expand Technologies?

We will define a technology as a function that our products or services provide under certain demanding conditions. Let’s work backward with an example to see what we mean. Let’s look at a Company that provides waterproof watches. The function is to inform users of time. The demanding conditions are at great depths of water. The ability to perform this function under these demanding conditions has come at a cost. In order to deliver functions under demanding conditions, many problems must be solved and lessons learned. This learning has cost something and the company may own intellectual property which supports these technologies. The technologies are also closely tied to the processes which created the technologies. Changing the technologies in any way often requires more learning and the capitol and human assets which go along with that learning.

Method

Step 1: Identify functions that your products and services deliver

Step 2: Identify conditions under which these functions are performed. The functions and conditions define the technology.

Step 3: Is your company willing to expand technologies to perform new functions or to expand the conditions under which these functions are performed?

Step 4: Would the key decision makers be excited about expanding the technologies, and to what level?
L2-(Resources) Willing to Expand or Change the Service or Delivery Model?

It is also possible to develop other “technologies” without developing new products. Some companies have made the jump from new products to new services that make the products more convenient to the customer. Other companies have developed new delivery methods that bring the product to the customer inexpensively or conveniently. The natural evolution is from products to services to delivery of the products.

**Method**

*Step1: Would the key decision makers be excited about expanding the service and delivery model, and to what level?*

L2-(Resources) Willing to Expand Capital Assets?

Capital assets includes factories, equipment, office space, land, etc. which the company has had to purchase along the way. The ability to expand capital assets is usually a function of how the company is doing financially which depends on timing. Appropriateness of timing depends on whether the company is in a financial position to expand.

**Method**

*Is your company in a financial position to expand capital assets?*

L2-(Resources) Willing to Expand Human Assets?

Human assets are employees who have acquired skills and knowledge relative to the products and processes of the company. Human assets are increasingly regarded as a company’s most important assets. People develop customer relationships. People are the main reservoirs of the company’s technologies. In short, changing a company’s resources is bound up in human assets. The company may not own these assets as they may be consultants or temporary employees.

**Method**

*Is your company in a financial position to expand human assets?*
L2-(Processes) Willing to Change Core Processes?

As mentioned, core processes will be defined as the processes which are applied to solve the typical problems that arise and must be solved over and over. The resulting culture becomes proficient at solving these problems which is a core strength.

However, when we identify strength, we also identify a great weakness for the strength will ultimately be applied to the wrong situation.

A simple example will illustrate the dual nature of processes where strengths become weaknesses. We have two primitive people; one has become quite expert at tool making. He surveys every situation and takes from the natural resources precisely those elements which can be restructured to make the perfect tool. This might take a week or so, but when he is finished, the tool works perfectly and the rest of the primitive clan is very impressed. The second person is not very patient when it comes to making tools. Her attempts are clumsy and she tends to pick the most obvious things and then use them in a clumsy manner. She gives up easily and goes back to what she knows which is usually very inefficient. The clan is never impressed with her efforts. The two are walking along one day and come across a large mother bear and its cub. The mother bear becomes defensive and begins an attack. The first stops to analyze the situation. The second runs as fast as possible. The strength of the first, when misapplied, has become a weakness.

Ironically, if you identify a company’s weakness, it is also likely that you will be identifying its strength when applied to other areas.

**Method**

*Step 1:* What are typical problems that your company has had to face and solve? What types of problems have you solved over and over?

*Step 2:* These problems and solutions denote the company’s strengths. Using the types of problems that your company is good at solving, what might the strengths be?

*Step 3:* What processes have been built around these strengths?

*Step 4:* It is likely that these processes have stabilized and become somewhat inflexible. Strong core process can become weaknesses if they cannot handle new threats or business opportunities. In what situations will the company’s strengths be its weakness?

*Step 5:* Identify obvious company weaknesses. In what situations are these weaknesses considered strengths?

*Step 6:* Is the organization willing to go through the agony of changing core processes?

L2-(Processes) Willing to Expand or Change its Business Model?

As mentioned, one area of core processes is the business model which allows the company to handle the daily financial and business interactions between companies or between the business and its customers. As certain customers become
more important, they demand that business be conducted in certain ways. The business model is built around how these customers want to interact and what the business will allow. Additionally, patterns of interactions are internally developed, in which departments and individuals exchange with each other in predictable ways. Any changes to this business model become disruptive as the financial and business systems become more rigid.

Since it nearly impossible to change a business model to accommodate new customers, the option left is to slightly change or expand the model. Even then, this is one of the most disruptive changes that a business can make.

**Method**

*Step 1:* Identify the business model. How do you Make Money? What are the Revenue Generating Mechanisms? How are the exchanges made with customers?

*Step 2:* If your company is small, they may be more flexible in this area. Are you willing to consider expanding the business model? How?

*Step 3:* Would the key decision makers be excited about expanding or changing the business model, and to what level?

**L2-(Processes) Willing to Consider Separate Businesses?**

Attempts to pursue completely new or unrelated markets are very disruptive to businesses. The likelihood of achieving success with new markets is greatest if these products and services are developed by independent organizations that are given the resources, incentives, leadership and process knowledge that allow them to be independent.

The new business may be in competition with the old, but this is often necessary in order to capture new business opportunities.

Internal innovators may be successful with new growth markets if they can convince management to spin off ventures armed with the right resources, processes and values. This includes:

--Management that is not steeped in the RPVs of the incumbent company, but has had success at starting spinoffs and has successfully solved these types of problems before.

--Venture money that is patient for growth but demands profit early⁹. Growth is always slow in the initial stages. The supporting company should understand this. However, you will not change the tendency of the parent company to re-entrench if the venture is not profitable within a reasonable period of time (usually undisclosed). Managers of spin-offs should understand this and work diligently to show a profit as soon as possible. This forces the spin-off to do beneficial things that it otherwise would not. For the forgoing reasons, the funding should not be massive, but support a “learning organization”.

--Make the spin-off a “learning organization” capable of establishing assumptions for financial and market success and then systematically testing and refining these assumptions.

---

⁹ Clayton Christensen—The Innovators Dilemma—HBS Press
TRIZ Power Tools

--Giving a spinoff power over its own destiny will be allowing it to control its own resources. While the resources need not be large, they must be dependable.

--Allow for low margins in the initial stages, with the understanding that market leaders of successful new markets often enjoy high margins as the market transforms into a new sustaining market.

--Learning and teaching employees of spinoffs the processes of innovation which are compatible with the environment that spinoffs face.

Schools of Experience Theory\textsuperscript{10}

Managers are more likely to be successful when confronting problems that they have confronted in the past. This particularly true if they learn from past mistakes. Managers who are eventually successful will produce the most reliable success in the future. Note that some degree of failure is actually healthy. Knowing the pitfalls can be invaluable. Companies that match problems with managers that have both failed and succeeded with these problems will likely have the greatest success. Rather than shunning those who have failed, we should value those failures if they have learned. Successful managers are made rather than born.

Emergent Strategy Theory\textsuperscript{11}

Deliberate strategies develop plans based on “known” assumptions. Deliberate strategies work in more certain environments. Emergent strategies are more flexible and therefore much better in highly uncertain situations. One way to develop an emergent strategy is to use “discovery-driven” planning. This process is the reverse of “Platform-Based” planning. In discovery driven planning, projections are made. The projections must be attractive enough to motivate stakeholders. Next, the assumptions are developed which must be necessary for the projections to occur. Next, a plan is put forth to continuously test these assumptions. As assumptions fail or are proven true, the projections and assumptions are changed. Eventually a successful strategy emerges.

Method

\textit{Step 1:} Is your company in a learning or execution mode?

\textit{Step 2:} Are your company’s processes well defined or still in flux?

\textit{Step 3:} Is your company actively promoting new businesses? If so, how successful has the company been at nurturing these businesses?

\textit{Step 4:} Is your company willing to consider separate businesses and entrepreneurial leadership for new markets?

\textit{Step 5:} Is your company willing to consider starting new businesses which might be required for new markets, products or services?

\textit{Step 6:} If your company is willing to engage with new customers, are they seeking to enter established markets? (If this is the case, discourage this or do not get involved. Entering an established market has major disadvantages and the rate of failure is very high. It requires higher intellectual capital. You will begin with low brand awareness and customer loyalty.)

\textsuperscript{10} Clayton Christensen—Seeing What’s Next—HBS Press page 286

\textsuperscript{11} Clayton Christensen—Seeing What’s Next—HBS Press page 287
Step 8: Would the key decision makers be excited about creating new businesses, and to what level?

L2-(Processes) Willing to Expand the Value Chain?

One of the most disastrous assumptions of incumbent businesses is that growth businesses should be able to exist within the incumbent value chain. This assumption leads the business to assume that suppliers who have grown up with the business can provide any type of component or service that the business needs. The rationale is that economies of scale will make up for any deficiencies.

Unfortunately, as businesses race up-market to capture higher and higher margins, their suppliers also join the pursuit of higher margins. New growth markets usually require lower prices than the value chain can accommodate. Consequently, the needs of growth markets can rarely be met with the existing value chain.

Forward looking businesses can, however, expand their base of suppliers to meet these needs. This is a difficult decision for most incumbent businesses which are more interested in reducing their number of suppliers. This step is a long shot, but should be investigated if a business is determined to enter growth markets.

**Method**

**Step 1:** Determine the structure of the Value Chain

**Step 2:** What are the capabilities of your suppliers?

**Step 3:** Are Third-Party vendors required to boost the value of your products?

**Step 4:** Is the business willing to expand the value chain?

**Step 5:** Is the business willing to begin a completely new value chain if new products or services are too disruptive to the existing value chain

**Step 6:** Would the key decision makers be excited about expanding the value chain, and to what level?

L2-(Values) What are the Stated Values of Your Company?

There are both stated and unstated values of a company. The stated values may be written in plain sight and employees are not aware of them. These written values may not reflect those of the innovator so it is good to investigate these stated values. The values that the business is built on will determine actions, principles and policies. In this step we will examine the stated values of the company.

**Method**

**Step 1:** What are the stated objectives of your company? Look for this in company or stockholder literature. If the company is publicly traded, the stated objectives are usually
related to enriching stockholders. If the company is private or non-profit, it may have other stated values.

**Step 2:** Who are considered to be the main stakeholders?

**Step 3:** What does the stock prospectus say are the objectives of the company?

**Step 4:** What are the stated behaviors that the company is looking for?

**Step 5:** Is the business willing to expand or change the stated values to enter into new markets? Consider becoming leaders in these values:

- Sustainability
- Environmental Friendliness
- Human or Animal Rights
- Humanitarian Efforts
- Labor Conditions
- Labor Stability

**L2-(Values) What are the Unstated Values of Your Company?**

The company does not exist without its principal stakeholders. These stakeholders are people with many *unstated* values. Each has their own reasons for staying with the business and these reasons drive the company. Especially important to innovators, is the unstated values which are the basis for prioritizing new products and innovations.

**Method**

**Step 1:** Is the company focused on satisfying the same customers? Does it allow for reaching out to new customers? Are many growth products in the pipeline? Is it difficult to prioritize critical resources for new growth products?

**Step 2:** Is the company being held hostage by its most important customers? Do critical resources go to important customers, thus making it hard to prioritize growth products? If so, an unstated value of the company is the satisfaction of its major customers.

**Step 3:** In order to understand other unstated values, look for the causes of the output to step 1. Work with business leaders to understand the chain of causes back to important unstated values.

**L2-(Values) Willing to Consider New Margin Thresholds?**

The margin threshold is a very powerful value that is rarely challenged or mentioned. Unfortunately, it can have a very limiting effect on the innovative nature of the company. Over the course of time, companies migrate “up market” looking for higher and higher margins. Eventually, the company can no longer accept new products which promise
lower margins, no matter the volume. This margin threshold is often mentioned when it comes to investing in new business opportunities. It gives a good indication of the business model and what it is not willing to take on. Growth products and services usually require lower margins in order to survive. If the business is not willing to tolerate low thresholds, this is usually bad news for growth products. On the other hand, the margin is determined by the manufacturing cost of the new product. A high margin means that the costs must be lower. This creates a higher innovation threshold for new offerings.

Method

Step 1: What is the margin threshold for new products?

Step 2: Is your company willing to consider reducing the threshold margins in considering new markets? It is usually necessary to live with low margins in the early stages.

L2-Clarify the Conditions of Satisfaction

What we have just done is to arm ourselves with the information that we need to define conditions of satisfaction for the key decision maker. We have identified the bounds that must not be crossed which are the minimum threshold for satisfaction. Also, we have identified what would truly excite the business. What we want to do now is to make it crystal clear to all parties what the conditions of satisfaction are.

Remember that it is essential that firm commitments are made and kept in order to expand the markets that you serve. (Even with a firm commitment, there is no guarantee that the key decision maker will remain in their position of authority long enough to see the whole process through).

Method

Given the answers of the foregoing steps, determine the conditions of satisfaction for the key decision makers.

L2-Commitment from Key Decision Makers

Again, remember that it is essential that firm commitments are made and kept in order to expand the markets that you serve. Even with a firm commitment, there is no guarantee that the key decision maker will remain in their position of authority long enough to see the whole process through.

The key question that the key decision makers must answer to your satisfaction is: “What will you do if we meet all of your conditions of satisfaction? If the answer to this is “We will think about it and get back to you” then the probability of making the deal work is quite low. What you are looking for is a go-forward response such as “We will fully engage and make the proposition work”. The natural outcome of the satisfaction of key stakeholders is the movement forward. There may be reasons that you cannot get the response that you want.

No interest in working with you in the beginning.
No real agreement on the conditions of satisfaction (you did not hit the threshold for satisfaction). You will know it when you describe it because there will be marked enthusiasm.

The organization is not capable of taking on new work, no matter how enticing it is.

If the answer is number 2 then there is room for further negotiation. The prize needs to be increased in some way. “What would it take to make you truly excited about a new product or service that we have not already discussed?”

**Method**

*Step 1:  Ask “If we meet these conditions of satisfaction, what will you do?*

*Step 2:  If the answer is “we will definitely move forward” then you can move forward.*

*Step 3:  If the answer is anything else, then go back and determine the conditions of satisfaction that must be met.*
L1-Identify the Industry or Brand

The Path to Identify the Market Segment that you want to Serve

The way that we will reach this goal is to manage a decision process for identifying the target market segment. Here is a preview of the decision path:

Choose an industry or brand (Grouping of Associated Jobs) ➔ Choose a Market (Job-to-be-Done + Job Executor) ➔ Choose a Market Segment that we want to serve (customers have approximately the same requirements for a job well done and the same hindrance to performing the job).

Each step is a decision that must be managed. If it is not a decision, then we are subject to the assumptions that take the place of the decision. We either unconsciously assume or consciously manage. Each decision can branch in different directions as we exercise our options. There may be reasons that we can identify for taking a given path. We would like to make informed decisions so that we manage where we are going and know some of the possible consequences for each path. It is hoped that the reader will appreciate the natural flow of information that occurs from each of the above decision steps.

Identifying Industries (or the brand)

We have defined a market as a group of people who are trying to perform a job (Job + Job Executor). Industries or Brands can be identified by the associated jobs that businesses within that industry or brand help the customer to do.

For instance, there are many jobs that people do within the healthcare industry. People provide intervention in case of severe injury. People medicate themselves to reduce symptoms of chronic illnesses. People become cured of ailments. This is very different from the entertainment industry which focuses on the job of amusing people. The industry is tightly coupled to the general group of jobs that it helps people to do.

A brand is an association of a company name or logo with jobs that the company helps people to do. We can think of a brand as a mini industry or a subset of an industry.

There are many possible motivations for picking a given industry or brand. For instance, you may work for a company that is part of a certain industry and you are tasked to identify products and services that the company can sell. Or, you might be interested in licensing products to established businesses and it makes sense to work in industries that you are more familiar with. You may have reasons to identify with a job within an industry. For instance, you work for a specific product or service line in the company, or your personal hobbies pertain to a particular job. Knowing this, we can work backwards from the job to the industry.
TRIZ Power Tools

Creating a Brand?
The creation of a brand occurs with the decision of the jobs that the products or services will facilitate. When a company begins and starts facilitating jobs, the types of jobs that are facilitated determine the brand in the mind of the consumers.

**L1-Method**

*Step 1: Pick an industry or brand that interests you.*

**Typical Industry Classifications**

<table>
<thead>
<tr>
<th>Industry Classification</th>
<th>Industry Classification</th>
<th>Industry Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising</td>
<td>Information Technology</td>
<td>Real Estate</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Leisure</td>
<td>Rental and Leasing</td>
</tr>
<tr>
<td>Animation</td>
<td>Manufactured Goods</td>
<td>Service</td>
</tr>
<tr>
<td>Celebrity</td>
<td>Machinery, Electronics,</td>
<td>Shipping</td>
</tr>
<tr>
<td>Chemical</td>
<td>Computers, Etc</td>
<td>Software</td>
</tr>
<tr>
<td>Construction</td>
<td>Marketing Research</td>
<td>Space</td>
</tr>
<tr>
<td>Cosmetics</td>
<td>Media</td>
<td>Stock Market</td>
</tr>
<tr>
<td>Death</td>
<td>Metalworking</td>
<td>Scientific Service</td>
</tr>
<tr>
<td>Education</td>
<td>Military</td>
<td>Publishing, Broadcast, Internet</td>
</tr>
<tr>
<td>Energy</td>
<td>Mining</td>
<td>Retail</td>
</tr>
<tr>
<td>Farming</td>
<td>Music</td>
<td>Telecommunication</td>
</tr>
<tr>
<td>Financial Services</td>
<td>Non-Profit</td>
<td>Textiles</td>
</tr>
<tr>
<td>Fishing &amp; Hunting</td>
<td>Packaging</td>
<td>Timber</td>
</tr>
<tr>
<td>Food</td>
<td>Personal Care</td>
<td>Toys</td>
</tr>
<tr>
<td>Fur</td>
<td>Petroleum</td>
<td>Transportation</td>
</tr>
<tr>
<td>Garment</td>
<td>Pharmaceutical</td>
<td>Transport</td>
</tr>
<tr>
<td>Government</td>
<td>Plastics</td>
<td>Utilities</td>
</tr>
<tr>
<td>Health care</td>
<td>Professional Sports</td>
<td>Video Game</td>
</tr>
<tr>
<td>Hospitality, event management</td>
<td>Publishing</td>
<td>Warehousing</td>
</tr>
<tr>
<td>Human Resources</td>
<td>Pulp and Paper</td>
<td>Water</td>
</tr>
<tr>
<td></td>
<td>Public Administration</td>
<td></td>
</tr>
</tbody>
</table>

*Step 2: If you are not certain then work backward by asking: “What jobs does the business help their customers do?” What industry or brand is represented by these jobs?*
L1-Identify the New or Existing Markets (Jobs to Be Done)

Definition of a Market

For the purposes of this book, we will define a market as a group of people trying to perform a certain job to be done. Market = Job to be Done. For example, people who cook pizzas are in the same market, whether they cook it in a restaurant, at home or while camping outdoors. Were we to pay our product or service for what it does, that would be the job.

From a functional point of view, the job is usually a modification performed on a key product related to the task or job that someone is trying to do. There may be many or few functions (modifications) which comprise a job. Most of the time, a job is comprised of one main function on a key system object. In the above example, the modification is to cook a pizza. No mention is made as to what performs the modification. Note that the executor is not necessarily a part of the diagram. However, the executor wants this modification to happen.

Cooking pizza can be part of a bigger job of preparing a meal. When we look at the product that is being modified, we can see that a product can be one object or a collection of objects. While a job is simply the modification of an object or collection of objects, the name “job” brings a special connotation which defines the potential environments that the function is performed in. This is useful from the viewpoint of identifying other objects in that environment. Another way to think of this is to say that the job defines the super-system of objects. When the job is cooking a pizza, there will usually also be an enclosed heat source, someone ready to eat the pizza, objects to serve the pizza on, etc.

The Choice of Market Depends on Your Goals

The decision to work within a specific industry is probably not as important as the job-to-be-done that you pick within that industry. While the job that you choose is largely a matter of your goals, there are factors that influence the chances of meeting your goals.

You may be interested in licensing your ideas. You may be assigned to develop products or services for your employer. You may be interested in solving large humanitarian problems. You may be tasked with providing products or services for emerging regions of the world. For each of these motivations, there are jobs that can bring you closer or move you further from your goals.
TRIZ Power Tools

Goal: Jobs that Strengthen or Enlarge your Brand

If your business is well established, then it is known for helping people do certain jobs. If there is a desire to strengthen the brand, then the jobs that you choose should reflect those jobs already associated with the brand.

If there is a desire to increase the scope of the brand, this is the opportunity to add new jobs that are slightly off-center.

Goal: If you Want to License your Ideas

If your desire is to license a product or service to interested companies, then it is important to pick a fairly common job where lots of “shelf space” is at stake. Manufacturers of these products are very interested in maintaining their shelf space in popular marketplace settings. The completion can be fierce. If you are familiar with the book “Blue Ocean Strategy”, you understand that there are red waters and blue waters. The book promotes the idea that blue waters are those that do not have lots of sharks in a feeding frenzy (established markets). The blue waters are where there are people interested in getting a job done, but businesses have not recognized the need. On the other hand, the red waters are where the vicious competition is occurring. Sharks are eating sharks. If you are trying to license your ideas, you want to be in the bloody water. It is possible to identify these areas by going to the store and looking at the shelf space and their locations. Store managers can tell you what is hot and what is not. These are often the most lucrative areas to license your product ideas.

It is also possible to reignite products that have been popular in the past, just understand that the shelf space wars are not quite as fierce. If the advantages of your ideas are obvious and you can make it at a reasonable cost, then there is a higher likelihood that potential licensees will want your ideas.

Goal: Solving Humanitarian Problems

Some people are motivated by the possibility of bringing something to the world that decreases human suffering or that can lift people to be more self-reliant. People will be attracted to certain jobs because of life’s experiences.

Goal: Performing Jobs in Emerging Regions

We will define an emerging region as a region in the world which is growing in economic stature. Many of the jobs-to-be-done have not been possible in the past due to economic constraints. However, as salaries grow, the ability to perform these jobs grows also. It may be difficult to tell if there is pent up demand in emerging regions due to the low availability of products and services to perform the job.

For the moment, we can assume that jobs which are popular in developed regions will eventually be popular in emerging regions with the caveat that these are equivalent jobs. For instance, it is unlikely that the job of cooking pizza will be a popular job in all world regions. However, there are equivalent jobs that cook breads in a similar fashion. It is necessary to experience the environment in order to discover these equivalent jobs and determine the interest.

Unexpected Jobs

The assumption that we know the job that customers are performing can be dangerously misleading. One way to avoid false assumptions is to watch people using products and services. Prepare to be surprised and keep an open mind. Sometimes the job looks one way but is really another. Imagine for a moment that your son owns a car. You have a newer and nicer car than he does. When he wants to go on a date, he asks to use your car. What job is he

---

12 Stephen Key—One Simple Idea—McGraw Hill page 23 “Successful companies of all sizes know the importance of shelf space. They also know shelf space for “me too” products is extremely limited… So to secure shelf space for their products and to ensure continued shelf space for future products… companies strive to continually innovate… to always stay ahead of the competition.”
trying to do? Certainly it is more than mere transportation which he could accomplish adequately with his own car. Is there any doubt that he is using the car to impress the girl? Impressing a girl is a job. The car, his clothes, the restaurant are all important parts of performing this job. When you are watching people, this is one of the most important questions to ask yourself and them: What is the Job that they are really trying to do?

New Jobs

It is easy to convince ourselves that there is no such thing as a new job, only old jobs in new clothes. The reality is that there truly are new jobs that arise because of changing circumstances of the modern world and because it is possible to actually synthesize new human experiences. Examples of this are completely new experiences which come from the unusual combination of existing experiences; new jobs on new products and new jobs that result from ever-changing regulations. Even if we do not want to synthesize completely new jobs, we can give a facelift to existing jobs by adding new user experiences. In this case, the experience modifies the job executor.

Business Considerations when Choosing a Job

Regardless of the job that you choose, the characteristics of that job need to meet the needs of the business. At a minimum, most businesses need to make a profit in the short-term. It needs large margins and high volumes. These are functions of how common the job is (volume); how much people are willing to pay to get the job done (purchase price); and how much it costs the business to deliver the product or service (cost).

As for identifying a market segment that is eager to consume: it is clear that some jobs are no longer common and those that still do the job are not willing to pay large amounts of money to do the job. The job of getting your horse to pull a buggy faster is no longer a popular or well paying job. The job should be relevant to the times and hopefully one that a lot of people want to accomplish. It is possible to tell if the interest in a certain job is growing or waning for certain jobs by using specialized search engines such as www.google.com/insights/search. This type of search shows the types of searches people do on the internet and what key words are most often used. It is possible to refine the search to certain products and services if necessary.

Finally, businesses will not likely be attracted to jobs that create their own demise. Businesses are somewhat self-serving. Decision makers tend to make decisions that preserve their business even at the expense of the greater good. For instance, a company which makes washers and dryers would be highly unlikely to consider developing clothes that do not require any form of cleaning. Removing the need for cleaning of clothes would certainly simplify the life of the consumer but the jobs and the industry would not be preserved. The business would resist this technology. Industries are self preserving to the degree that they will consider new offerings that could cannibalize old offerings, but not do away with the jobs that they help customers do.

L1-Method

Step 1: If you are responsible to create products or services for your employer: consider different jobs that your products or services help your customers to do. Identify which of these jobs are common and/or can command high prices. If your job is to identify new products or services in emerging regions, identify equivalent jobs in the emerging region.

Step 2: Consider giving customers completely new experiences or associating new experiences with old jobs.

Step 3: Consider customers that use your products or services to perform unexpected jobs

Step 4: Consider new jobs performed on new products

Step 5: Consider performing the function on analogous products.
TRIZ Power Tools

Step 6: If you want to license your ideas: identify common jobs where “shelf space” is at stake. It is possible to identify these areas by going to the store and looking at the shelf space and their locations. Ask store managers what is hot and what is not. Also consider products or services that have been popular in the past. Look at the broader job category to determine whether they could become popular again. For instance, squirt guns were once popular and then lost their spark. Later, water blasters reignited the squirt gun market due to the large amount of water that could be shot out. The broader market is the job of entertaining oneself around water. This has always been a popular job. Competing products and services drop in and out of favor in this broader market.

Step 7: If you wish to solve humanitarian problems: Pick a job which can simplify the lives of people who live in difficult situations. This may require some form of function analysis or causal analysis to determine which will have the greater impact.

Step 8: If you want to strengthen or enlarge a brand then either choose a job that reinforces the jobs that the brand represents or jobs that are related to the brand but make it more general.

Step 9: Use specialized search engines such as www.google.com/insights/search to determine the interest in performing the chosen job.

Step 10: Consider whether this job is worthy of consideration. Look at why the individual is performing this job and ask whether there might be a better job to perform which gives the job executor more value.

L2-Familiar Core Jobs or Experiences

Most people will identify the market from the jobs that their current products already facilitate. Remember to think of these jobs in a functional format. A product is modified. Sometimes the product is the customer themselves.

Method

Step 1: Choose a product or service related to your business

Step 2: What jobs or Experiences does your products or services facilitate?

Step 3: Pick one of these jobs or experiences based on expected popularity and margin.
L2-Jobs that Reinforce or Enlarge Your Brand

Brands are a way of thinking about a collection of jobs that you help people to do. When you think of any popular brand, a list of products comes to mind which help facilitate the performance of various jobs. We can usually find a way to encapsulate these jobs. For instance, automobile maintenance comes to mind when we think of the word “Fram”. Automobile maintenance comes in the form of many jobs.

We may want to further reinforce the jobs that we are known for, especially if the brand is new. In this case, we should choose a job that reinforces the image of the brand.

If we want to enlarge a brand, we should choose a job that is “off-center” a little bit. For instance we might want to expand beyond automotive maintenance to automotive restoration.

**Method**

**Step 1:** Identify jobs associated with your brand. Find an identifier that accurately includes these jobs.

**Step 2:** If you want to reinforce your brand, identify a job that is well aligned with this identifier.

**Step 3:** If you want to enlarge the brand, then find an identifier which encapsulates the old jobs and the new group of jobs. Think of a more general term for the function that you generally perform.

**Step 4:** Identify jobs associated with the enlarged brand. Care should be taken to identify jobs that the business is willing to expand into. The new jobs should have a sufficient number of job performers to warrant the business risks.

**Example—Car Maintenance**

**Step 1:** Identify jobs associated with your brand. Find an identifier that accurately includes these jobs.

Jobs associated with the brand are changing oil filters, changing spark plugs, changing car fluids. The identifier is car maintenance. This encapsulates jobs that require removing and replacing car components.

**Step 2:** If you want to reinforce your brand, identify a job that is well aligned with this identifier.

A job which reinforces this is changing windshield wipers.

**Step 3:** If you want to enlarge the brand, then find an identifier which encapsulates the old jobs and the new group of jobs. Think of a more general term for the function that you generally perform.

I want to enlarge the brand to go beyond maintenance and include car repair.
Step 4: Identify jobs associated with the enlarged brand. Care should be taken to identify jobs that the business is willing to expand into. The new jobs should have a sufficient number of job performers to warrant the business risks.

A job that stretches the brand is fixing dents and dings in the automobile body.

**L2-Problematic Jobs in the Product Life Cycle**

The next page shows the flow of jobs in the product life cycle. Whether your main customers are businesses or end users, you can locate their jobs on the map. Probably the most important jobs are “bottlenecks” that slow the flow of product to the job executor. Finding major bottleneck jobs is very important and enlightening. These jobs may represent new markets or they may represent markets that you are already serving but lack market share.

For many products, the job of buying the offering as a gift is the most problematic and important for the existence of the product or service providers. Improving this job may be the most important of all.

Note that this market segment may require a change of business model to service customers which is very disruptive to businesses.

**Method**

- **Step 1:** Locate the jobs that your customers perform on the Product Life Cycle Map. These jobs may be executed by end users or intermediate businesses.

- **Step 2:** Identify the problematic jobs that these customers must execute, especially if they represent bottlenecks that slow your product to the end user.

- **Step 3:** Identity that the purchase of the product for gift-givers is especially problematic and may need to be the primary job that is improved.

- **Step 3:** Identify the specific job executors.
TRIZ Power Tools

Life Cycle Jobs

- Mass-Storage of the Product or Service Inventory
- Product Transport from Packaging to Storehouse
- Distributor Purchase
- Product Packaging
- Product Testing
- Fabrication Including Forming & Machining--Assembly

- Product Transport to From Storage to Display
- Researching What to Purchase
- Disposition For Sale from Display to Point of Sale
- Order Purchase Or Disposition
- Customer Transport
- Assembly Setup or Installing

- Use or Operation
- Testing or Confirmation of Operability
- Fueling / Energizing
- Locating Materials
- Job Planning
- Training and Certification

- Control / Monitoring of Operation
- Adjustment or Modification
- Dealing with Failure including Alternative Systems
- Protecting Users
- Protecting Bystanders
- Protecting System

- Upgrading
- Dealing with Messes
- Trouble Shooting and Maintenance
- Remove from System
- Logging Operation
- Conclusion & Powering Down

- Service or Overhaul
- Replacing
- Transporting
- Stowing
- Equipment Storage including Covers and Protecting Environment
- Dismantling

- Disposal of Parts, Containers, Tools and Liquids
- Recycling
L2-Jobs Indirectly Related to The Core Job

Often, a job is preceded or followed by other necessary jobs. If these jobs are more problematic than the given job, or these jobs directly constrain the main job, then we may want to either focus on these jobs or absorb them into the job at hand.

**L2-Method**

*Step 1:* Identify the main job that you are trying to perform

*Step 2:* Identify jobs that precede or follow the main job, which are indirectly related to the core job. Some groups of people are often required to perform these jobs. These can be social jobs or personal jobs.¹³

*Step 3:* Should you refocus on the preceding job or absorb it into the main job.

**Example—Movie**

*Step 1:* Identify the main job that you are trying to perform

The main job is movie entertainment

*Step 2:* Identify jobs that precede or follow the main job, which are indirectly related to the core job. Some groups of people are often required to perform these jobs. These can be social jobs or personal jobs.¹⁴

Many people have to hire a baby sitter, pick them up and take them home.

*Step 3:* Should you refocus on the preceding job or absorb it into the main job.

These functions can be employed into the entertainment if the child is taken care of at the movie.

---

¹³ What is Outcome Driven Innovation (ODI) by Anthony W. Ulwick March 15 2009

¹⁴ What is Outcome Driven Innovation (ODI) by Anthony W. Ulwick March 15 2009
L2-Customers that Modify or Use Your Product or Service for Unexpected Jobs

It is likely that a few people are using your product or service for a completely different job than you intended. This is a new potential market for your product.

In order to use your product to perform an unexpected job, the job executor may first modify your product. (On the other hand, when someone modifies your product, this does not necessarily mean that they are using it for a new job. They may be doing it to perform the old job in a way that suits them better. This is important to note, when we proceed to segment the market.)

If you are going to observe customers, it is good to be sensitized to the idea that some of them are using your products for jobs that were not intended. This may only become apparent if you ask them why they are doing what they are doing. Clayton Christensen tells the story of an investigation into behaviors of customers of a fast-food company. One behavior that was noted was the high consumption of milkshakes early in the morning, an unusual time to consume shakes. When customers were asked why they did this, it was found that milkshakes were being used to keep the driver awake during long rides. They were hiring milkshakes to keep them awake! This is a different job than nourishing or entertaining oneself. Shakes are more convenient to consume than a bagel and they last much longer than other beverages such as coffee. In order to serve this market, the features of the milkshake needed to be boosted to help the driver remain awake. For instance, it needed a thick and interesting consistency. On the other hand, parents that brought their children and ordered a shake for them had a very different job in mind. They wanted to use the opportunity as a reward or to please the child. To perform their job, they wanted a much thinner shake that did not take forever to consume. Note that the features of the product greatly change the satisfaction of performing the intended job.

Be aware that this market segment may require a change of business model to service customers which is very disruptive to businesses.

15 Clayton Christensen The Innovators Dilemma
**TRIZ Power Tools**

**Method**

*Step 1:* Which customers use your product in the most unusual way?\(^{16}\)

*Step 2:* Who spends at least 50% of what your product costs to make the product useful to them?\(^{17}\)

*Step 3:* What are some examples of ad hoc modifications that customers have made to your product?\(^{18}\)

*Step 4:* What job are they trying to perform with the product?

*Step 5:* What are the circumstances?

*Step 6:* Summarize the job and the circumstances.

---

**L2-Similar Jobs**

In the previous step, customers use our product for unexpected jobs. In this step, we use our product for unexpected but equivalent jobs. Since most jobs are performed on different products in different regions of the world, it is likely that jobs exist in all regions of the world that are roughly equivalent to those jobs that your products or services now help to perform. As mentioned, it is unlikely that pizza will be cooked in every region of the world. We just need to ask ourselves, “What needs to be cut like a pizza?”

**Method**

*Step 1:* Pick a job that your products or services perform.

*Step 2:* Identify the main object on which the job operates.

*Step 3:* Consider adjacent markets in your region to which you would be willing to expand your business. What objects in these adjacent markets require the same functions that your products normally perform?

*Step 4:* Consider regions of the world where you would like to expand your business. What objects in these regions require the same functions that your products normally perform?

*Step 5:* The new job is to perform the function of the existing products and services on these new objects.

---

16 Kevin P. Coyne, Patricia Gorman Clifford, and Renée Dye  Breakthrough Thinking from Inside the Box

17 Kevin P. Coyne, Patricia Gorman Clifford, and Renée Dye  Breakthrough Thinking from Inside the Box

18 Kevin P. Coyne, Patricia Gorman Clifford, and Renée Dye  Breakthrough Thinking from Inside the Box
L2-New or Added User Experiences

This is an experimental method for creating new jobs.

One could argue that if we think in general enough terms, there is no such thing as a “new job”. For instance, a new social game that promotes creativity and a sense of nostalgia could be thought of as an “entertainment experience”. Entertainment has been around forever; however this is not helpful in identifying new products and services. If we only focused on existing or generalized jobs, how would we create completely new experiences such as new recreation products, games, amusements, and hobbies? Clearly, there is a need for the systematic synthesis of new jobs and experiences.

One way to do this is to start with a given job and add experiences. It is possible to make a common product deliver a completely new experience to the job executor. Consider how much sooner mountain biking might have come into existence had someone purposefully combined bike transportation with off-road experience.

The figure to the right shows an unknown object that will contain food. We have added the additional modification to the person who is interacting with the food container. The food container will educate the person on the nutritional contents of the food contained with little or no effort on the part of the executor. At this point, we do not know what will perform each job or how the person interacts with the container. We just know the jobs that will be performed. Remember that we are trying to identify the market segment. For this we need to know the primary modification on the primary product and the job executor. Later we decompose the requirements for the system, in this case, the container.

The following methods can also be used to create completely new user experiences. This is possible through the unusual combination of experiences. For the moment, it is sufficient to define the experience that we want to create. Later, we will decide the vehicle for delivering these experiences. The market would be people that would want these new and/or unusual experiences.

The process of generating the list of experiences was to catalogue and include human experiences to which people are attracted and repelled. An attempt was made to make this list as complete as possible without regard to how “dark” these experiences were. Next, the list was divided into “attractive” and “repulsive” experiences. The opposite of the repulsive experiences was then added to the list of positive experiences to form the final list.

In the interest of disclosure, it should be noted that the author’s own ethical and moral boundaries and interpretations are reflected in the categorizations of “attractive” and “repulsive” experiences. It is recognized that others may not share the views of the author.

Method

Step 1: If you are starting with a known job (and potentially a product or service), identify this job.

Step 2: From the following table, identify one or more experiences that you would like to combine with this job.
TRIZ Power Tools

Step 3: If you are creating a new experience, then combine experiences that you believe will be desirable together.

List of Experiences

Mental Experiences
---State of knowledge (education, wisdom, instruction)
---Readiness to engage intellectually (Alertness, openness or interest)
---State of thought (Introspection, being methodical, Analyzing, Evaluating)
---State of Decision (Decisive, Positive, Anticipating, Secretive)
---State of Creativity (Stimulated, Composing, Pretending, Expressive)

Physical Experiences
---Physical Movement (Exercise, Using Technique, Exploration, Entertainment)
---Adrenaline Producing (Scared, Thrills, Shock)
---Use of Senses (Taste, Temperature, Tactile, Feels Good, Smell, Sounds)
---Neat Environment (Outdoors, Public Places, Under Water, Home, Theater)

Self-Affirming Experiences
---Autonomy (Self Reliance, Competence, Self Confidence)
---Comparing (Competition, Proud, Powerful, Rich, Dominating)
---Sense of Continuous Improvement (Growing, Advancing)
---Vindicated (Innocent, Unashamed, Un-regretting)
---Courage (Bold, Brave, Outspoken, Invulnerable, Fearless, Fortright)
---Self Image (Self-Promoting-growing-accepting-forgiving-respecting)
---Feeling Useful (Challenged, Masterful, Empowered, Victorious, Self-Reliant)
---Meaning (Purpose, Consecration, Sacrifice for others, Altruistic)

Social Experiences
---Built Up (Encouraged, Comforted, Rewarded, Enriched, Promoted)
---Togetherness (Camaraderie, Connected, Engaged, Socializing)
---Thought Well of (Likeable, Beautiful, Humorous, Accepted, Dignified, Noble)
---Liking/Loving (Passionate, Infatuated, Loving, Liking, Loved)
---Cooperative Experience (Friendly, Agreeable, Accommodating, Amicable)
---Conciliatory Experience (Tolerance, Accepting, Humble, Forgiving, Submissive)
---Being Helpful (Nurturing, Constructive, Mentoring, Comforting, Mediating)
---Altruistic (Unselfish, Concerned, Empathetic, Sensitive, Gentle, Generous)
---Identification (Nationalistic, Group values, Group pride)

Religious Experiences
TRIZ Power Tools

--- (Spiritual (Inspiring, Faithful, Moral, Inspired, Righteous, Idealistic)

Personal Emotional Experiences
--- Happiness (Pleased, Happy, Excited, Cheerful, Lively, Joyful, Ecstatic)
--- Freedom (Adventurous, Relaxation, Loss of Responsibilities, Carefree)
--- Calm (Peaceful, Patient, Rested, Composed, Serene, Stable, Content)
--- In Harmony (Balanced, Hopeful, Resigned, Guilt Free, Free of Pain)
--- Nostalgic (Good memories)

Altered States
--- (Near Death, Out of Body, Trance)

Virtual Experiences
--- (Simulated, Virtual, Pretend, Acting)

L2- Loyalty, Identification and Identity

There are user experiences that he a product or service provider may want to encourage such as the experience of identification with the product, loyalty or the job to be done. When the consumer feels a connection or identifies with the product, the possibility of follow-on purchases are greater.

There may be many stakeholders whose identity is dependent upon a job or product. When a stakeholder is dependent upon products for their identities, this can be referred to as the Identity Function. In some cases, the identity function may be more important to the stakeholders than the utility function of the product or service. The label on a shirt may mean more to the owner than the basic function of the shirt itself.

When we change an offering, we should be careful how the changes will affect the identity of the various stakeholders. Innovation can be very disruptive to people’s jobs, routines, etc. Disrupting people’s lives can have a dramatic effect on their identities. This, in turn, can create great resistance to the innovation. A case in point is the navy’s adaptation of long range guns to be used in sea battles. The technology required for long range shooting in rough seas was invented by the British when an officer discovered the imperceptible movements of the person that changed the altitude of firing by moving the crank up and down while the boat rocked. This led to the combination of a lower gear ratio of the altitude crank and a long range scope that would collapse when the gun recoiled so as to not hurt the person.

---

19 Clayton Christensen—http://www.fastcompany.com/article/can-you-make-complex-things-simple
20 Clayton Christensen—http://www.innovationexcellence.com/blog/2013/07/31/disruptive-innovation-theory-revisited-christensen-hatkoff-kula/?utm_campaign=innovation-excellence-weekly&utm_source=hs_email&utm_medium=email&utm_content=9867055&_hsenc=p2ANqtz-11ktwhdweclI3b8RGPYg54qJ2Kio9XCZPz6Nsfjn1xKpmjDMykmsPleZ-vQuHL9WWMI5_DF70Vx1cwiquqVAFn9_wtQ&_hsmi=9867055
21 Elting E. Morison—Gunfire at Sea: A Case Study of Innovation—Men, Machines and Modern Times (Cambridge, MA, the MIT Press) 1966, pp. 17-44
looking through the scope. The accuracy was dramatically improved. A commanding officer in the American navy adapted this to his vessel with the same results. Convincing the American navy to convert to this was very difficult due to the way that this innovation affected people’s identities. Now, the gunners were more important than those who used to steer the ship during close engagements. This affected who sat at meal together and other routines aboard the ships. The identities of many officers were challenged, which lead to many years of resistance in the face of improving the primary utility function that these naval vessels performed. Most people would have expected such an innovation to be readily adopted, but it was not adopted for many years, due to the threat to people’s identities.

Additionally, we want the customer to feel comfortable with the product and we want the experience to memorable, inspirational and meaningful.

**Method**

*Step 1:* Identify that loyalty, identification and identity is a desirable feature of the product or service.

*Step 2:* Identify the experience that your product must have a consistent look and feel.

*Step 3:* Identify the Experience that the look of the product or service must inform the consumer that this is something that they relate to.

*Step 4:* Identify that the experience must be memorable, inspirational or meaningful. If possible, we would like our product or service to transform the entire user environment to make it more memorable.

*Step 5:* Identify the experience that you want the user to identify more strongly with the offering brand? The brand needs to be associated with the Job to Be Done.

*Step 6:* Identify the experience that the user must feel comfortable with the product.

*Step 7:* Identify how various stakeholder’s identities are or could be dependent upon the products related to the job.

---

**L2-New Jobs for New Products**

Most completely new Jobs come from situations or products that are new. Here, we will identify jobs related to our industry that are new.

**Method**

*Step 1:* Identify a New Situation. Pick one of the following situations.

- New Product
- New Recreation or Sport
- New Vocation
- New Entertainment
- New form of Socialization
- New type of Rejuvenation
- New form of Transportation
- New form of Grooming
- New form of Health Care
- New Food
- New Plant
- New Problems generated by new products

Step 2: Pick one of the following jobs and relate it to the new situation from step #1
- Protect Other Objects from
- Recreate with
- Enjoy with
- Operate
- Protect
- Transport
- Install or Plant
- Make Secure
- Store
- Organize
- Refurbish or Fix
- Maintain
- Prepare or Cook
- Dismantle
- Dispose of
- Measure
- Educate
- Assemble
- Communicate
- Search for

Step 3: Identify Alternative Markets. Consider Other Industries that might be interested in doing this Job. These other industries may be even more interesting than what you start with.

Step 4: Expand on Known Jobs to others that might want this job performed. Some of the methods that we have already talked about can help us to expand this new job to other jobs that are new. The most applicable group to apply this step to is “Typical Offerings that are Distasteful or Out of Reach”.
TRIZ Power Tools

Example—Digital Pictures

Step 1: Identify a New Situation. Pick one of the following situations.
- New Product
- New Recreation or Sport
- New Vocation
- New Entertainment
- New form of Socialization
- New type of Rejuvenation
- New form of Transportation
- New form of grooming
- New form of Health Care
- New Food
- New Plant

A New Product is picked: digital cameras.

Step 2: Pick one of the following jobs and relate it to the new situation from step #1
- Protect Other Objects from
- Recreate with
- Enjoy with
- Operate
- Protect
- Transport
- Install or Plant
- Make Secure
- Store
- Organize
- Refurbish or Fix
- Maintain
- Prepare or Cook
- Dismantle
- Dispose of
- Measure
- Educate
- Assemble
A new job is preserving digital pictures. There is a large need that is not being met. As time has gone on, information has a shorter and shorter life. This is not necessarily due to the life of the media itself, but rather the technology that retrieves the data has a very short life. Digital media has a shorter and shorter life. What is needed is a means of preserving digital media for millennia.

Step 3: Identify Alternative Markets. Consider Other Industries that might be interested in doing this Job. These other industries may be even more interesting than what you start with.

Examples of other markets that may also have this need:
- Public Records
- Medical Information
- Crime Evidence
- Copies of Works of Art

Step 4: Expand on Known Jobs to others that might want this job performed. Some of the methods that we have already talked about can help us to expand this new job to other jobs that are new. The most applicable group to apply this step to is “Typical Offerings that are Distasteful or Out of Reach”.

Some possible people that might feel blocked from storing digital information for long periods of time are those that need to perform this job in very harsh environments where the storage devices have short lives. Others may fear conflicts of interest or that no institution will be around long enough to maintain the data.

**L2-New Jobs to Facilitate New Regulations**

New regulations often require new jobs for those who must comply with these regulations. These new jobs create opportunities for new products and services which facilitate these jobs.

**Method**

*Step 1:* Identify new regulations related to your industry or jobs within your industry.

*Step 2:* Identify tasks or jobs required to comply with these new regulations.
L2-Check whether there is a Better Job

Mostly, we have chosen a job according to our interests, desires or to fulfill business objectives. Is this the job that we really want to help a job executor do? Remember that most jobs are functions and there is the real possibility that any function can be idealized. When we look at a function to idealize it, we are interested in the possibility that there are more ideal products, modifications, physical phenomena and tools. Why not ask it now for the job that you are looking at? The full treatment for this question can be investigated in the TRIZ Power Tools book dealing with idealizing useful functions and determining why objects and functions are required.

Method

Step 1: Identify the function that you are performing

Step 2: Ask yourself why this function is required. Consider applying the book TRIZ Power Tools—Skill #7 Determining why Objects are or Functions are Required.

Step 3: Ask yourself if there is a more ideal object that the job serves.

Step 4: Ask yourself if there is a more ideal modification to that object.

Step 5: Ask yourself if there is a more ideal physical phenomenon to deliver the modification.

Step 6: Choose the most ideal job.
L1-Hypothesize Potential Market Segments

A Different Approach to Segmenting Markets

Many marketing studies delineate market segments according to customer attributes, such as gender, race and age. Such demographic market segmentation ignores the fact that when a person shops, they are not looking for something for old people or young people; Caucasians or Hispanic. They are looking for something that helps them to perform a task or to get a job done. In effect, they are hiring the product to do a job.

For this book, a market “segment” will be defined as the group of people who have approximately the same requirements for a “job-well-done”. We want to segment the market this way because we want to provide a product or service that gives them what they want, meeting all of the requirements. Someone in this market should not have to feel that they are paying extra because the only available products over-perform or are over-convenient. Nor should they feel that they cannot get the performance or convenience that they want. The consumer should feel that the offering helps them to get the job done in the way that they want and at the price that they are willing to pay.

Recognized Market Segments

Our first job, then, is to identify those groups of consumers that have approximately the same requirements for doing the job. First, we describe the requirements for getting the job done for our typical customers. As we do this, we will realize that some customers have conflicting requirements. Ultimately, we can group customers into groups with the same requirements. We refer to these as recognized market segments.

Potential New Market Segments

Once we have identified the recognized market segments, we are now ready to identify new market segments that we might never have considered by looking at our current customers. New markets hide because they do not consume. They are having a hard time getting their job done the way that they want. This means that we can find these new markets by looking for customers that are constrained in different ways or at different levels than our recognized customers. Once we identify these constraints, we will then find that by removing these constraints, we unleash this new market. The way that we will identify these markets is by considering different constraints and then asking ourselves if these potential consumers might exist.

Constraints on Existing Markets

Just because we discover consumers who are constrained doesn’t mean that the market is a new market. In fact, existing markets can also be highly constrained. This often occurs after a market is recognized and products or services are newly provided. At first, the market is unleashed and very forgiving. As the market grows, it begins to discover dissatisfying constraints.
It can also occur when the evolution of the product or service is halted in its evolution by difficult contradictions. For instance, notice how many medical or dental procedures are still painful.

In summary, the more constrained a group of customers is, the more likely this group is a new or unrecognized market segment. However, we have notable exceptions.

**Barriers to Consumption**

As mentioned, we will consider various constraints one at a time. As we do this, we may find new markets or we may find constraints on recognized markets. At any rate, by the end of identifying the market segment that we want to serve, we will have identified constraints that we want to remove.

In order to better serve any market segment, the barriers to consumption need to be overcome. The recognition of these barriers can help us to identify market segments by first recognizing the job and the conditions and then identifying the barriers that reduce consumption. We will start with those customers with the most barriers. As each barrier falls, the potential consumer may face a new barrier. In the end, all of the barriers must be dismantled before an intended customer can consume the way that they want to.

**The potential consumer does not recognize the job**

This reason is characterized by the statement “I didn’t know that I could do that”. (Remember that we are still talking about customers that would do the job if they just knew about it). Often this problem is one of advertisement and can be resolved by advertising the product or service in the applicable region.

Another common reason for this is that the job, itself, is new because it is associated with new products. When cars first appeared, there was a necessity to necessity to clear the windshield during rain. This job did not appear before, because there were no windshields on horses. We could say that the job was there because mankind has always been protecting objects from the rain. This is true, but when the person bought her first car, a new list of jobs needed to be done. It needed to be fueled, maintained and cleaned. She did not need to do these jobs before and now she does. She needs help to do these jobs. Over the course of time, means are made available to perform these new jobs. Those who were alert to the existence of new products were able to identify these new jobs and provide means to accomplish the new tasks.

**The potential consumer recognizes the job but is not converted to performing it yet**

This reason is characterized by the statement “If I had only listened earlier!” In the beginning, the intended customer believes that the job is irrelevant. It can be difficult to put oneself in the position of performing the job and reaping the benefits. These customers are often late adopters or extremely pragmatic with a “prove it” attitude. Sometimes the advertisements don’t properly explain the product in the minds of these people. The problem is that these people do not yet identify themselves with the job. Helping people identify with a job is a problem for advertisers.

**The potential consumer wants the job but they are blocked from performing it**

A potential consumer is blocked when there is no product or service to facilitate them in the way that they need in order to perform the job in the way that they want to perform it. They are blocked from doing the job entirely. Blocked users do not have the capability to
modify existing products or services to meet their own needs. These unrecognized markets might flock to products that allowed them to perform the job, given all the barriers are removed.

There are a lot of reasons that someone is blocked from performing a job. It might be too expensive for them. It might not be provided in a certain local or access to distribution channels may not be available. The potential customer may be blocked by regulation or the culture of the region. They may be disabled or have insufficient knowledge to use or service the products. The job may require an inaccessible expert. The individual may be emotionally blocked by fear, religious convictions or cultural acceptance. The environment in which the job is performed is unusually harsh or extremely inconvenient. As you can see, the list of reasons that someone cannot perform a job is quite large.

It doesn’t take long to identify large groups of people that are blocked from performing a job somewhere in the world. Think of all the people that have never flown; dry cleaned their clothing; had dental treatment; read a book in their own language or talked on a telephone. When we expand our thinking globally, we can see that there are vast oceans of potential consumers that are blocked from doing the job that you want to help them to do.

The job is facilitated but consumption is reduced because something is distasteful

We have finally reached a group of potential consumers that are actually performing the job. In order to do this, they are likely facilitated by a product or service. This may be because a product or service is available that facilitates the job or because the user has unblocked his/herself by modifying the product or service. What is distinctive about this group is that they are still hampered in performing the chosen job because of the compromises that they are required to make. These customers would jump ship immediately if something came along that met their needs. There are a variety of reasons that the job may be distasteful. Notably, difficulty performing the job or service is often the least important reason, except for the high-end market. Here are some of the reasons that the job may be distasteful. Performance of the job may be inconvenient. The products may not be “try-able” before purchase. The job may require an expert that is not convenient. The job itself may need to be performed in an environment that is distasteful. Use of the product or service may be physically painful. Products may be too expensive for most of the potential customers. Consumers may feel distrustful or have biases against doing business with the provider. The consumers may be very demanding about the performance of the products or services (the high end market). Finally, the performance of the job may not be personalized enough to be satisfying.

Consumers may also be hampered because the existing businesses find them difficult to service. They are not well serviced because of business difficulties rather than consumer difficulties. These poorly serviced customers may represent lucrative business opportunities. Changing the business model or values can be very painful, but it may be essential to the survival of the business. This group prefers to be serviced in a way which is disruptive to the business. Other businesses will not find these customer’s needs disruptive. As they learn to meet their needs, the products or services that they provide may become attractive to your customers. Clayton Christenson refers to these as disruptive technologies22. Once the businesses customers begin to consume these disruptive

---

22 Clayton Christenson—The Innovators Dilemma
technologies, it is nearly impossible for the business to make the needed changes to its values, processes or business model in time to avert disaster.

**The job is not irritating but consumers can be surprised by removing forgotten burdens**

These people are not irritated on a constant basis, but all products and services have burdens. These people are waiting to be surprised and when they are, they move to new products and services that continues to please them more than what they are leaving.

**Form the Hypothesis**

One of the first rules of good scientific testing is that one must first form hypotheses about the way that things work. Likewise, before we go into the user environment and watch users (a type of test) it is important that we form hypotheses and questions so that we will know what to look for. In this section, we are going to consider different market segments and categorize them by what is hindering them from performing their job. It is ok at this point to have no experience with each of these potential markets. We need to sensitise ourselves to likelihood of their existence. We need to create a condensed list of ways that people are potentially hampered from doing their jobs. This will give us the market segments.

**Correlation between Hindrance and Market type**

In this step, we will consider many different hindrances which will lead us to market segments. Note that any one of the potential market segments can run the gambit from surprised to unaware; from sustaining markets to non-consumers; from easily integrated to highly disruptive to the business. For instance the lack of knowledge can cause a potential customer to be completely unaware of the possibility of performing a job; unconverted to the idea of performing a job; completely blocked from performing a job; irritated by how to use a product or delighted by a new characteristic that they can use. The degree of hindrance depends upon what has already been done to remove the consumption barriers (that we talked about at the beginning of this chapter) in that region of the world.

In order of presentation, the hindrances that we will first try are more likely to be hindered by product features while those at the bottom are more likely to be hampered by service or business models as noted by the words in parenthesis. The following diagram shows the rough correlation between barriers, market types and degree of disruption to the business.
The Problem can be with the Job, the Executor or the Business

The list of hindrances comes from problems with jobs, executors or business models. All solutions must address causes and, as we shall find, there is no one cause to any problem that hampers the consumer with getting the job done.

Summary

In order for consumption to even begin, potential customers must become aware of the potential to perform the job, converted to the idea of performing it and then a means must be available to facilitate the job in the way that they want it done. Once consumption begins, irritations need to be removed in order for consumption to grow.

L1-Method

Consider this checklist of possibilities that may hamper the job to be done. This is done in preparation for studying users. Keep a condensed list of the most possible of the following. You will be looking for evidence of these problems among users.

Demanding High-End Customers
Jobs not Personalized or Adaptable Enough
Painful or Uncomfortable Jobs
Cause Human Burdens
Concurrent Jobs are a Distraction
Lack of Knowledge
Cultural Restrictions
Personal Limitations
Dangerous Jobs
Harsh Environments
Very Inconvenient or Urgent Jobs
Boring Jobs
Time Consuming Jobs
Jobs that Waste Materials
Wastes Space
Wastes Energy
Creates Harmful Functions
Customers that Oppose the Job
Hampered by Regulations
Job Wastes Money
Supporting Jobs Hampered
Performed by Inconvenient Experts
High Switching Costs
Customers with Constantly Changing Needs
TRIZ Power Tools

Customers the Industry Prefers not to Service
Job Costs too Much
Not provided in the Geographical Region
Job not Try-able
Consumes in Surprising Quantities
Different Part of the Value Chain
Customers that Purchase your Products through Uncommon Channels
Customers Needing Excessive Service or Support
Distasteful Providers
Fears of Conflicts-of-Interest

L2-Identify Existing Market Segments

As mentioned, we are likely serving consumers that have the same requirements for getting the job done. Because of the special nature of the jobs that people do, there will be some variation in jobs that they are doing, but we should be able to characterize the requirements for the markets that we currently serve, even if we serve them poorly. Remember that products may serve several market segments but the products do not determine the segments. Some customers will be genuinely displeased by the compromises that they are forced to make when they use your products.

Method

Step 1: Begin by describing the requirements of your typical customers
Step 2: Group the customers by those having similar requirements.
Step 3: Identify the common feature that bind these customers into a group.

L2-(Features) Demanding High-End Customers

A sustaining market can be divided into those willing to pay a premium for higher performance (the high-end market) and those who are satisfied with lower performance and are reluctant to pay high prices for improved performance (low-end market). Businesses find it compelling to satisfy the high-end market and shed the lower paying customers. They constantly push the performance of their products and services in order to satisfy high-end customers in order to increase margins.

The high end market may be difficult to service because of their high demands. Performance is never good enough and these customers are rarely satisfied. If you are in the business of serving high end markets, you must get used to the fact that these customers will never stop complaining since they will never be satisfied. However, as long as you can keep ahead of the competition by providing superior performance, you will remain in the game.
One of the core competencies of companies that service high end markets is that they learn to solve the high end problems that will ultimately occur. Often, it takes integrated systems (which are expensive to develop) to satisfy the performance requirements of the high end market. Since it is difficult and expensive to provide integrated solutions, the number of competitors in this arena is usually small. It is nearly impossible for new competitors to enter the field because of the large expense and difficulty in obtaining expertise to integrate systems.

On a note of warning, focusing exclusively on the high end market will eventually set the business up for being disrupted by products at the low end or that once served other markets but now begins to have the capability of serving the high end market. These disruptors eventually erode the high end market. While the incumbent product or service may provide yet higher performance, it can only serve a decreasing market of the highest end users.

Most businesses that focus on the high end market will eventually modify their values to accept only high margins. When low end disruptors begin encroaching on the low end market, there is an unwillingness to return to lower margins which makes it very difficult to mount a defense against the low end disruptor.

**Method**

*Step 1:* Identify the main performance attribute of the product.
*Step 2:* Identify non-consumers or low-level consumers that would consume or consume more if the main performance attributes were improved.
*Step 3:* Identify if performance is a constraint on a recognized market.

**L2-(Features) Existing Products are Not Personalized or Adaptable Enough**

Many jobs are performed with a high degree of variation in circumstances. Unfortunately, it is uneconomical for most companies to provide a product or service with a high degree of variation. Consequently, a large percent of the consumers are irritated with the compromises that they have to make in order to perform the job. The variation may be a function of human taste, or the variety of environments in which the job is performed.

For example, running shoes are used in a large variety of environments and must fit a wide range of feet. This job, by its very nature, is highly variable. Consequently, there will be many irritated consumers.

**Method**

*Step 1:* Does the job need to be highly personalized in order for people to not be irritated. Does the product or service assume that one size fits all?
*Step 2:* Identify potential consumers that would consume or consume more if the product or service were more personalized.
*Step 3:* Recognize whether adaptability is a constraint on recognized markets.

**Example—Running Shoes**

Running shoes perform several functions. One function is to stabilize the feet in uncertain terrain.
TRIZ Power Tools

**Step 1: Does the job need to be highly personalized in order for people to not be irritated. Does the product or service assume that one size fits all?**

While there are a variety of shoe sizes, there is still a problem. Foot shape is more highly variable than current running shoes allow for. The job of stabilizing feet is highly variable and very uncomfortable if performed imperfectly.

**Step 2: Identify potential consumers that would consume or consume more if the product or service were more personalized.**

People that would love more personalized running shoes are those with unusually shaped feet or feet that have unusual stability requirements.

**Step 3: Recognize whether adaptability is a constraint on recognized market segments.**

This is likely a constraint on recognized athletic shoe market segments.

**L2-(Features) Existing Offerings are Painful or Uncomfortable**

Some jobs are unavoidable and yet they are so painful! Who actually wants to go to the dentist? Who wants to fix a drain under the sink? These jobs provide a lot of pain and they are not difficult to recognize. Unfortunately, people often delay performing these jobs until the problem becomes worse or it goes away. If a way were found to make these jobs less painful, they might be performed more often.

**Method**

**Step 1: Is the job typically physically, mentally or emotionally painful?**

**Step 2: What groups of people will not perform this job or will not perform the job or will delay performing this job because it is painful?**

**Step 3: Recognize whether pain is a constraint on recognized market segments.**

**L2-(Features) Jobs Cause Human Burdens**

If humans must be involved in the job, there should be a persistent drive towards minimizing their burdens. There is a discipline called “Human Factors” which seeks to minimize human burdens. While we may not become experts in this, we should do all that we can to understand human burdens from the viewpoint of human factors. This is especially important if there is a requirement to operate the product or service for extended periods of time. A very nice tool for considering human factors comes from the NASA workload rating sheet.

**Method**

**Step 1: Experience or simulate the required actions to perform the job.**
TRIZ Power Tools

Step 2: Consider the Mental Demand required for thinking, deciding, calculating, remembering, looking and searching. If data gathering is required, consider these three levels of gathering data. Ambient: Takes no special effort to gather data. Natural: Takes no special effort to interpret data. Continuous: Takes no special effort to update data.

Step 3: Consider the Physical Demand required for pushing, pulling, turning, controlling and acting. Is it easy versus demanding, slow versus brisk, slack versus strenuous, restful versus laborious?

Step 4: Consider the Temporal Demand. This is the time pressure, pace or rate required to use the offering. Is it slow versus leisurely or rapid versus frantic?

Step 5: Consider the Effort required. How hard are they required to work (mentally and physically)? This is considered over the length of the job rather than the mental and physical demand per operation.

Step 6: Consider the Level of Performance. How successful was the task or goal? How satisfied were the participants with the performance?

Step 7: Consider the Level of Frustration: How insecure, discouraged, irritated, stressed and annoyed were the participants? Were they secure, gratified, content, relaxed or complacent?

Step 8: Consider the Emotional burden: Look at the current design. Does it inspire awe? Does it make you suspicious of the product? Is it aesthetically pleasing?

Step 9: What groups of people would not perform the job or would have difficulty performing the job because of the above “human factors”?

Step 10: Recognize whether any of these “human burdens” are constraints on recognized market segments.

L2-(Features) Concurrent Jobs are a Distraction

A concurrent job is a job that can or must be performed at the same time as the job in question. Jobs performed in parallel can become a distraction to the performance of the job that your product or process will facilitate. In a special presentation on the company IDEO, a production introduction was performed around the use of baby strollers. While watching mothers with strollers, many mothers were observed carrying their babies while their strollers were stacked with recent purchases. In this case, the normal job of transporting the baby was replaced or hampered by the need to do another job which was shopping.

Method

Step 1: What other jobs are usually performed at the same time as the subject job?

Step 2: Can these jobs interfere or replace the job?

Step 3: What group of people are blocked or hampered by a relative lack of knowledge.

Step 4: Recognize whether concurrent jobs are a distraction on recognized market segments.
TRIZ Power Tools

L2-(Features) Lack of Knowledge

Some jobs are difficult to perform because of a relative lack of knowledge. Those who perform the job must be enlightened with important knowledge. Since the potential consumer does not see themselves as being knowledgeable enough to perform the job, they elect to not participate. In effect, they block themselves.

**Method**

*Step 1:* Does your job require technical know-how to assemble, set up or perform?

*Step 2:* Does it require customer training to accomplish well? (The assumption is that no product or service should require training.)

*Step 3:* What group of people are blocked or hampered by a lack of knowledge?

*Step 4:* Recognize whether lack of knowledge is a constraint on recognized market segments.

L2-(Features) Job Hampered by Regulations

Some jobs are difficult to perform in regions of the world due to government, civil, religious or voluntary regulations. Some voluntary regulations such as ISO regulations may limit business with other companies that require internal controls.

Note that this market segment may require a change of business model to service customers which is very disruptive to businesses.

**Method**

*Step 1:* Is your job not widely performed in certain regions of the world due to difficult regulations?

*Step 2:* Identify regions in which the Job is blocked due to regulation.

Government

Civil

Religious

Voluntary

*Step 3:* What groups of people would not perform this job or would find it distasteful because of regulations?

*Step 4:* Recognize whether regulations are a constraint on recognized market segments.
L2-(Features) Cultural Restrictions

Although governments may prohibit the performance of certain jobs, there are jobs which are deemed to be culturally unacceptable. Any job that would be shameful or embarrassing to be performed in a public location could be a candidate for this type of job.

**Method**

*Step 1:* Can your job be shameful or embarrassing if performed in certain public settings.
*Step 2:* Common situations in which the job is blocked due to cultural norms.
*Step 3:* Identify regions of the country or world in which the job is blocked due to cultural norms.
*Step 4:* Identify the potential customers that would find these limitations unacceptable or distasteful.
*Step 5:* Recognize whether cultural restrictions are a constraint on recognized market segments.

L2-(Features) Personal Limitations

The commonest of jobs are often difficult to perform by certain groups of people due to physical, mental, emotional or pain limitations. These groups can represent large portions of the population such as the elderly or children.

**Method**

*Step 1:* What groups of people exclude themselves from doing this job or are hampered because they are disabled compared to the average population but would likely perform it themselves if it were not so difficult?

--Elderly (Arthritic, impaired memory, impaired movement)
--Children
--Physically Handicapped (Missing limbs, Paralyzed, Blind, Deaf)
--Chronically Ill
--Mentally Handicapped
--People with intense discomfort

*Step 2:* Recognize whether personal limitations are a constraint on recognized market segments.

**Example—Brushing Teeth**

Brushing teeth would be considered a commonplace practice in most cultures. Everyone does it, right?

*Step 1:* What groups of people exclude themselves from doing this job or are hampered because they are disabled compared to the average population but would likely perform it themselves if it were not so difficult?
TRIZ Power Tools

--Elderly (Arthritic, impaired memory, impaired movement)
--Children
--Physically Handicapped (Missing limbs, Paralyzed, Blind, Deaf)
--Chronically Ill
--Mentally Handicapped
--People with intense discomfort

When considering the above possibilities: These groups of people who have trouble are: small children, paralyzed people, people missing hands and the mentally handicapped.

Step 2: Recognize whether personal limitations are a constraint on recognized market segments.

This could represent a limitation on slightly handicapped people or it could represent entirely new market segments.

L2-(Features) Dangerous Jobs

Most people exclude themselves from performing dangerous jobs. Normally, experts are called in to perform these jobs. Fear of performing it themselves puts the provider in a good position to expect high pay for the service. If there were a safe way to perform the job, they might be willing to do it themselves.

Method

Step 1: Is your job dangerous?
Step 2: What groups of people exclude themselves from ever doing this job, or doing it as often as it should be done? (They may delay it until others are compelled to do it or until conditions become unbearable. They may delay it until someone is hired to perform the job).
Step 3: Would these people likely perform it themselves if it was no longer dangerous or if the false perception of danger were eliminated?
Step 4: Recognize whether danger is a constraint on recognized market segments.

Example—Pruning Tall Trees

Step 1: Is your job dangerous?

Pruning high limbs is a dangerous job.

Step 2: What groups of people exclude themselves from ever doing this job, or doing it as often as it should be done? (They may delay it until others are compelled to do it or until conditions become unbearable. They may delay it until someone is hired to perform the job).

Almost all homeowners exclude themselves from pruning high limbs.

Step 3: Would these people likely perform it themselves if it was no longer dangerous or if the false perception of danger were eliminated?
TRIZ Power Tools

Many people would consider performing this job themselves if it could be done safely or without extensive planning.

Step 4: Recognize whether danger is a constraint on recognized market segments.

There are likely people that normally perform this job under dangerous conditions. It would be nice to reduce the danger for these people and also reduce product liability for businesses that facilitate dangerous jobs.

L2-(Features) Jobs in Harsh Environments

Similar to dangerous jobs are jobs done in harsh environments. Harsh environments may also be dangerous, but the main feature is that the environment is very extreme in a way that makes it uncomfortable or difficult to perform the job.

Method

Step 1: Consider performing the job or task in a difficult environment.
- Under water (typical equipment is not waterproof)
- In an aircraft or spacecraft
- During a transportation accident
- In the wilderness
- In the desert heat
- In an explosive environment
- In a smoke filled room
- In the dark
- In a storm
- In high winds
- In a fire
- In a high noise environment
- In remote isolation

Step 2: What groups of people exclude themselves from doing this job or are hampered, but would likely perform it if it was no longer in a harsh environment?

Step 3: Recognize whether harsh environments are a constraint on recognized market segments.
Example—Taking Pictures during Accidents

There is a needed job of accident investigations for insurance companies.

Step 1: Is your job or task in a difficult environment?

- Under water (typical equipment is not waterproof)
- In an aircraft or spacecraft
- During a transportation accident
- In the wilderness
- In the desert heat
- In an explosive environment
- In a smoke filled room
- In the dark
- In a storm
- In high winds
- In a fire
- In a high noise environment
- In remote isolation

Taking pictures during a car accident is very inconvenient at best and dangerous at worst.

Step 2: What groups of people exclude themselves from doing this job or are hampered, but would likely perform it if it was no longer in a harsh environment?

One group that would like to perform this job is insurance agencies.

Step 3: Recognize whether harsh environments are a constraint on recognized market segments.

This probably represents new markets only.
L2-(Features) Very Inconvenient but Urgent Jobs

Some jobs need to be performed right now, when it is the most inconvenient and the most urgent. These jobs often require constant monitoring in order to ensure that nothing goes terribly awry.

**Method**

**Step 1:** Identify situations in which the job or task is inconvenient but best performed immediately.

---While on the move. (Typical equipment is not portable). For Example: While riding a bike; while walking; while riding the bus; while driving; while on an airplane; while jogging

---While in an inaccessible environment (Typically you can’t get to it without a lot of work removing other objects.)

---The job is very time consuming, but very urgent.

---Job needs to be done remotely (Typical equipment requires lots of links)

---In public where it is embarrassing. (Typical equipment or process is visible to those around you) such as: in office situations; in crowds; at the market; at sports event; while making an arrest.

---While hands are full of other things. (Typical operation requires hands).

---During Combat (typical equipment requires relaxed conditions)

**Step 2:** What groups of people exclude themselves from doing this job or would be hampered by the inconvenience?

**Step 3:** Recognize whether urgency or inconveniences are a constraint on recognized market segments.

**Example—Pet Sitting**

Monitoring pets is a universal job around the world.

**Step 1:** Identify situations in which the job or task is inconvenient but best performed immediately.

---While on the move. (Typical equipment is not portable). For Example: While riding a bike; while walking; while riding the bus; while driving; while on an airplane; while jogging

---While in an inaccessible environment (Typically you can’t get to it without a lot of work removing other objects.)

---The job is very time consuming, but very urgent.

---Job needs to be done remotely (Typical equipment requires lots of links)
---In public where it is embarrassing. (Typical equipment or process is visible to those around you) such as: in office situations; in crowds; at the market; at sports event; while making an arrest.

---While hands are full of other things. (Typical operation requires hands).

---During Combat (typical equipment requires relaxed conditions)

A time that this is inconvenient to monitor a pet is while at work.

Step 2: What groups of people exclude themselves from doing this job or would be hampered by the inconvenience?

One group of people that exclude themselves is pet owners at work.

Step 3: Recognize whether urgency or inconveniences are a constraint on recognized market segments.

This probably represents a new market right now.

L2-(Features) Boring Jobs

The job is so boring. The human intellect requires constant stimulation in order to be happy. Many jobs are automated to the degree that there is little challenge. In certain situations, this can become dangerous. When machine operators have nothing to do, it is easy to become distracted by other thoughts. This is true for those required to control vehicles or large industrial processes.

Method

Step 1: Are there periods of time when the job is boring?

Step 2: If the job is boring, can other useful functions associated with the job be incorporated?

Step 3: What group of people would likely not perform this job or would perform it with difficulty because it is boring.

Step 4: Recognize whether boredom is a constraint on recognized market segments.

---Discussion with Petr Krupansky 8/8/2011 about common jobs that job executors find to be tedious or boring.
L2-(Features) Customers that Modify or Use Your Product to make them Work Better

In order to use your product to perform the intended job, the job executer may first modify your product so that it works better for them. These people may be on the fringes and hard to detect. Sometimes, if you are lucky, they will show you their modifications.

Method

Step 1: Which customers use your product in the most unusual way?  
Step 2: Who spends at least 50% of what your product costs to make the product useful to them?  
Step 3: What are some examples of ad hoc modifications that customers have made to your product?  
Step 4: What is the problem that they are trying to overcome with their modifications?  
Step 5: What groups of people would be most interested in these modifications?

L2-(Features) Job is Time Consuming

When jobs are distasteful, the job can never be done fast enough. Not only do the job performers suffer, but also those who accompany which can be family members, friends, sales personnel, etc.

Method

Step 1: Does it take too long for people to do the job?  
Step 2: Do those who accompany the job have to spend a lot of time that seems a waste. Consider all of the people that are affected by a job which takes a lot of time to perform.  
Step 3: What groups of people would not perform this job or would find it distasteful because it was time consuming?  
Step 4: Recognize whether lack of time is a constraint on recognized market segments.

---

24 Kevin P. Coyne, Patricia Gorman Clifford, and Renée Dye  Breakthrough Thinking from Inside the Box  
25 Kevin P. Coyne, Patricia Gorman Clifford, and Renée Dye  Breakthrough Thinking from Inside the Box  
26 Kevin P. Coyne, Patricia Gorman Clifford, and Renée Dye  Breakthrough Thinking from Inside the Box
L2-(Features) Job Wastes Materials

Many jobs create waste materials out of perfectly good base materials. Sometimes these waste materials can be reclaimed, but often it would be better if they were not generated in the first place.

**Method**

*Step 1: Does the job generate waste materials?*

*Step 2: What groups of people would not perform this job or would find it distasteful because it is wasteful?*

*Step 3: Recognize whether job waste is a constraint on recognized market segments.*

L2-(Features) Job Wastes Space

Some jobs, by their nature take up a lot of space. This is especially problematic if the space is expensive to begin with.

**Method**

*Step 1: Does performing the job take a lot of space? Is the space taken usually expensive space?*

*Step 2: What groups of people would not perform this job or would find it distasteful because it was time consuming?*

*Step 3: Recognize whether lack or loss of space is a constraint on recognized market segments.*

L2-(Features) Job is Unpredictable

Unreliable

If the available products or services will not predictably perform the task, this is a direct hindrance to performing the job. Usually, a lack of predictability is due to features of the product or service. Occasionally it is due to the inability of the chosen business model. Predictability includes, but is more than reliability. Reliability indicates how often stuff “breaks”, whereas, the product can be working as it should and not predictably give what the consumer wants. If it breaks, that only makes things worse.

**Method**

*Step 1: Are current products and services unpredictable, unreliable? This can be caused by a variety of other features such as poor quality, poor delivery, poor tools or process.*

*Step 2: What job executors would find this job distasteful because of the low predictability reliability?*
Step 3: Is safety affected by the lack of predictability or reliability? Does this make the job dangerous? (If the job is dangerous, refer to the section on dangerous jobs).

Step 4: Recognize whether unpredictable or unreliable results is a constraint on recognized market segments.

L2-(Features) Job Wastes Energy

Most jobs can be performed for a fraction of the energy currently required. This is mostly important to people if the energy costs a lot. Heating and cooling a home is an expensive job, mostly due to the cost of the energy.

Method

Step 1: Does the job usually require a lot of expensive energy?

Step 2: How much energy is ideally required to perform the job? Identify the minimum amount of energy required to perform the job.

Step 3: What groups of people would not perform this job or would find it distasteful because it either uses or wastes energy?

Step 4: Recognize whether waste or use of energy is a constraint on recognized market segments.

L2-(Features) Job Creates Harmful Functions

Almost all functions generate harm. If a job is made up of many functions, then there is usually a lot of harm performed by the time that a job is done. When we create a good machine, we also create a bad machine. The bad machine destroys itself and its surroundings due to the harmful functions. A good example of a harmful function is wear of objects in the system that must come in contact with each other.

Method

Step 1: Identify all harmful effects that come from performing the job. This harm can be to the environment, to the users, to bystanders. In particular look for objects that must touch each other. Functions that require contact almost always cause wear.

Step 2: Do accidents often happen while performing the job? When accidents happen, is it difficult to remove the consequences?

Step 3: It can never hurt to go to a repair place to see the types of repair that are typically required.

Step 4: What groups of people would not perform this job or would find it distasteful because of these harmful functions?
Step 5: Recognize whether the creation of harmful functions is a constraint on recognized market segments.

L2-(Features) Customers That Oppose the Job

Among the most difficult to serve are those that oppose your products. It is easy to assume that you will never reach these people. Consider the case of the Nintendo Wii. Those who were converted were often those most opposed to video games. These were parents who saw that video games were dividing families. Family members were becoming increasingly isolated with their games to the point of excluding other family member and blocking communication. What was needed was an offering that actually provided the anti-function of the video game. Rather than separating family members, the offering should bring them together. One way to do this would be to compete with or against each other. Those familiar with the final product realize that Nintendo was actually successful in providing the anti-job of bringing families together.

Note that this market segment may require a change of business model to service customers which is very disruptive to businesses.

Method

Step 1: Is your product or service controversial?

Step 2: What undesirable functions does a product provide?

Step 2: What is the anti-function?

Step 3: What group of people would desire this anti-function?

Example—Video Games

Step 1: Is your product or service controversial?

A controversial product is video games.

Step 2: What undesirable functions does a product provide?

The product provides the harmful function of separating people.

Step 2: What is the anti-function?

The anti-function is to bring people together.

Step 3: What group of people would desire this anti-function?

Parents of family members that are not absorbed in video games would desire this anti-function.
L2-(Features-Business Model) Jobs in New and Interesting Environments

Similar to jobs in harsh environments are jobs which are normally performed in certain expected environments which might be moved to new and interesting environments. This may or may not be harsh environments, but the assumption is that the job performer will find the new environment interesting, relaxing, exhilarating, etc.

Method

Step 1: Is there interest in performing the job in a new and interesting environment?

Following is a partial list of interesting environments:

--- In outdoor recreation environments
--- During dining
--- During transport or tours
--- In tourist attractions
--- In scenic locations
--- In front of live audiences
--- In the home

Step 2: What groups of people exclude themselves from doing this job or are hampered, but would likely perform it if it was in an interesting environment?

Step 3: Recognize whether uninteresting environments are a constraint on recognized market segments.

L2-(Features-Business Model) Job Problems Caused by Market Trends

If markets are jobs plus job performers then market trends are forces that are changing the nature of jobs. Understanding these forces can help us to identify how these jobs are changing with time which allows us to predict the problems that will arise.

Method

Step 1: Identify forces that are seeking to change the nature of the job that you have chosen.

Step 2: Identify the job of the future and its characteristics.
**TRIZ Power Tools**

Step 3: Identify the problems that job performers will likely face as they make these changes to the job of the future.

Step 4: Recognize whether new market trends are a constraint on recognized market segments.

---

**L2-(Features-Business Model) Job Wastes Money**

A job that needs to be performed twice wastes money. A job wastes money when some aspect of the job does not give the required benefit that is paid for. A job that overdoes some aspect and then requires payment wastes money.

**Method**

Step 1: Does the job often require re-performing? Is it easy to perform the job incorrectly? Must it be performed precisely? Does it require a lot of practice before it can be done correctly?

Step 2: Do most people feel that some aspect of the job is not worth the money spent? Do they feel constrained to spend the money in order to perform the part of the job that they would like to perform?

Step 3: What groups of people would not perform this job or would find it distasteful because it wastes money?

Step 4: Recognize whether money waste is a constraint on recognized market segments.

---

**L2-(Features-Business Model) Supporting Jobs are Hampered**

In order to perform some jobs, other jobs need to be performed first or after the main job.

When young parents want to go to the theatre, it is necessary to find someone to watch the children while they are away. These are two separate jobs or tasks. Difficulty or failure to perform one job leads to failure to perform the other.

Note that this market segment may require a change of business model to service customers which is very disruptive to businesses.

**Method**

Step 1: Identify jobs that must be performed either before or after this job is performed. Use the Product Life Cycle Map on the next page.

Step 2: Identify situations where the supporting job cannot be accomplished, thus blocking the performance of the main job.
Step 3: What groups of people would not perform this job or would find it distasteful because supporting jobs are hampered or not possible?

Step 4: Recognize whether hampered supporting jobs are a constraint on recognized market segments.

Example—Date Night

Many couples with children would like to have a night of entertainment together, but there is a problem…

Step 1: Identify jobs that must be performed either before or after this job is performed. Use the Product Life Cycle Map on the next page.

If the couple has children, then they need to find a safe environment for them. Most often, there is a desire to leave the children at home with a babysitter.

Step 2: Identify situations where the supporting job cannot be accomplished, thus blocking the performance of the main job.

Often, it is difficult to find a babysitter on short notice. Paying a babysitter can be cost prohibitive if the couple does not have a large income or desires to go out often.

Step 3: What groups of people would not perform this job or would find it distasteful because supporting jobs are hampered or not possible?

Young couples with children.

Step 4: Recognize whether hampered supporting jobs are a constraint on recognized market segments.
TRIZ Power Tools

Life Cycle Jobs

Mass-Storage of the Product or Service Inventory

Product Transport from Packaging to Storehouse

Distributor Purchase

Product Packaging

Product Testing

Fabrication Including Forming & Machining - Assembly

Product Transport to From Storage to Display

Researching What to Purchase

Disposition For Sale from Display to Point of Sale

Order Purchase Or Disposition

Customer Transport

Assembly Setup or Installing

Use or Operation

Testing or Confirmation of Operability

Fueling / Energizing

Locating Materials

Job Planning

Training and Certification

Control / Monitoring of Operation

Adjustment or Modification

Dealing with Failure including Alternative Systems

Protecting Users

Protecting Bystanders

Protecting System

Upgrading

Dealing with Messes

Trouble Shooting and Maintenance

Remove from System

Logging Operation

Conclusion & Powering Down

Service or Overhaul

Replacing

Transporting

Stowing

Equipment Storage including Covers and Protecting Environment

Disposal of Parts, Containers, Tools and Liquids

Recycling
L2-(Features-Business Model)
Hampered Business-to-Business Customers

This is a special case of the previous case Supporting Jobs are Hampered.

Business-to-Business customers, which stand between your company and the end user, may be hampered in their attempts to meet the end customer’s needs. It is important to have a clear understanding of what is hindering customers between your business and the end user. The ultimate success of the product is mostly a function of the ability to meet the needs of the end consumer, but it is important to serve all parties in the value chain.

Note that this market segment may require a change of business model to service customers which is very disruptive to businesses.

Method

Step 1: map out the whole value chain and see who adds value and what they get for this value. Make sure to include: End customer, Distributors, Original Equipment Manufacturers (OEMs), any 3rd Party that sets requirements for the product or service. Be careful to include the party that makes the decision to purchase your product for the end user. For consumer products that are most often consumed as gifts, it is important to meet the needs of the end user AND the person who purchases the gift

Step 2: What part of the value chain is the most poorly served?

Step 3: Profit is created for the customer by increased revenue, lower manufacturing costs and lower cost to serve. The main metric for the B2B customer is profit. What hampers profit for the most poorly served customer? How do the product features translate into profit?

Step 4: Recognize whether an underserved member of the value chain is a constraint on recognized market segments.

L2-(Features-Business Model)
Performed by Inconvenient or Inaccessible Experts

Potential customers may delay or avoid performing certain jobs because of the inconvenience of finding the required expert to perform the job for them. The expert may also be completely inaccessible.

Method
Step 1: Identify a job which requires an expert with specialized knowledge to perform. People are required to come to an inconvenient central location to perform the task.

Step 2: What groups of people would not perform this job or would find it distasteful due to:

a. Location where the job often occurs
b. Regulation
c. Culture
d. Void of warranty if performed by the uncertified

Step 4: Recognize whether reliance on inconvenient or inaccessible experts is a constraint on recognized market segments.

Example—Stitching Up a Wound

Step 1: Identify a job which requires an expert with specialized knowledge to perform. People are required to come to an inconvenient central location to perform the task.

The job is closing a deep but not life threatening wound. It must be done in such a way that little scarring is left and there is little concern for infection.

Step 2: What groups of people would not perform this job or would find it distasteful due to:

a. Location where the job often occurs
b. Regulation
c. Culture
d. Void of warranty if performed by the uncertified

Examples of people that might like to perform this job are school nurses, family members; backpackers; onsite company medical personnel or EMTs. The backpacker may only want to fix the wound well enough to get back home. The school nurse may need to perform this on low income children and may want to do a good job so that a doctor is not required. An EMT may have little time to fix a wound or may fix it en-route.

Step 4: Recognize whether reliance on inconvenient or inaccessible experts is a constraint on recognized market segments.

This is likely a constraint on recognized customers to doctors offices, etc.

Example—Fixing Cars

Sometimes, the symptoms of an automotive problem are easy to describe by a lay person. However, the symptoms are shared by multiple causes that only an expert can enumerate.

Step 1: Identify a job that requires an expert with specialized knowledge to perform.

People are required to come to an inconvenient central location to perform the task. The job of fixing a car usually requires an expert with a lot of experience.

Step 2: What groups of people would not perform this job or would find it distasteful due to:
a. Location where the job often occurs  
b. Regulation  
c. Culture  
d. Void of warranty if performed by the uncertified  

People in remote locations and people with maintenance warranties would exclude themselves. Do-it-Yourselfers (in other areas), auto enthusiasts and beginning mechanics may exclude themselves from performing these jobs.  

Step 4: Recognize whether reliance on inconvenient or inaccessible experts is a constraint on recognized market segments.  

This could represent a recognized market if the consumer has to make difficult decisions regarding transportation, etc.  

**L2-(Features-Business Model) High Switching Costs**  

Many consumers are blocked from consuming new products by the high switching costs associated with these jobs. The products that they are using have become distasteful compared to what they could do, but they will either have to delay until it becomes unbearable or continue indefinitely. This is a common occurrence with computer and software products. Another problem for businesses is switching from one workflow system to another.  

Note that this market segment may require a change of business model to service customers which is very disruptive to businesses.  

**Method**  

*Step 1:* Does switching to your product require high switching costs?  

*Step 2:* Identify potential consumers that would be highly hampered or blocked by these high switching costs.  

*Step 3:* Recognize whether high switching cost are a constraint on recognized market segments.
Hypothesize Potential Market Segments

L2-(Features-Business Model) Customers with Constantly Changing Needs

Sometimes products and services are not adaptable to different conditions of use. It is possible to spot when customers are always asking for changes to the products to meet their changing needs. Changes can come for a variety of reasons such as organization growth or changes in their customers. Since making products more adaptable is generally not a difficult task, it makes sense to identify this group as a target market.

Note that this market segment may require a change of business model to service customers which is very disruptive to businesses.

Method

Step 1: Which customers’ needs are shifting most rapidly?
Step 2: What job are they trying to do?
Step 3: Are these needs for adaptability the same for different customers within this group?
Step 4: Predict what the customer needs will be in five years.
Step 5: What are the circumstances for these groups?
Step 6: What groups of people would not perform this job or would find it distasteful because their needs change often?
Step 7: Recognize whether constantly changing needs is a constraint on recognized market segments.

L2-(Features-Business Model) Customers the Industry prefers to not Serve

So far, we have considered specific reasons that the industry prefers to not serve. This step allows us to consider any other reasons that the industry may find existing customers difficult to service. Beyond those that are dishonest or have criminal intent, are those that for one reason or another are distasteful to the business. Customers that fall into

---

27 Kevin P. Coyne, Patricia Gorman Clifford, and Renée Dye  Breakthrough Thinking from Inside the Box

28 Kevin P. Coyne, Patricia Gorman Clifford, and Renée Dye  Breakthrough Thinking from Inside the Box
Hypothesize Potential Market Segments

this category usually feel the disdain and are less likely to consume. The few that venture out to consume give valuable clues to the existence of untapped markets.

Note that this market segment may require a change of business model to service customers which is very disruptive to businesses.

Method

Step 1: Identify customers that the industry prefers not to serve.

Step 2: What job are they trying to do?

Step 3: Identify the reason that the industry prefers to not serve these customers.

Step 4: What groups of people would not perform this job or would find it distasteful because the industry prefers not to serve them?

Step 5: Recognize whether difficulty to serve is a constraint on recognized market segments.

L2-(Features-Business Model) Job Costs too Much

A sustaining market can be broken into those willing to pay a premium for higher performance (the high-end market) and those who are satisfied with lower performance and are reluctant to pay high prices for improved performance (low-end market). Businesses find it compelling to satisfy the high-end market and shed the lower paying customers. The low-end market is always on the lookout for low priced products that meet their needs. They are also willing to live without many features of the product because the performance of the product or service has overshot their needs.

Focusing on the low end market has its disadvantages. While these markets can grow rapidly, there can be a large amount of competition which limits the amount of money to be made. Eventually, these low end disruptors will begin to enter the markets dominated by high end suppliers and the margins will grow. What was a low end disruptor will eventually become a high end disruptor with larger margins.

It probably goes without saying that there are many that would consume more if only our offering cost less. It is easy to rationalize that the company has found the sweet spot for which they can make the most money. At this price point, lowering the cost will only lower the net profit. This is true if the cost of providing the offering cannot change. This assumption should not be made at this time. The cost of providing the offering can and should change for those who want lower costs. If this is the barrier to higher consumption, then it becomes clear that innovation is necessary to reduce the costs to provide the offering. High provider costs ultimately make the product distasteful for low end customers.

Note that this market segment may require a change of business model to service customers which is very disruptive to businesses.
Method

Step 1: Is your product or service expensive because it requires a high capital expenditure for equipment, office space, land, etc.

Step 2: What job does this product or service help customers to do?

Step 3: What groups of people would not perform this job or would find it distasteful because it is so expensive compared to their ability to pay?

Step 4: Recognize whether excessive costs is a constraint on recognized market segments.

Example—Dry Cleaning

Step 1: Is your product or service expensive because it requires a high capital expenditure for equipment, office space, land, etc.

Yes

Step 2: What job does this product or service help customers to do?

Clean soiled clothing that cannot be washed in a washer (wool, etc.) Providing crisp and starched clothing to impress business associates or social dates is very expensive.

Step 3: What groups of people would not perform this job or would find it distasteful because it is so expensive due to its ability to pay?

Many middle class people dry clean-their clothes less often than they would like due to the perceived high costs. This includes—dating-age youth, dating-age adults, professionals seeking advancement, church goers, and club members.

Step 4: Recognize whether excessive costs is a constraint on recognized market segments.

There are likely many recognized customers that would come more frequently if the costs were lower.

L2-(Business Model) Consumer not Converted to Job or Job is Unknown

Often, it takes some time and repeated exposure to a job to become convinced that the job is desirable. Worse yet, the job may be unknown to potential job executors.

Method

Step 1: Is knowledge that the job is possible or desirable a barrier to consumption? Is this lack of knowledge more prevalent in certain regions of the country or world?

Step 2: What potential customers are most likely to be blocked by knowledge or interest in the job?
Step 3: Is it possible that the need for the job is difficult to explain\(^{29}\)? Is it possible that simply explaining the job is too cumbersome?

**L2-(Business Model) Job Not Provided in the Geographical Region**

While this may be a problem related to manufacturing resources, there may be other reasons which will be explored in the next book. For the moment, it is sufficient to simply identify whether the product or service is provided in the region.

**Method**

- **Step 1**: Identify jobs in your industry that are not widely done in certain regions of the world.
- **Step 2**: Identify customers that are hampered or blocked from performing these jobs in these regions.
- **Step 3**: Recognize whether availability of the job in a region is a constraint on recognized market segments.

**L2-(Business Model) Job Not Try-Able**

Many customers mentally add the cost of buying twice in the event that it doesn’t work the first time. The costs may not only be associated with the price alone. If there is any difficulty in returning products to the provider, the customer may not deem it worth the risks or may delay purchasing the product. If the potential customer could try out the product in a hassle-free environment, they might be able to make the decision easily. Potential customers also recognize that complex jobs can be made more complex if the tools to get them done are difficult to use. It is likely that they will want to try out these products first.

Note that this market segment may require a change of business model to service customers which is very disruptive to businesses.

---

29 The Heath brothers explain that the cause of many not being able to understand the job is because the job is difficult to explain. They suggest to anchor the job in something that is well known and then add something that explains the concept. They refer to this as anchor and twist.

**TRIZ Power Tools**

**Method**

Step 1: Do people prefer to try out your product before deciding in order to determine if it will be satisfactory or one that is difficult to return to the provider?

Step 2: Identify whether this product is “try-able”.

Step 3: Who are the customers and what are their typical circumstances?

Step 4: What groups of people would not perform this job or would find it distasteful because it was time consuming?

Step 4: Recognize whether tryability is a constraint on recognized market segments.

**L2-(Business Model) Customers Consume in Surprising Quantities**

Periodically, a customer will appear that consumes the product or service at high rates or volumes\(^{30}\). These opportunities can come and go rapidly and the reason for the surprising consumption can disappear. Don’t be afraid to ask what is going on. They will usually be willing to tell you.

Note that this market segment may require a change of business model to service customers which is very disruptive to businesses.

**Method**

Step 1: When large consumption occurs or is requested (whether you can service them or not), do not waste the opportunity to ask why the amount is so large. You may need to train employees to flag these occurrences.

Step 2: Ask these customers if they have had any problem in consuming in these quantities and where they have tried to go before. This will give an idea of how they instinctively thought that they would be served the best.

Step 3: Note any differences between these customers and typical customers.

Step 4: Identify the job, circumstances and difficulties in consuming in these quantities?

Step 5: Do these customers represent new or existing market segments?

\(^{30}\) Kevin P. Coyne, Patricia Gorman Clifford, and Renée Dye  Breakthrough Thinking from Inside the Box
L2-(Business Model) Customers that Purchase your Products through Uncommon Channels

These customers are not bashful about using your product in unusual ways. It may be more than just how they use the product. They may also desire to purchase, transport, use and store it in unusual ways. If you are fortunate, you have already seen cases of this.

Note that this market segment may require a change of business model to service customers which is very disruptive to businesses.

**Method**

*Step 1: Which customers purchase your product in the most unusual way?*  
*Step 2: What are the circumstances?*  
*Step 3: Ask why they purchase their product in the way that they do.*  
*Step 4: Recognize whether the channel is a constraint on recognized market segments.*

L2-(Business Model) Customers Needing Excessive Service or Support

While this group of existing customers is usually satisfied with the product, they always seem to require an excessive amount of service and support. They may have difficulty using the product properly or transporting the product to their homes. Few of them venture to consume because requiring excessive service is also a hassle from their point of view. The few that venture out can provide a valuable clue as to the existence of an important market. Products and services that meet their needs can open up new growth areas.

Note that this market segment may require a change of business model to service customers which is very disruptive to businesses.

**Method**

*Step 1: Identify customers who need vastly more service or support attention than other customers? The support or service costs are very high.*

---

31 Kevin P. Coyne, Patricia Gorman Clifford, and Renée Dye  Breakthrough Thinking from Inside the Box

32 Kevin P. Coyne, Patricia Gorman Clifford, and Renée Dye  Breakthrough Thinking from Inside the Box
TRIZ Power Tools

Step 2: Consider: --Order entry--Tracking--Transportation of the product--Modification of the product or service--Help to make the product work properly--Servicing or repair of failed products.

Step 3: What job are they trying to get done?

Step 4: What are the job circumstances?

Step 5: What groups of people would not perform this job or would find it distasteful because they cannot receive the excessive support that they want?

Step 4: Recognize whether excessive service need is a constraint on recognized market segments.

L2-(Business Model) Distasteful Providers

Nobody wants to look in the mirror and ask “What makes me ugly?” Unfortunately, some people are reluctant consumers because there is something about the provider of the offering that they find distasteful.

Method

Step 1: Identify people who are distrustful or would not trust at all the common providers of products or services to perform the job. They may be distrustful because of:

---Provider policies
---Provider culture
---Provider religion or values
---Provider history

Step 2: Recognize whether distasteful providers is a constraint on recognized market segments.

L2-(Business Model) Fears of Conflicts-of-Interest

This occurs when an agent that should be operating in your interest has other interests which are competing. This may be actual or imagined, but it blocks the performance of the job. This is often sensed by potential consumers when there is an asymmetry of knowledge. (This actually happens in any sale)

Method

Step 1: Does your business rely upon an asymmetry of information to perform its business?

Step 2: In this job do you hold back valuable information to the customer who is trying to perform the job?
Step 3: Identify situations where the potential consumer may fear conflicts of interest where you are not looking out for them.

Step 4: What groups of people would not perform this job or would find it distasteful because of potential conflicts of interest?

Step 5: Recognize whether fears of conflicts of interest is a constraint on recognized market segments.

Example—Buying a Car

Buying a vehicle seems to be all about trying to get the best deal and negotiating with “the guy in the back”, who has the apparent or actual authority to accept or reject a customer’s offer price. Why is this process such a pain? People are usually not good negotiators and people leave the dealership feeling like they were tricked or otherwise “taken advantage of” (esp. on financing offers – terms for both leasing and loans, trade-in values, unnecessary extended warranties, dealer add-ons, frivolous processing fees, etc.).

Step 1: Does your business rely upon an asymmetry of information to perform its business?

Yes, car dealers usually know what they paid for the car.

Step 2: In this job do you hold back valuable information to the customer who is trying to perform the job?

Valuable information is held back during the sales of just about anything.

Step 3: Identify situations where the potential consumer may fear conflicts of interest where you are not looking out for them.

Customers may fear conflicts of interest when buying a car.

Step 5: Recognize whether fears of conflicts of interest is a constraint on recognized market segments.

This constraint likely reduces the sales of cars to recognized customers.
L1-(Or) Solutions in Search of Markets

A Backward Approach
Historically, it much more common for a business to start with products or potential products before considering the market that must be served. This is backwards. These product advances occur because someone has identified a “problem” and resolved it. Many untested assumptions were made about the importance of this problem and to which market this problem would be important.

This constitutes a product in search of a market, which is less than optimal than a market in search of a product; and can be harmful if handled incorrectly. Simply providing a new function or improving the performance of a product may solve a problem for someone, but since the features of the product and the means of delivery were never managed to suit the specific needs of a target market, the business must learn from experience what market the product was best suited for. This market might be small or unprofitable. Even if the market existed and was large, the means of providing this offering to the market may be totally inadequate. In order to serve a target market in the way that it wants to be served, everything needs to be aligned to that market.

Whenever we use a process that is out of order, assumptions must be made. Often, we don’t realize that we are making these assumptions. Rather than making unsupported assumptions, a good process creates information that supports the following steps. Recall, in the proceeding chapters, that we started with an industry, then a job, then potential consumers that are hampered in performing this job. In the next book, we go on to identify the features that allows the customer to perform the job in the way that suits them best. Finally, we get to the step of creating the product or service that has these features.

Working It Forward
In spite of this warning, we are going to introduce a process that deliberately creates new products and then asks who might be well matched for these products. Why would we do this? If we can provide a process to right the wrongs of this backwards approach, then this gives us another avenue for finding new markets that is quite different from the proceeding chapters of this book. In doing this, we will need to jump back and forth somewhat, but the process will ultimately bring us to a target market that we want to pursue.

There are two approaches to remedy the unsupported assumptions created by starting with a product. The first is to go back and perform the process in the correct order, understanding that the product will likely change from that which was originally envisioned. This is effectively done by asking what functions the new product or discovery delivers. Once we know the functions, we ask what jobs could make use of the given functions inside the industry. Remember, this is where we started before, with a job inside the target industry. Now we can work forward using the processes that we have already identified to find a group of potential consumers that are hampered from performing this job. Notice that what follows will almost certainly change the product or process from what was originally envisioned.
TRIZ Power Tools

A second approach is similar to the first except that it tries to discover a market in which the strengths and weaknesses of the product are well aligned. Once this target market is identified, less radical changes can be made to the product to fully adapt it to the target market. The procedure is to ask what functions the new product or discovery delivers. Once we know the functions, we ask what jobs could make use of the given functions. Next, we look at the features of the product and identify the problems in the jobs that these features overcome. What groups of people are hampered in performing these jobs by these problems? Next we identify the inherent weaknesses of the product and ask which of these groups will not be hampered by these weaknesses and may in fact find them to be a strength. These are the potential target markets. In effect, we have identified a group of potential consumers that are matched to the strengths and weaknesses of the product or service and are hampered from performing the job.

As mentioned, this is not the preferred method of identifying markets, but it will work and it will allow us to identify markets that we might not have otherwise identified. We will consider products or services that already exist and the creation of new ones just for this exercise.

A Weakness is Left

The weakness of this approach is that while we may identify customers that are uniquely matched to the product or service, this market may not already be hampered or blocked from performing the job. In other words, the market may or may not be a growth market.

Licensing

Some people enter this step with the idea of licensing a particular offering in another market than the one it was designed for. While it is possible to do this, there are some difficulties that must be overcome. The first difficulty is how long windows of opportunity are open. At the time that you identify a new market for your product or service the market may be ready for your offering. Unfortunately, no business may currently care that this underserved market exists. After all, you were the one that performed the study, not them. And, if they ever did care, that window of opportunity is likely to be closed now.

There are two basic routes to follow if you want to license your offering. First, look for windows of opportunity that are open for a long time or be prepared to sell the market rather than the offering. You can tell an area where the window is open because there is a lot of recent research in this area. Research means that the window is still open.

The second approach of selling the market means that you need to share your excitement over a particular market with a potential licensee for them to want the product. They need to understand and trust that this is a growth market and you have already done all of the groundwork including the market studies.

Exploiting Existing Products or Services

Sometimes, businesses develop products or processes as they try to bring an offering to market. These special products or processes might, themselves, be marketable. This section is devoted to finding markets for products or services that already exist.

We begin with existing products or services that we want to find new markets for. It is only natural for a business to want to get the most out of its investments. For instance, a business might have invested a lot of money in a particular venture and then found that it could not pursue the market. The company now has technology assets that are going unused. This is an opportunity to go after other markets and capture the investment potential that was missed.

Discoveries

Discoveries are the most common inventions that people think of as new products and services. It is only natural to consider who else might want the benefits that a solution or new technology might bring.
Deliberate Attempts to Create Unusual Products with Useful Capabilities

Most of the products that we have considered so far were already created within the business or in response to personal experiences. In this step, we will deliberately attempt to create new products or services that are unusual in some way. We will later consider who might find these products or services to be useful. Note that most of these tools are identified as ASIT\(^{33}\) tools. In ASIT, the step of asking who would want the product is normally taken at the time of creation. We have moved this to a later step.

The Crucial Step: Identifying Potential Markets for our Products

By this point, we have a product or service that we think might provide a business opportunity. What makes a product particularly well adapted to a particular market is how the product’s native characteristics (be they strengths or weaknesses) become strengths to that market.

L1-Method

Step 1: Starting with a discovery or a new product or service, identify potentially grateful market segments by identifying the generalized functions that the technology can perform. Draw a function diagram.

Step 2: Identify the conditions under which the function can now be performed that would normally hinder the function. This is a strength of the product. What other strengths is this technology is known for?

Step 3: Identify objects (the functional product in the diagram) that require these modifications under these conditions.

Step 4: Identify the weaknesses that this technology is known for.

Step 5: Identify the conditions where these weaknesses would be strengths

Step 6: What jobs require modifying the objects in step 3; require the same strengths and make use of the “inherent weaknesses”?

Step 7: Summarize the potential market segments. State the job that they are doing and the impediment to performing the job. Give examples of groups of people that match this market segment.

---

33 ASIT Stands for Advanced Structured Innovative Thinking and was authored by Roni Horowitz
L2-(Exploit Existing Products) 
Breakthroughs in Efficiency or Effectiveness

In order to run a business, process discoveries are made which increase the effectiveness of the business. When we considered the core business processes, we did this by first considering the types of problems that were frequently solved.

Such solutions eventually become core processes. In most businesses, the core processes are taken for granted. It is the water that we swim in. “This is how we do business”. An outsider might notice these strengths. Without realizing it, these processes have grown into business opportunities. Here we consider marketing the processes that make our business successful.

Method

What major breakthroughs in efficiency or effectiveness have we made in our business that could be applied in another industry?

Example—Appliance Warehousing

Appliance warehouses inventory thousands of parts for service repairmen and do-it-yourselfers. Inventory represents opportunity costs for most companies. In order to stay in business and make good margins, an appliance warehouse would need to keep the inventory turns as high as possible. Since this is the main business of these warehouses, perhaps some things have been learned along the way which could help other businesses.

What major breakthroughs in efficiency or effectiveness have we made in our business that could be applied in another industry?

A great breakthrough in the appliance warehousing business is an inventory management system that provides for maximum turns of inventory.

34 Kevin P. Coyne, Patricia Gorman Clifford, and Renée Dye  Breakthrough Thinking from Inside the Box

35 Kevin P. Coyne, Patricia Gorman Clifford, and Renée Dye  Breakthrough Thinking from Inside the Box
L2-(Exploit Existing Products)
Useful Information for Other Markets

Similar to the processes that have become core to our business, data is also created which may be useful for other businesses. Here, we will consider the option of marketing proprietary data to other businesses.

Method

*What information about customers and product use is created as a by-product of our business that could be the key to radically improving the economics of another business?*

Example—Travel Accommodations

Travel agencies develop extensive geographical and demographical databases to serve their travel customers.

*What information about customers and product use is created as a by-product of our business that could be the key to radically improving the economics of another business?*

The geographical and demographical databases might make a good product that other businesses would be interested in.

L2-(Exploit Existing Products)
Unique Jobs

Businesses may provide more than they think to their customers. In the process of providing their main products or services, they may help their customers perform other related jobs. Here, we identify those unique jobs as a service to customers that we might market.

Method

*What unique jobs does your company help your customer do?*

Example—Appliance Warehousing

As mentioned, appliance warehouses inventory appliance parts for repairmen and do-it-yourselfers. Usually, it is not enough to help the customer procure a part. The customer is trying to fix an appliance. This is the overall job. What he hires the appliance warehouse

---

36 Kevin P. Coyne, Patricia Gorman Clifford, and Renée Dye  Breakthrough Thinking from Inside the Box

37 Kevin P. Coyne, Patricia Gorman Clifford, and Renée Dye  Breakthrough Thinking from Inside the Box
to do is to provide the appliance parts. It is nearly impossible to only supply parts. Often, it is necessary to help people know how to install the parts or research alternative parts.

What unique jobs does your company help your customer do?

A unique job is to help customers remove and install parts.

L2-(Exploit Existing Products)
Unique Technologies

A technology is here defined as the ability to perform a function under certain circumstances. For example: to tell time at deep ocean depths. In order to perform jobs in certain circumstances, it may be necessary to employ unique technologies. The seals on these watches might be unique. Adjacent markets may be interested in these products. These technologies are often reflected in patents owned by the company.

Method

Identify functions that your product or service provide and the difficult circumstances under which the function in performed. You may consider looking at company patents if you are not familiar with the technologies of the business.

Example—Sealing Electronics at High Water Pressures

Your business builds underwater equipment that must work at great depths. Water often finds a way through seals at these high underwater pressures. Perhaps there is an opportunity here in adjacent markets.

Identify functions that your product or service provide and the difficult circumstances under which the function in performed. You may consider looking at company patents if you are not familiar with the technologies of the business.

The function provided by the technology is the exclusion of water from electronic components. The difficult circumstances are that the function is provided at high hydrostatic pressures.

L2-(Discoveries) Serendipitous Discoveries

A substance or physical phenomenon is developed which has unusual properties. The effect was unexpected. This discovery may have been made by you or others within your business. Instead of chalking up this discovery as a curiosity, it may be possible to capitalize on it.

Example—Low-Stick Adhesive

A new adhesive is discovered that has low adhesion properties. This is a product that others may find useful.
L2-(Deliberate Changes) Personal and Customer Irritants

This is probably the most common instance of creating products and then searching for markets. You start with a problem. This problem may be related to personal circumstances and you have discovered a solution to this problem. This is often referred to as a “user innovation”. User innovations occur where there is a personal need and the resources to make the invention. There are many instances of user innovations around the world. In some industries, user innovations represent the lion’s share of innovations. For instance, among surgeons and skateboarders, most innovations come from users. In order for user innovations to occur, there needs to be two conditions. First, it is necessary for the user to feel that the existing options are not sufficient. Second, the user must have sufficient resources to make the necessary modifications.

Example—Car Maintenance

You have found a fuel additive which will increase the time between oil changes which are normally 3000 miles between changes. This service or product represents a new product or process that others may desire.

L2-(Deliberate Changes) ASIT Sacrifice Tool

The sacrifice tool creates an unusual product or process by removing one of the most essential elements.

Method

Step 1: Pick a product or process.

Step 2: Break down the product (or process) into individual parts and list the parts by importance.

Step 3: Pick one of these parts (preferably one of the more important ones) and eliminate it.

Step 4: Under what conditions is the missing part not required? When do objects that are normally served by the missing object not require the service? Give a short description of the product.

Step 6: When is it appropriate to look like the missing part exists? Give a short description of the product.

Example—Lock

Step 1: Pick a product or process.
A lock is chosen.

**Step 2:** Break down the product (or process) into individual parts and list the parts by importance.

The parts are clasp, keys, body.

**Step 3:** Pick one of these parts (preferably one of the more important ones) and eliminate it.

What remains is our product. Eliminate the keys. Now you have a lock without keys.

**Step 4:** Under what conditions is the missing part not required? When do objects that are normally served by the missing object not require the service? Give a short description of the product.

It is needed when locking together objects that never need to be taken apart. The product is a permanent lock.

**Step 6:** When is it appropriate to look like the missing part exists? Give a short description of the product.

When we want to fool people into thinking that something is locked when in fact it is not locked such as during emergencies when fast access is required. The product is a fake lock.

---

**L2-(Deliberate Changes)**

**ASIT Parasite Tool**

The ASIT Parasite Tool seeks to create an unusual product or process by combining related objects in ways that eliminate most of one of the objects. The element that is transferred is considered to be parasitic on the new element.

**Method**

**Step 1:** Pick a product or process.

**Step 2:** Break down the product or process into individual parts and list by importance.

**Step 3:** Pick one of the parts (preferably one of the more important ones) and eliminate it.

**Step 4:** Find objects in the environment with similarities to the chosen object.

**Step 5:** One of these objects takes over the function of the missing part. This is the new product.

**Step 6:** Look for natural synergies between the remaining parts.

**Example—Spork**

**Step 1:** Pick a product or process.

A fork is chosen.
Step 2: Break down the product or process into individual parts and list by importance.
The tines are more important than the handle.

Step 3: Pick one of the parts (preferably one of the more important ones) and eliminate it.
The handle is chosen.

Step 4: Find objects in the environment with similarities to the chosen object.
A spoon is an object in the environment with similarities.

Step 5: One of these objects takes over the function of the missing part. This is the new product.
The new product is a spoon with a fork parasite.

Step 6: Look for natural synergies between the remaining parts.

L2-(Deliberate Changes)
ASIT Unification Tool

The ASIT Unification Tool seeks to completely transfer the function of one object to another object related to the same job. This tool sometimes comes up with products which can be derived from the ASIT Parasite Tool.

Example—Rake/Hoe

Step 1: Pick a product or process.

Step 2: What jobs is this product used for?

Step 3: List other objects associated with the job. Take special note of objects with similar functions (that operate on the same objects).

Step 4: The new “To Be Product” takes over all or part of the object’s functions. This is not simply a combining of products. Look for good “convergence”. One of the two original products should be “invisible.” There should be no compromise in the original functions. Identify the resulting object as the new product.
Example—Rake/Hoe

Step 1: Pick a product or process.
A rake is chosen.

Step 2: What jobs is this product used for?
A rake is used for collecting debris and moving earth.

Step 3: List other objects associated with the job. Take special note of objects with similar functions (that operate on the same objects).
A hoe is chosen.

Step 4: The new “To Be Product” takes over all or part of the objects functions. This is not simply a combining of products. Look for good “convergence.” One of the two original products should be “invisible.” There should be no compromise in the original functions. Identify the resulting object as the new product.
A small plate is added to the tines. A rake-hoe is created.

L2-(Deliberate Changes) Competing Objects

Combining competing objects is a special case of unification. In this case, we are not looking for objects in the immediate job environment, but rather looking to combine products or processes that normally compete for this job. A competing object is one that someone would use if they were not using our product.

Method

Step 1: Pick a product.
Step 2: Identify the Job that the product does.
Step 3: Identify other objects or processes that seek to provide the same job or functions. These objects may not be obvious. These are the competing systems (the true competition).
Step 4: Combine the objects. The “To Be Product” takes over all or part of these objects functions. Identify synergies.

Example—PDA

Step 1: Pick a product.
A PDA is chosen.
Step 2: Identify the Job that the product does.
A PDA organizes information.

Step 3: Identify other objects or processes that seek to provide the same job or functions. These objects may not be obvious. These are the competing systems (the true competition).

Photo albums compete to organize information.

Step 4: Combine the objects. The “To Be Product” takes over all or part of these object’s functions. Identify synergies.

The PDA organizes pictures of business contacts. It may also take a picture.

**L2-(Deliberate Changes)**

**Absorb the Anti-Function**

Absorbing the anti-function is another special case of unification. But, rather than unifying with objects in the environment or competing objects, we unify with objects that have the anti-function. This is in harmony with how systems normally evolve. They eventually absorb the anti-function. A pencil has an eraser. Sewing machines are sometimes equipped with devices to cut fabric.

**Method**

Step 1: Identify a product.
Step 2: Identify its function.
Step 3: Identify the Anti-function.
Step 4: The baseline object takes over the anti-function. This is the virtual product.

**Example—Electrical Wall Socket**

Step 1: Identify a product.
An electrical wall socket is chosen.
Step 2: Identify its function.
The wall socket positions electrical plugs and conducts electricity.
Step 3: Identify the Anti-function.
The anti-function would be to disengage a plug.
Step 4: The baseline object takes over the anti-function. This is the virtual product.
The electrical socket blocks objects from entering unless both prongs are engaged.
L2-(Deliberate Changes) ASIT Multiplication Tool

The ASIT multiplication tool seeks to create a new product by multiplying one part of the given product or service and then change one of the multiplied elements in a way that adds functionality or a new capability to the offering.

**Method**

*Step 1:* Pick a product.

*Step 2:* Make a list of the parts of the product or process and list by importance.

*Step 3:* Pick one of the parts from the list and add a second which is somehow different from the first part. This is the “Virtual Product.”

*Step 4:* Consider different configurations such as making the two parts manifest themselves at different times or multiples greater than two. Consider making the parts interact. Consider making them different in a significant way.

*Step 5:* Identify the new product.

**Example—Pencil Sharpener**

*Step 1:* Pick a product.

A pencil sharpener is chosen.

*Step 2:* Make a list of the parts of the product or process and list by importance.

The parts are sharpening mechanism, waste bin and motor.

*Step 3:* Pick one of the parts from the list and add a second which is somehow different from the first part. This is the “Virtual Product.”

A second sharpening mechanism is added.

*Step 4:* Consider different configurations such as making the two parts manifest themselves at different times or multiples greater than two. Consider making the parts interact. Consider making them different in a significant way.

The two holes are different sizes.

*Step 5:* Identify the new product.

The new product has an extra-large sharpening mechanism for crayons.
L2-(Deliberate Changes) ASIT Division Tool

The ASIT Division Tool seeks to create a new product by separating a part of an object from the rest of the object. This separation may give the new product new capabilities and functionality.

Method

Step 1: Pick a product.

Step 2: Make a list of the parts of the product or process. List the parts by importance.

Step 3: Pick one of the parts and separate it away from the others, allowing a new organization. This is the “Virtual Product.”

Step 4: Consider different versions of the virtual product.

Step 5: Consider different configurations or locations in which the extracted part may be recombined.

Step 6: Consider ways that the extracted part may exist away from the main parts.

Step 7: Consider recombining with the main components but with the extracted part unmatched. Combine only when required.

Step 8: Identify the new product or process.

Example—Segmented Book

Step 1: Pick a product.

A book is chosen.

Step 2: Make a list of the parts of the product or process. List the parts by importance.

The parts by importance are: Words, illustrations, pages, cover.

Step 3: Pick one of the parts and separate it away from the others, allowing a new organization. This is the “Virtual Product.”

Move the Illustrations and text.

Step 4: Consider different versions of the virtual product.

Step 5: Consider different configurations or locations in which the extracted part may be recombined.

Step 6: Consider ways that the extracted part may exist away from the main parts.

Step 7: Consider recombining with the main components but with the extracted part unmatched. Combine only when required.

Step 8: Identify the new product or process.

The illustrations and text exist in a database where they may be used by several other books.
Breaking Symmetry Tool

The ASIT Breaking Symmetry Tool seeks to create a new useful product by making some feature of the product asymmetric. In effect, an attribute of the offering is distributed in time or space. This creates new capabilities in the offering.

**Method**

**Step 1:** Pick a product.

**Step 2:** Make a list of the main characteristics

**Step 3:** Consider the following ways in which we can make a part non-symmetric. (This is similar to different methods for resolving contradictions.)

- Space Dimensions
- Time Dimensions
- User Dimensions
- Environmental Dimensions
- Group Dimensions
- Characteristic dimensions

Pick one of the main characteristics and allow it to vary in one of the dimensions. This is the “Virtual product”.

**Example—Pole Vaulting**

**Step 1:** Pick a product.

A pole vault is chosen.

**Step 2:** Make a list of the main characteristics

The list is: length, flexibility, balance

**Step 3:** Consider the following ways in which we can make a part non-symmetric. (This is similar to different methods for resolving contradictions.)

- Space Dimensions
- Time Dimensions
- User Dimensions
- Environmental Dimensions
- Group Dimensions
- Characteristic dimensions

Pick one of the main characteristics and allow it to vary in one of the dimensions. This is the “Virtual product”.

The pole flexibility will vary over its length.

**L2-Identify Potentially Grateful Market Segments**

At this point, we have technologies in search of markets: we have put the cart in front of the horse and need to correct this condition. First, we focus on the technology the product or service performs. Recall that we defined a technology as a function that our products or services provide under certain demanding conditions. Let’s work backward with an example to see what we mean. We start with functions that the product or process currently perform. The product or process is used to modify or control something. Next, we identify the special characteristics of the offering. These special characteristics will help us to identify the special circumstances under which someone might want to perform the function. Once we know the unique circumstances, we can identify the objects that are modified in the function that require this special handling. Now we know the modification and the objects that need to be modified in this special way. The identification of the jobs that require the object and the modification are more easily identified. Once we know the jobs, we try to identify the impediment that is overcome in performing the job and the larger group of people that share this impediment.

**Method**

*Step 1:* What are generalized functions that the technology can perform? Perform Boolean searches. Draw a function diagram.

*Step 2:* What are the conditions under which the function can be performed that would normally hinder the function? What are the strengths that this technology is known for?

*Step 3:* What objects (the functional product in the diagram) require these modifications under these conditions? State it in a generalized form and then brainstorm possible objects. Consider using a Boolean search to identify specific objects.

*Step 4:* What are the weaknesses that this technology is known for?

*Step 5:* Under what conditions would these weaknesses be strengths or not disrupt the use of the function?

*Step 6:* What jobs require modifying the objects in step 3; require the same strengths and make use of the inherent weaknesses? Use a Boolean search to discover the type of jobs that require the given function.

*Step 7:* Summarize the potential market segments. State the job that they are doing and the impediment to performing the job. Give examples of groups of people that match this market segment.

**Example—Limited Movement Fluid Seal**

This technology is an alternating sandwich of elastomer sheets and metal plates which allows for movement of mechanical elements in fluids. Each plate-elastomer combination allows for a small amount of movement. When many alternating layers are adhered together, a lot of movement is possible. This is an example of the separation principle “separation between the parts and the whole”. The structure must have a little and a lot of movement. Also, it is an example of separation by direction. The structure is only flexible in the direction which allows the material to deform in shear. The structure is very stiff in
TRIZ Power Tools

the direction of an applied pressure but is flexible in rotation; which makes it ideal for deep-sea exploration to seal mechanical devices that must move outside of the submersible vessel. Let’s see if we can identify other markets for this technology.

**Step 1: What are generalized functions that the technology can perform? Perform Boolean searches. Draw a function diagram.**

One modification is “exclusion of fluids”. The modification is performed by a flexible barrier. A function diagram is drawn to the right which shows the fluid as the product of the function.

A second function is to operate as a flexible coupling between rotating components. For the sake of space, we will concentrate on the second function.

**Step 2: What are the conditions under which the function can be performed that would normally hinder the function? What are the strengths that this technology is known for?**

The conditions that would normally hinder the function are fluids that aggressively move through flexible barriers. This can occur by pushing through, eating through or weeping through the barrier in cases where small amounts of fluids can harm the objects that are being protected.

As for strengths, this technology is known for complete exclusion of all fluids under extreme conditions of pressure, erosion and corrosion. It is also known for foolproof exclusion of fluids in the event that even small amounts could do great harm.

**Step 3: What objects (the functional product in the diagram) require these modifications under these conditions? State it in a generalized form and then brainstorm possible objects. Consider using a Boolean search to identify specific objects.**

A Boolean Google search was used to search the terms “harmful fluids” and “harmful gases”. The resulting generalized statement is “fluids which have harmful properties” which include:

#1 High velocity fluids carrying erosive particles
#2 Fluids containing germs or viruses
#3 High pressure fluids
#4 Corrosive fluids
#5 Poisonous fluids
#6 Rarified fluids including vacuums
#7 Radioactive fluids
#8 High temperature fluids

**Step 4: What are the weaknesses that this technology is known for?**

This technology is known for resistance to movement caused by the elastomeric layers. These elastomeric layers create an effective spring and damper (resistance to rapid movement). This means that some force must be present to overcome this resistance to
movement. It is also known for the high costs associated with forming up the multiple elastic and metallic layers.

**Step 5:** Under what conditions would these weaknesses be strengths or not disrupt the use of the function?

The conditions would be in high-cost operations where movement can be slow and geared down to allow for low power consumption. This weakness would be considered a strength if the movement could always be restored to a null condition (the zero-preload condition of the spring). This would naturally be built into the seal because it has a natural position that it always returns to following any movement away from this null position.

**Step 6:** What jobs require modifying the objects in step 3; require the same strengths and make use of the inherent weaknesses? Use a Boolean search to discover the type of jobs that require the given function.

Exclusion of high velocity fluids carrying erosive particles where movement is limited. Google search: (stop OR constrain OR control OR limit OR protect) AND ("erosive fluids" OR "erosive particles" OR "erosive gases")

Exclusion of fluids containing germs or viruses where movement is limited. Google search: (stop OR constrain OR control OR limit OR protect) AND ("contaminated fluids" OR "contaminated gases"). Note: It was difficult to express germ or virus laden gases.

Exclusion of high pressure fluids where movement is limited. Google search: (stop OR constrain OR control OR limit OR protect) AND ("high pressure"). Note: High pressure was used because pressure is mostly limited to fluids.

Exclusion of corrosive fluids where movement is limited. (stop OR constrain OR control OR limit OR protect) AND ("Corrosive fluids")

Exclusion of poisonous fluids where movement is limited (stop OR constrain OR control OR limit OR protect) AND ("Poisonous Fluid") Note: There were very few finds leading to the belief that these market segments would be very limited.

Exclusion of rarified fluids including vacuums where movement is limited. (stop OR constrain OR control OR limit OR protect) AND (rarified OR vacuum)

Exclusion of radioactive fluids where movement is limited. (stop OR constrain OR control OR limit OR protect) AND ("radioactive fluid")

Exclusion of high temperature fluids (to humans) where movement is limited. (stop OR constrain OR control OR limit OR protect) AND ("hot liquid" OR "hot gas" OR "hot fluid") Note: I concluded that this method of controlling harmful fluids did not warrant this means unless the fluid was extremely harmful. High temperature fluids did not seem to meet this criterion unless the fluid was extremely hot; in which case, the elastomeric layers would have to be replaced by flexible high temperature structures.

This search occurred over the course of two mornings. Each of the categories of jobs below was added to slowly. The number of jobs that could use this technology was quite large and it was discovered that there is an industry around modular components that protect from harmful fluids. Following are the general categories of jobs that required the function and made use of both the strengths and weaknesses of this technology.

Protection of objects in external environment by using flexible tubes or couplers. In other words, harmful fluids can be conducted through structures which use the given technology.

Protection of objects inside tubes particularly at great fluid depths. This is similar to the initial application of deep sea exploration.
Protection of valve components that control harmful fluids. Valves that must rotate closure members exposed to harmful fluids require seals and bearings which are capable of excluding these fluids near the axis of rotation. This technology is ideal for valve seals.

Protection of filtering equipment that operates with harmful fluids. This would only be useful if there are elements of the filter that are active.

Protection of people or environment behind protective enclosures that must allow manipulation of objects inside the enclosures. This is similar to the gloves used in biological labs where dangerous diseases are studied.

Protection of blowout preventers. Similar to the valves, this technology can be used to protect components which are required to move relative to each other.

Direct control of dangerous fluids with “pinch valves”. These valves effectively reduce the diameter of a flow passage by constricting on the fluid.

Protection of sensors that require small movement in contact with fluids. For example, sensors that change dimension due to heating or cooling.

Protection of skin. This was an unexpected search result. This could include personal protective equipment such as gloves, etc.

Reduce loss of fluids to vacuums such as space or vacuum furnaces. We have mostly been concerned about harmful fluids. In this case, we may not want to lose very useful fluids or we have a desire to not contaminate a vacuum space.

Protection of switches with limited movement which must operate in contact with harmful fluids.

Protection of rotating couplings. Typically rubber boots are used for these applications. Our technology might be used in conditions of high erosion or corrosion which would not allow the typical rubber boots to work.

Static sealing of all fluids where coupled parts have slight movement or misalignment.

Protection from dispensed harmful fluids such as fuels or other chemicals which are very harmful. Some propulsion fuels are very toxic.

Protection of life from harmful fluids within constrained spaces. Constrained spaces can be very dangerous if even small amounts of dangerous gases are present. Equipment which uses harmful gases must not be allowed to leak into these environments.

Controlled injection of radioactive fluids into tissues. Certain medical procedures require the precise application of dangerous radioactive fluids to deep or remote tissues. Movement of the dispensing needle to the remote location may require moving through a tortuous path. This technology allows for flexible structures which will not leak during movement along this path.

Dispensing of radioactive fluids. Dispensing usually implies that the fluid moves from a large source to where it is required through flexible tubing. Since even small amounts of radioactive fluids can cause severe contamination, the tubing must be both flexible and impervious to leakage.

**Step 7: Summarize the potential market segments. State the job that they are doing and the impediment to performing the job. Give examples of groups of people that match this market segment.**

The general market segment is groups of people that wish to exclude extremely harmful fluids under situations where no breach of the barrier is allowed, over any length of time.
This group of people is generally hindered from performing this job due to lack of structures which can exclude such fluids while remaining flexible enough to allow relative movement between elements of these systems.

Example—Fake Lock

You have created a lock which requires no key and that cannot be locked. Identify potential markets for the unusual lock.

*Step 1:* What are generalized functions that the technology can perform? Perform Boolean searches. Draw a function diagram.

The following Boolean search was used. (Lock OR Coupler OR Clasp) AND (Misinform OR Fake OR Deceive).

Decorative locks which are designed to look real but allow instant access to such things as doll houses or electric train decorations. Note the function diagram to the right. There is really no joining function mentioned because the locks may be simply glued on to the decorations. Their function is not mechanical but purely aesthetic.

Locks which must be opened quickly in a fairly secure environment. Note that in the function diagram to the right that the primary function is to misinform people. It performs a weak function of joining. A possible function is deceiving people into believing that something is locked when it is not.

Locks to ward people off where there are many other targets to steal for example, tire locks.

*Step 2:* What are the conditions under which the function can be performed that would normally hinder the function? What are the strengths that this technology is known for?

The condition under which the function can be performed that would normally hinder the function is when rapid access is required, yet the enclosure requires the appearance of being locked. For the purpose of conserving space, only the function of joining parts of an enclosure and misinforming humans will be considered for the remainder of this example.

*Step 3:* What objects (the functional product in the diagram) require these modifications under these conditions? State it in a generalized form and then brainstorm possible objects. Consider using a Boolean search to identify specific objects.

These objects include gates, chains and borders to paths.

*Step 4:* What are the weaknesses that this technology is known for?

The weakness is the risk associated with having an enclosure that is not secure.

*Step 5:* Under what conditions would these weaknesses be strengths or not disrupt the use of the function?

The conditions where these weaknesses would be strengths would be where it was desirable that the lock be unlocked if necessary, but appear to be locked and draw no attention. If the enclosure is unlocked, there are no serious risks.
Step 6: What jobs require modifying the objects in step 3, require the same strengths and make use of the inherent weaknesses? Use a Boolean search to discover the type of jobs that require the given function.

Jobs that occur under these circumstances are: excluding people from certain paths in public places. This is particularly desirable on paths where rapid escape may be required.

Step 7: Summarize the potential market segments. State the job that they are doing and the impediment to performing the job. Give examples of groups of people that match this market segment.

The groups of people are: amusement and theme parks, traffic directors at sporting events, people who direct flow of travelers in airports.

Example—Electric Car

The new product is an all-electric car.

Step 1: What are generalized functions that the technology can perform? Perform Boolean searches. Draw a function diagram.

The functions include:

- Transporting occupants
- Impressing people

Step 2: What are the conditions under which the function can be performed that would normally hinder the function? What are the strengths that this technology is known for?

Conditions where transportation is hindered:

- Travel is only allowed for alternative fuels
- Travel is in tight quarters with humans
- Travel noise must be kept to a minimum
- High acceleration at low speed is required
- Travel where frequent stops and starts are required
- Extended travel at slow speeds is required

Step 3: What objects (the functional product in the diagram) require these modifications under these conditions? State it in a generalized form and then brainstorm possible objects. Consider using a Boolean search to identify specific objects.

These objects include: inexperienced drivers, drivers traveling short distances only, drivers requiring many stops and starts and travels in areas congested with humans.

Step 4: What are the weaknesses that this technology is known for?

It is known for low range, heavy weight and small occupancy volume.

Step 5: Under what conditions would these weaknesses be strengths or not disrupt the use of the function?

These characteristics are helpful when drivers are inexperienced.
Step 6: What jobs require modifying the objects in step 3; require the same strengths and make use of the “inherent weaknesses”? Use a Boolean search to discover the type of jobs that require the given function.

Jobs that occur under these circumstances are: self transport of teenagers, delivering mail and transport of commuters over small distances.

Step 7: Summarize the potential market segments? State the job that they are doing and the impediment to performing the job. Give examples of groups of people that match this market segment.

The groups of people are: Parents of teen drivers are a possible market. An electric car would make it difficult to drive too far or too fast. The number of batteries could actually be reduced to further reduce the range. The car could be modified to make it more appealing to teenagers. For instance, it could have interesting horn sounds or car styling.
TRIZ Power Tools
L1-Choose the Target Market Segment(s)

Hopefully, by this point you have identified several potential target markets. Unfortunately, it is difficult and requires a lot of resources to pursue more than one. It is time to focus in on one market. It is unlikely that an individual or team will be able to choose a market based on economics alone. This section is meant to bring out a number of things to consider when choosing a market. In the end, the thing that influences a team the most is its enthusiasm for a certain market. People generally use one of two models to make decisions. The first model is benefits and costs. The second model is identity. We ask “Would a person like me do that?“ The business needs should come into this decision as well. Remember that you may choose or be trying to choose a market where the business is unwilling to play. A decision to go against business desires will likely go nowhere. We start by summarizing the potential markets.

L1-Method

Step 1: Considering all of the market segments, identify the market segment that has the largest size, the greatest difficulty in performing the job and one that the business is willing to service.

Step 2: Make sure that you will have a high likelihood of servicing this market. If the market is new, be ready to start a new business to meet its needs. If the business desires to break into an established market, steer them away if possible. If you desire to license your ideas to a business, first consider markets where there is fierce competition among at least 3 major players. They will be more willing to consider your ideas.
L2-Summarize the Potential Segments

Remember that markets are characterized by a group of people that are trying to get a certain job done but are hindered from performing that job. These potential customers may be hindered or blocked from consuming.

Method

*Step 1:* List the characteristics of the customers, and how they are hindered in performing the job.

L2-Filter for Team Enthusiasm

Before we begin this step we should note that no option has a high probability of success simply because so many things, beyond a good market, have to fall into place in order to make them work. There is no sense, however, in pursuing small or indifferent markets, or markets that the business is not willing to pursue. If we choose a viable market, we at least have a chance of doing the rest well. Some options will not be viable, simply because they have a low probability of success from the start.

With this filter, we enter the realm of deciding which is not based on costs and benefits. Instead, it usually is based on individual and group identity. “Would a group like us pursue a market like that?” It is interesting to note that Phillips assesses the business desirability after filtering for team enthusiasm.

Method

*Step 1:* Are there any options that the team cannot get behind?

*Step 2:* Make an attempt to understand why people feel as they do. Decrease the probability that a team member is unwilling to pursue a market based on a misunderstanding.

L2-Filter for Potential Market Size

This is one of the most risky steps due to the difficulty of sizing up non-consuming markets. They are difficult to study. Here we will present some experimental methods for determining market size of non-consuming markets. The volume of the market that will respond to your offering is largely determined by the product attributes, especially price.

Method

*Step 1:* Use a de-rated survey. A de-rated survey is one that attempts to determine market size by asking a general population or a tailored population about interest. Taking the percentage of positive responders in a region and multiplying the population in that region

---

38 Breakout Growth: Practical Lessons from Brands that Consistently Outperform competitors by the Research and Technology Executive Council
gives a highly optimistic estimate of the interest. Now, we come to the de-rating. Since the risk is high that many responders are exaggerating their interest, it is necessary to multiply the calculated market size by a number significantly less than one.

**Step 2:** Auctions—offer fake products on public internet auctions. Responders should be awarded for participating in a fake auction. De-rate the reaction of the respondents. Only do this where it is allowed under the terms of the auctions.

**Step 3:** Go to Google insights at [www.google.com/insight](http://www.google.com/insight) to identify the interest in overcoming the impediments to performing the function. Use Google Adwords to get the absolute market size of the searches found on insight.

---

### L2-Filter for how Well the Market is already being Served

Up to this point, we have made no overt attempt to determine how well these markets are being served. It is not enough to assume that since you haven’t heard about them being served that they aren’t.

Once we begin searching for products which target certain markets, we will likely find some that do. Just because products exist to satisfy a market does not mean that they are well served. The products and services may be inadequate for that market. (The next book helps us to understand what this market really wants). What finding existing products does mean is that at least someone has recognized that this market exists. What we are interested in is the level of activity and finding clues to how long this market has been served. If the activity is low, then one of three possibilities exists. First, the market is truly small. Second, it hasn’t been served for long. Third, the market is currently being poorly served.

Once you have identified how well the market is being served, it is necessary to decide whether you want to pursue these markets. If you represent a business that is looking at moving into an established market, understand that they are very difficult to crack for a variety of reasons. Entering an established market has major disadvantages. First, it requires higher intellectual capital. This is especially important if integrated solutions are required to meet the market’s needs. Second, you will begin with low brand awareness and customer loyalty.

If you desire to license a patent to an existing company, consider looking for established markets where the competition is fierce and the businesses will be looking for new ideas to maintain shelf space.

If the market is not being served or is being served inadequately, then established businesses are unlikely to try to service them. In this case it will be necessary to start a new business as new markets will require new business models to serve them. Established businesses will find this too disruptive.

### L1-Method

**Step 1:** Search the internet for products and services which target the markets you are considering. Note the level of activity in serving them. Is there evidence that they have been served for long? Is there evidence that they are being served well?

**Step 2:** Search for patents which target these markets.

**Step 3:** What compromises do existing products and services demand of this market? This gives us a better idea of whether this market is being well served.

**Step 4:** Determine how well the market is currently being served.
TRIZ Power Tools

Step 5: If you desire to license your product then first consider an established market where the competition is fierce and there are at least 3 major players.

Step 6: If the market already exists and the business that you are trying to serve is not already in the business then, consider another market. If your company still seeking to enter established markets, discourage it or do not get involved.

Step 7: If the market is not being served, then it is less likely that you will be able to find an existing business that is willing to take the chance with such a new market, including your own business. In this case, it is more likely that a new business will need to be established to meet the needs of this market. Only consider this if you or your business is willing to make the required sacrifices.

L2-Filter for Intensity of Consumer Dilemma

“Although many concepts may address a valid consumer need, if consumers do not feel enough ‘pain,’ they will not readily adopt a new product. Reframing consumer needs into dilemmas and assessing the relative pain felt around each guides Philips in ensuring its innovation investments will hit home with consumers. The worst dilemma is felt when the market feels that it has no options. Look for markets where the customer has nothing. Then you are competing against non-consumption. It is easy to satisfy such markets with products that under-perform (the common beginning state of most new products) since they have nothing to compare it to.

Remember that consumers in pain are looking for immediate relief. If you are awake at 2:00 in the morning with pain and you go to the store, you are looking for aspirin, not vitamins.

Method

Step 1: Identify the customer dilemma.

Step 2: Is the dilemma further intensified because there are no options for satisfying needs? These options are what the market would use if your option were not available.

Step 3: Decide whether the customer dilemma is sufficient to cause real need for new products and services. If not, then abandon the market.

L2-Filter by where the Business is willing to Play

If we have already determined where the business is willing to play then we have likely been filtering the possible market segments as we have considered the various options. At any rate, we verify that the business is willing to play at this step. Apply what you already know about where the business is willing to play. There is no need to swim upstream if the market is unwanted. Here is a short list to remind you.

---

39 Breakout Growth: Practical Lessons from Brands that Consistently Outperform competitors by the Research and Technology Executive Council
Method

Step 1: Verify with the Key Decision Makers that they are willing to consider the market segment options that you are proposing. You should be clear on what each segment will require of the following:

--expand its brand
--expand to new customers
--expand its technologies
--expand or change its service or delivery model
--expand capital assets
--expand human assets
--expand or change the business model
--consider separate businesses
--expand the value chain
--consider a lower margin threshold (not essential)

Step 2: If any option requires that you do something that the business is not willing to do then consider how you might get around this.

Step 3: If there is no way around the problem, then consider abandoning the option.

L2-Choose the Target Market Segment(s)

Now you have a short list of viable markets. It is time to choose. It is important that the key decision makers are a part of this decision. The target markets should create large growth potential. If the market segments that you have chosen are too small then you may need to consider combining market segments and satisfying them all. This may result in interesting contradictions that will need to be addressed later.

Method

Step 1: Involving key decision makers, pick the market segments that your system will serve. If possible, focus on the largest group in which the competition is expected to be irrelevant. Ideally, this will overlap other markets.

Step 2: If the capability curve of a low-end disruptive market is catching up with market demand in a market that you currently serve, consider reducing the capabilities of the product and moving to the new disruptive technology.

Step 3: In order to increase the market size, it may be necessary to try to satisfy more than one market segment.
L1-New Branding if Necessary

As mentioned, the brand of a company represents the type of jobs that the customer associates with your company and potentially the why behind the job. The brand may not directly describe the job, but know that it is associated in the mind of the customer. In this section, we consider schemes for coming up with a brand.

**L1-Method**

*Step 1:* Develop a tagline that describes the Job to be Done.

*Step 2:* Consider brands that describe the problem solved.

*Step 3:* Consider brands that relate to the reason that the job is being done.

*Step 4:* If this is a new job and people don’t normally associate this with the company, then add the job to the company name.

*Step 5:* If the product or service is completely new, consider a brand name which is catchy and can easily be associated with the job. Examples are “Facebook or Snapchat”

*Step 6:* Consider names that are not directly associated with the Job but are memorable such as “Google”.

---

40 Made to Stick by Chip and Dan Heath

41 Clayton Christensen—This may be in the Innovators Dilemma—sorry that I don’t know where this came from except I want to give him credit.
Summary

By following the algorithms of this book, we have identified the boundaries within which the business is willing to consider new market segments. Using this information, we have chosen a target market segment. This is a group of people who would like to perform a job, but are hampered by the same or similar issues. (Additionally, the market segment will often perform the job for the same reason, but we will not be able to consider the reason until the next when we can survey the market to understand why they perform the job). By segmenting the markets in this fashion, we have positioned ourselves to provide this market segment with a solution to the problem that is keeping them from getting the job done.

In the next book, we will see how we translate the problems of this market segment into the requirements for a new product.