LEAN SIX SIGMA TOOLS FOR EVERYDAY USE

10 quick and easy tools to improve your effectiveness and productivity

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What is this e-book all about?

There are two types of people in this world- those who are excited when they hear “Six Sigma” and those who zone out the moment they hear the term. I don’t blame you if belong to the second group. For the longest time this term has been shrouded with mystery, as if it is an ancient cult and that only the elite are able to understand.

Six Sigma is a concept that was popularized by GE, which used to be the world’s most admired company. It is a management concept that has brought in significant savings to the company. Such was the focus given to this methodology that you could not move up the GE corporate ladder if you didn’t have a certification in Six Sigma.

And getting a certification- the minimum requirement was a green belt level - was not a piece of cake. You would have to deal with challenging statistical terms which can be a intimidating if you have this aversion for math.

The concept evolved to include the “Lean” mindset hence nowadays you often hear the term “Lean Six Sigma”.

In the simplest terms, Lean Six Sigma is a methodology used by companies to improve quality, reduce cost and improve its timeliness.

One of my personal mission is to demystify the term Lean Six Sigma (LSS) to the layman. True there are LSS tools that require a bit of math and you have to undergo some form of certification. But for the most part, one thing I have learned is that there are a lot of simple tools that can actually be used in everyday setting.

And these tools through repeated use can actually help you become more effective and productive in solving different types of challenges whether in work or personal life.

Here in this short ebook I list down the common Lean Six Sigma tools that are easy to comprehend and can be immediately applied.

A bit of a background

I had a client, let's call him Dave. He called me up one day and said, "Hey Jodl, I am really stressed. There is just too much pressure. I need to make this work."

"What do you mean?" I probed further. Dave is normally a structured person, articulate and beguiling with his posh British accent. But on occasions where his stress level is unmanageable, he transforms into a gibberish child.

"Well this meeting that is upcoming. I just have to make it work."

A huge sigh of relief on my part. At least I had an idea of what the main stressor of my client was. Though I still have to probe further to articulate his pain points I felt it would be an easy task because I had an arsenal of tools that would help me address my client's challenges.

I have been with Dave's group on a retainer basis. My job description is that of a Project Manager. But as in almost all job descriptions there is that catch all phrase "and other tasks that may be deemed necessary from time to time".

Every since I took this role as a freelance project manager I have been given numerous challenges that I would not have encountered in the corporate world.

But I have continued to serve and delight my client because despite the disparate and oftentimes ambiguous challenges I would always be able to come up with an innovative and practical solution.

I attribute this to being exposed to the Lean Six Sigma methodology. The same set of tools I have applied for my projects in the corporate setting can actually be used in the freelance setting and even in personal self-management processes.

And so I reviewed the whole slew of Lean Six Sigma tools and selected what I thought would be the most relevant to the challenges faced by a freelancer or even a typical worker handling day to day processes.

Lean Six Sigma as a Toolkit

While Lean Six Sigma is a methodology that combines the Lean methodology (focused more on timeliness) and Six Sigma methodology (focused more on quality), you can also think of it as a toolkit.

A toolkit has a lot of tools. Each tool has a specific function. You don't pull out a hammer when you need to cut a wooden plank. You would be using a saw. Similarly in Lean Six Sigma in every challenge or situation a specific tool can be pulled out to help you address it.

There is a LSS tool for eliminating ambiguities from your client. There is a tool to understand potential causes of a problem. There is a tool to reduce clutter of ideas.

In my experience in the manufacturing, banking, academe and freelance setting, the next ten tools I will introduce are some of the most widely used tools.

Hope you will find them useful in your work or even in your personal life.

Tool No. 1
SIPOC

How it works

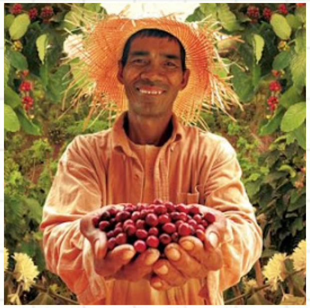
- SIPOC is a simple tool that is used to align your process to your customer.
- SIPOC stands for the five elements of this tool : Supplier, Input, Process, Output and Customer.
- Any process starts with an input and ends with an output. Along the way a transformation hapens .
- Anyone who receives the output of your process is your customer.
- Knowing who your customer is, keeps you focused on the outcome of the process.
- You should ensure that the output of your process meets the requirements of your customer.

Example

- Here we take a look at an everyday example, a process of making coffee.

Supplier Input → Process → Output **Customer**

Coffee Farmers	Coffee beans	Coffee Making	Brewed Coffee	Consumer





Further examples

- Here are additional examples on SIPOC

Supplier	Input	Process	Output	Customer
Customer	Loan application form	Loan approval	Approved loan	Customer

Supplier	Input	Process	Output	Customer
Customer	Complaint	Customer complaint handling	Resolution	Customer

Supplier	Input	Process	Output	Customer
Database	Preventive Maintenance schedule	Preventive Maintenance	Equipment in good running condition	Machine Operator

When to use it

- When you want to identify the main output and the main customer of your process.
- When you want to identify key inputs and suppliers to your process.
- When the output of your process is non-tangible and you want to have better clarity.

Tips

- SIPOC is best used for a high level process rather than detailed processes. For example instead of having 3 detailed processes such as scheduling, interview and employment offer you may represent them as recruitment process.
- Almost always there are several suppliers and inputs to a high level process so it is best to capture everything.
- A customer in this context is a recipient of the output of your process. A customer can be internal or external. Internal customers can be someone from your department or within your organization. External customers are those outside your organization or the actual paying customer.
- A customer can even be you. (e.g. Self-Improvement Process, Competency enhancement, Goal setting)

Exercise

- Apply the SIPOC principle to any of the following processes
  - Handling client requests for proposals
  - Managing your career
  - Creating an online Video

Tool No. 2
Process Map

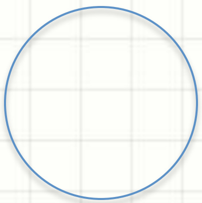
How it works

- Process mapping is used when you want to visualize your process. In a service-oriented industry it is imperative that processes are represented in a process map as the transformation is almost virtual.
- Process maps can be high level or detailed.
- A process map is usually not an end in itself and is used in conjunction with other tools.
- This tool is useful in demonstrating handoffs in a process which could impact the process turnaround time.

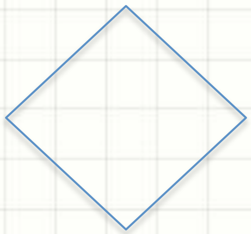
How it works

- The most commonly used symbols are

Rectangle – used to write down the action steps



Circle – used to indicate start or end of the process or used as a connector

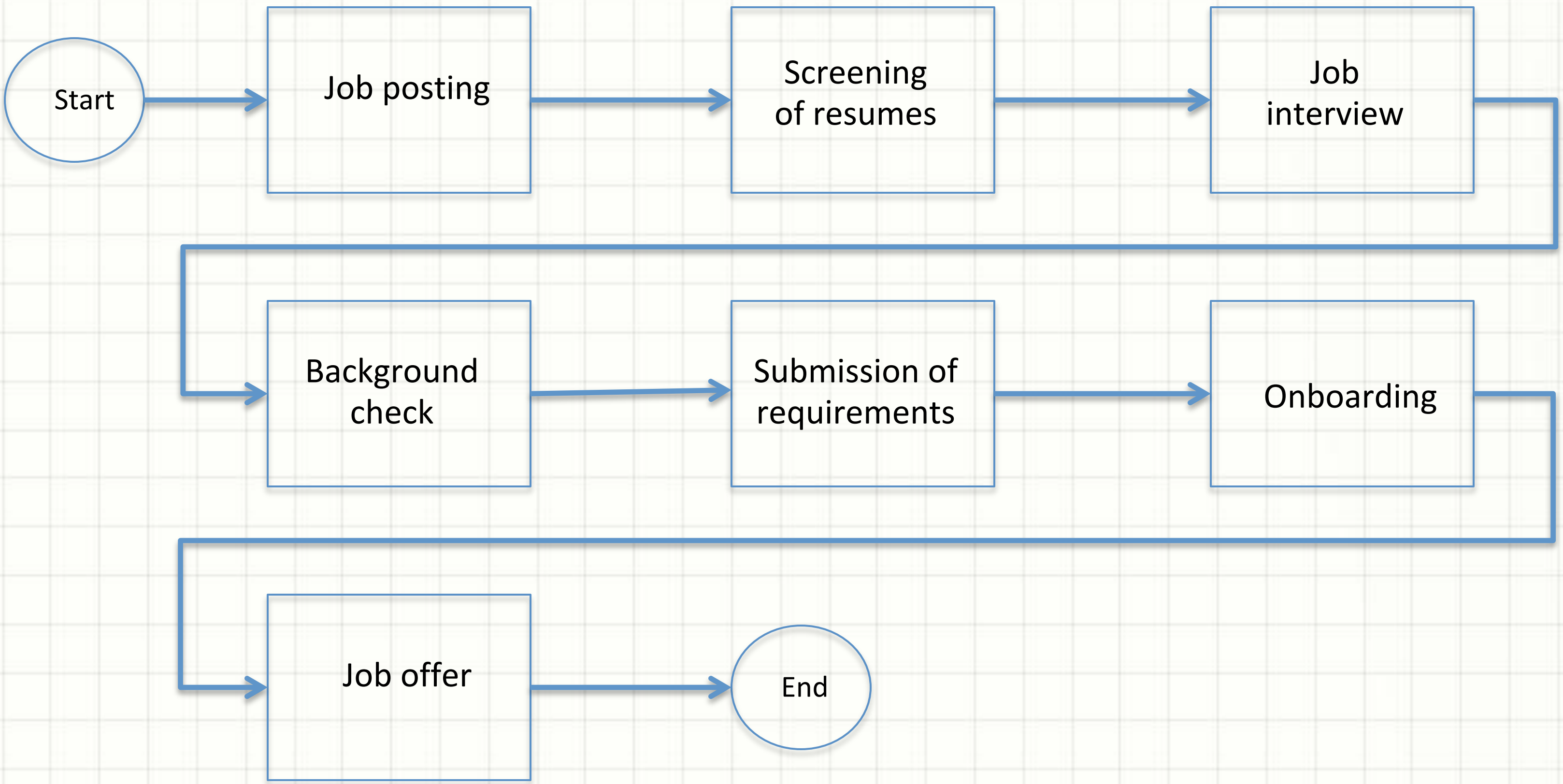


Diamond – used for decisions

Arrow – used to indicate the flow of the process

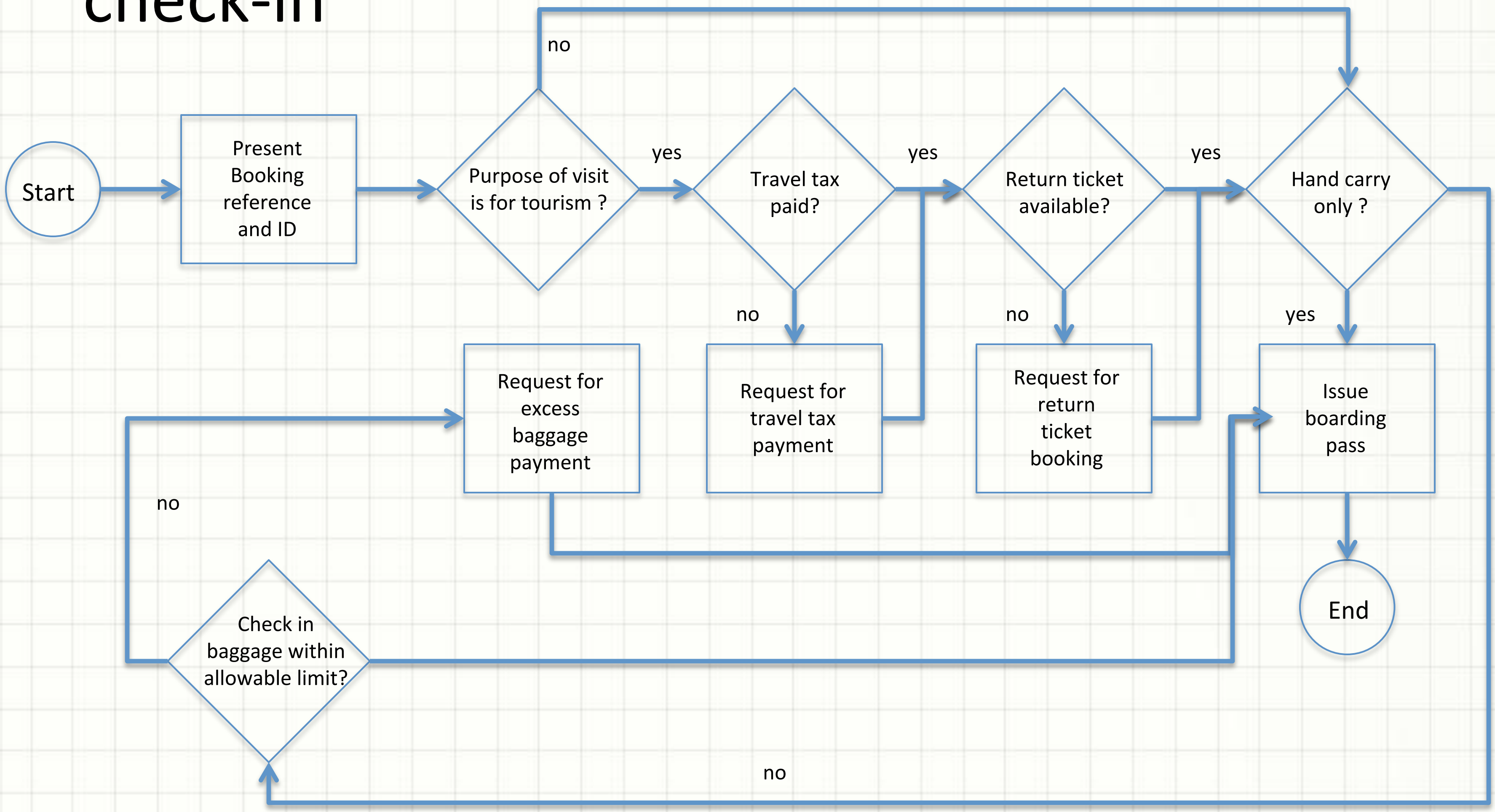
Example

- Here is an example of an HR process for Recruitment



Example

- Here is an example of a process for airport check-in



When to use it

- When there appears to be conflicting versions of how a process should run.
- When you want to check multiple handoffs in a process which can affect the overall timeliness.
- When you want to identify bottlenecks in your process.

Tips

- It would be a good idea to have a scope of the process. Where does it start and where does it end?
- Ideally to get more information you should capture level 3 of your process. Capture all the decision points so you will know what the possible scenarios are.
- Process maps are useful references for onboarding a new employee.

Exercise

- Create a process map of any of the following:
  1. Handling client queries
  2. Managing your career
  3. Creating an online video

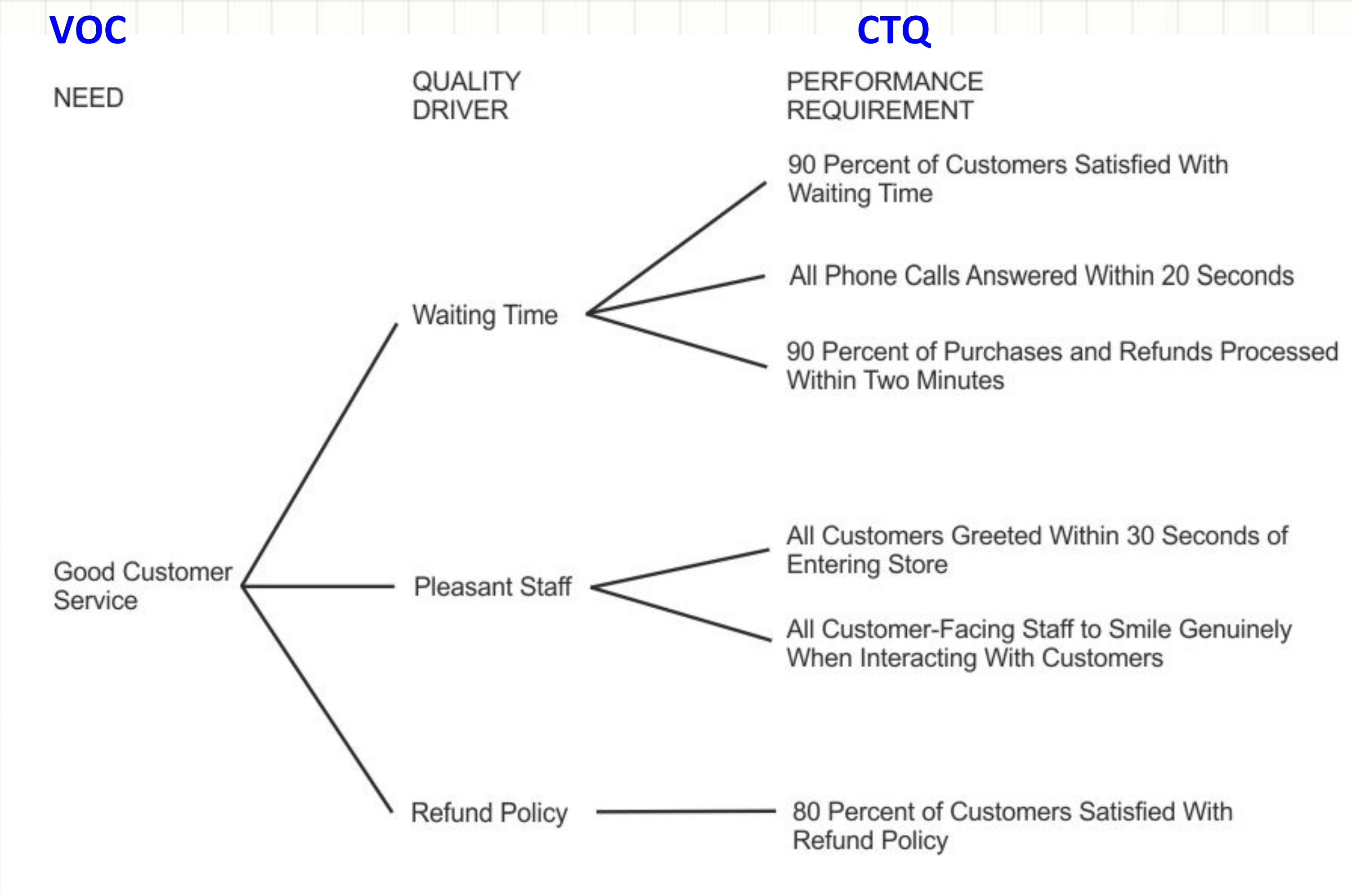
Tool No. 3
VOC to CTQ

How it works

- The VOC to CTQ tool translates your client needs into more defined terms.
- VOC stands for Voice of the Customer and CTQ stands for Critical to Quality.
- Oftentimes the client requirements are not clear. Your role is to do a deep dive to understand better these requirements.
- If you are not able to translate the client's needs into something concrete and measurable, there is a big chance that you won't be able to fulfill it.
- The VOC to CTQ tool works as a drilldown mechanism to translate the voice of the customer into the key drivers and ultimately into a measurable requirement of the performance.

Example

Here is an example of how a customer's idea of good customer service is translated into the CTQs in a call center environment.



Example

When I recently made my backpacking trip across SEA, I used the VOC to CTQ tool to translate my needs into something measurable. See you can actually use this tool in your personal life. =)

VOC		**CTQ**
NEED	**QUALITY DRIVER**	**PERFORMANCE REQUIREMENT**
AMAZING BACKPACKING TRIP IN SOUTHEAST ASIA	TOTAL COST	Total cost including airfare should be below PhP 50,000
	DURATION	Total trip duration should at least be 21 days
	INTERACTION	Should meet at least 10 Contacts
	BAGGAGE	All items should fit in a hand carry bag
	NUMBER OF CITIES	Total number of cities should at least be 3

When to use it

- When you are not clear on the requirements of the client.
- When you want to translate you customer complaints into improvement actions.
- When you want to clarify concerns, complaints or issues of your clients

Tips

- It helps to have active listening skills to listen to the perspective of the customer.
- Probe deeper to understand what the requirements are.
- If starting from scratch you can use the Net Promoter Score set of questions.
  - On a scale of 1 to 10 how would you rate our performance.
  - Why is your score such?
  - And how can we improve our score?
- Get an idea from the customer of what good looks like.
- Do understand that there might be some requirements that won't be able to address in a cost-effective manner.

Exercise

- Apply the VOC to CTQ principle in the following scenario.
  – You are in charge of redesigning your company web page. One of your clients gave the following complaint : "I have a hard time navigating your web page."
- Translate this voice of the customer into CTQs. In this case the need of the customer could be "Wonderful User Experience".

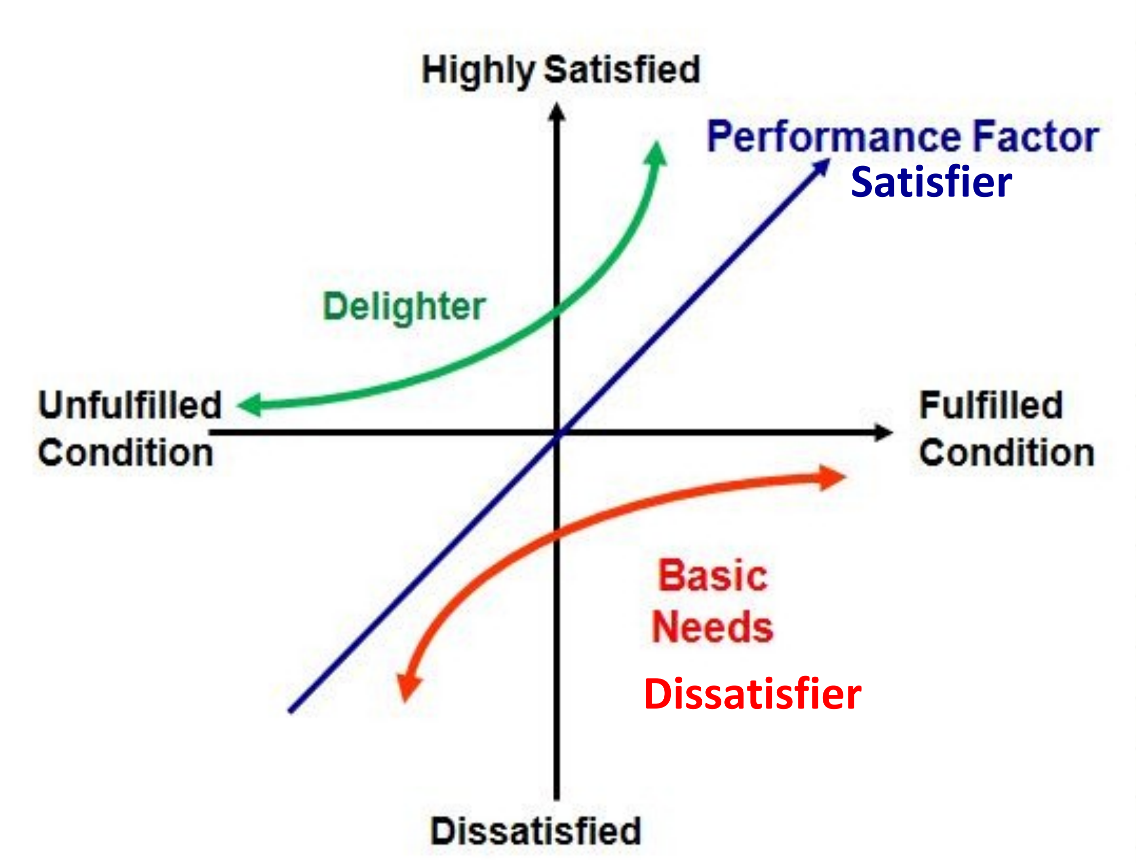
Tool No. 4
Kano Model

How it works

- The Kano Model is used to classify customer requirements. Some requirements are “need to have” while others are “nice to have”.
- This tool identifies the deal breakers or the dissatisfiers. If these characteristics are not present, the customers will not buy your service or product.
- This tool also identifies the delighters, or factors that would delight the customer.

How it works

The chart below shows the impact on the satisfaction level of a customer when a condition is meet. There are different responses for a delighter, a satisfier and a dissatisfier.



Example

- Here is an example of a Kano Model for a hotel stay

Group	Description	Example
Dissatisfier / Basic Needs	Failure to deliver may disqualify you as a competitor	Providing a clean and safe room
Satisfier/ Performance Factor	Satisfiers are often expected services that can distinguish a provider from its competitors.	A variety of TV channel service in room
Delighter	Delighters may increase satisfaction but would not decrease competitiveness or satisfaction if not provided.	Personalized welcome note with a chocolate on the pillow

Example

- Here is an example of a Kano Model for an online course.

Group	Description	Example
Dissatisfier / Basic Needs	Failure to deliver may disqualify you as a competitor	• Providing content of the stated objectives
Satisfier/ Performance Factor	Satisfiers are often expected services that can distinguish a provider from its competitors.	• A variety of relatable case studies • Great animations
Delighter	Delighters may increase satisfaction but would not decrease competitiveness or satisfaction if not provided.	• Bonus toolkits • Supplementary ebook • Discount for a related course

Example

- Here is how I applied Kano Model for project management work with a client.

Group	Description	Example
Dissatisfier / Basic Needs	Failure to deliver may disqualify you as a competitor	• Respond to emails within 24 hours
Satisfier/ Performance Factor	Satisfiers are often expected services that can distinguish a provider from its competitors.	• Continuously improve existing processes
Delighter	Delighters may increase satisfaction but would not decrease competitiveness or satisfaction if not provided.	• Provide holistic perspective on items • Offer solutions incorporating different perspectives.

When to use it

- When you want to distinguish “need to have” versus “nice to have” attributes.
- When you want to focus on the dealbreakers of your product or service.
- When you want to identify opportunities to delight your customer and upsell your services.

Tips

- Use customer feedback to validate and update the classification of different features .
- Customer requirements can change over time. What used to be a delighter could eventually be a satisfier or even a dissatisfier if the competition is also applying it. (Example: Strong internet connection used to be a delighter in the hotel industry but now it is considered a dissatisfier. Customer nowadays consider WiFi connection as a necessity.)
- Take note of the cost involved. You have to factor in the return on investment if you exert effort on the delighters.
- Identify your delighters because this could be your competitive advantage

Application

- Apply the Kano Model in the following scenario
  - Delivering a Training Program
  - Manufacturing Calling Cards
  - Operating a Karaoke Bar

Tool No. 5
SMART Goals

How it works

- SMART is an acronym used to ensure that you get to achieve your goals.
- SMART stands for Specific, Measurable, Action-oriented, Realistic and Time-Bound.
- The success rate of achieving one’s goals increases when they are made SMART – it makes the goal very specific, it eliminates ambiguity and the time factor creates a sense of urgency.

Examples

Theme	Bad Example	Good Example
Health	I want to lose weight.	I will reduce my weight from 180 lbs to 140 lbs by September 2019.
Personal	I want to learn Spanish.	I will achieve A2 level in Spanish by June 2019.
Financial	I want to save money.	I will have at least PhP 20,000 in my emergency fund and PhP 20,000 in my travel fund by December 2019.

When to use it

- When you have problems in achieving your goals.
- When you want to give yourself stretched targets.
- When your original goals appear to be ambiguous, irrelevant or vague.

Tips

- When you make your goals, always challenge yourself. Make it stretched. A stretched goal is something that is achievable yet would require you to get out of your comfort zone.
- Review the goal if it makes sense. How sure are you that there are no grey areas when you achieve your goal?
- Make sure that it is aligned to your overarching goals.

Exercise

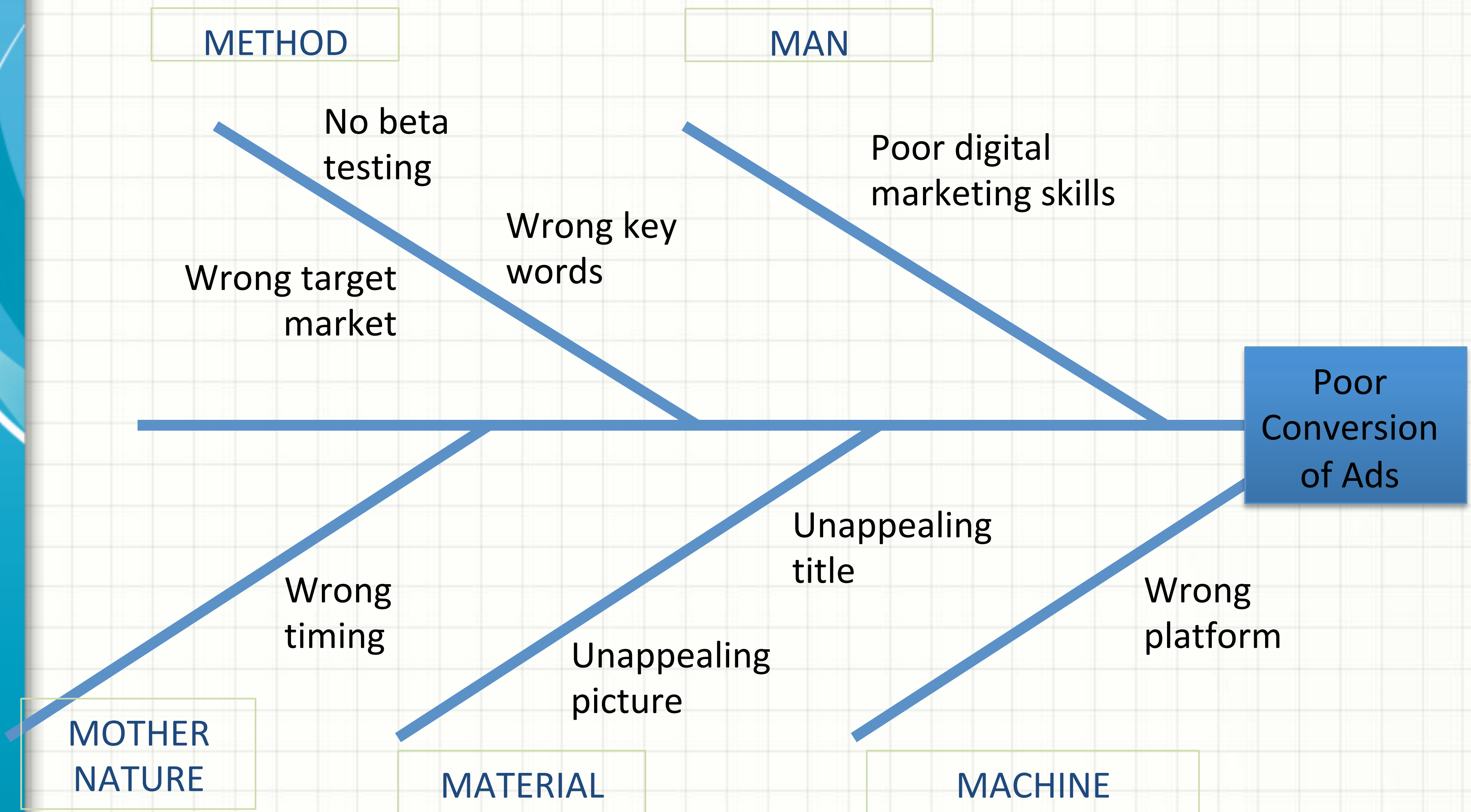
- Make SMART goals in the following scenarios
  1. You want to create an app using R programming language.
  2. You want to publish an ebook.
  3. You want to be more fit.

Tool No. 6 Fishbone Diagram

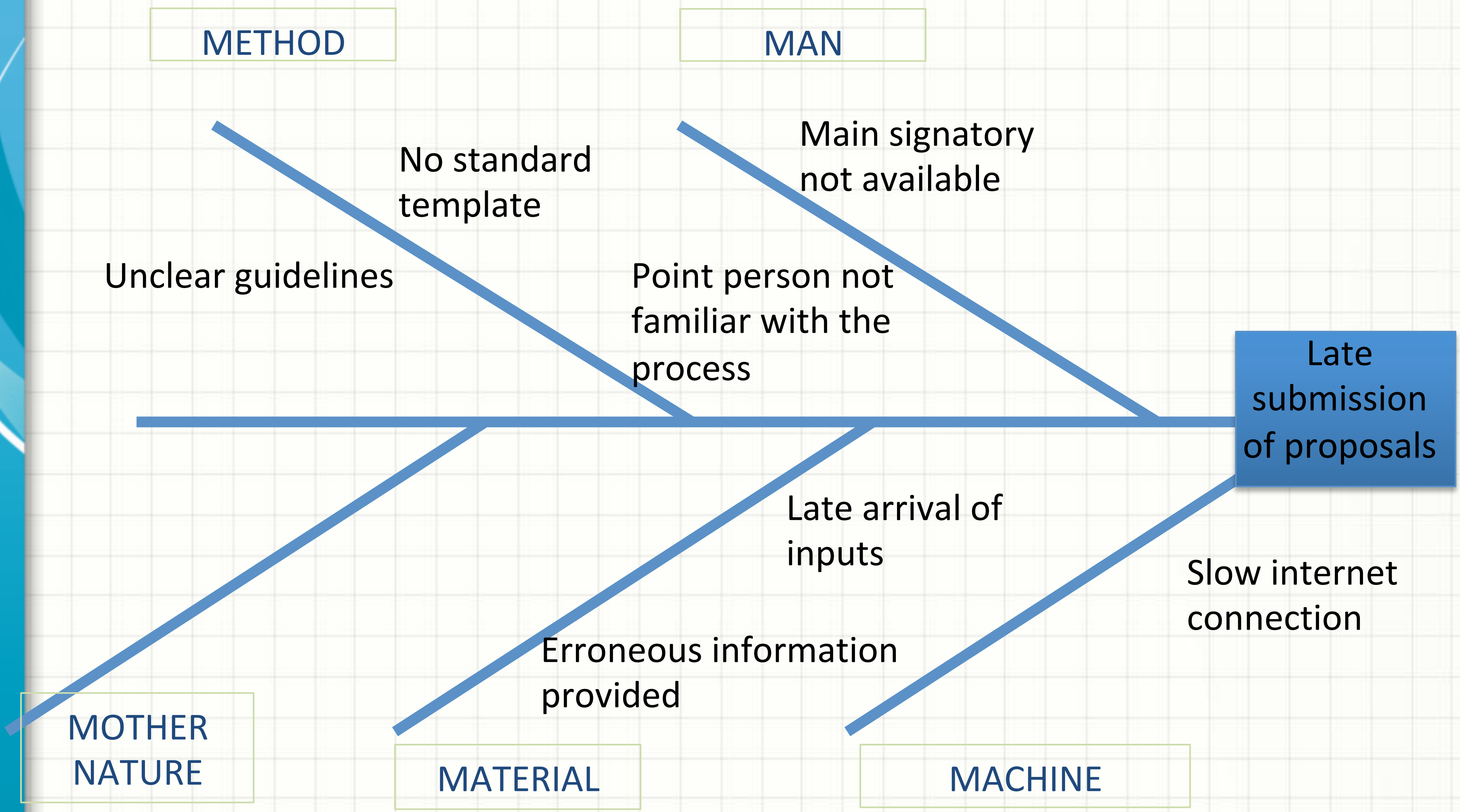
How it works

- The fishbone diagram (called such because it looks like a fishbone) is a tool is used to generate ideas for causes of the problem or the issue that you are facing.
- By identifying the causes you are able to come up with quick wins that can address the issue.
- Putting the issues in a category helps cluster together similar themes and can spawn additional ideas.

Example


METHOD
MAN
No beta testing
Poor digital marketing skills
Wrong key words
Wrong target market
Poor Conversion of Ads
Unappealing title
Wrong timing
Wrong platform
Unappealing picture
MOTHER NATURE
MATERIAL
MACHINE

Example


METHOD
MAN
No standard template
Main signatory not available
Unclear guidelines
Point person not familiar with the process
Late submission of proposals
Late arrival of inputs
Slow internet connection
Erroneous information provided
MOTHER NATURE
MATERIAL
MACHINE

When to use it

- When you want to cover all possible causes of an issue.
- When you want to consider different perspectives on an issue.
- When you want to identify quick wins in your challenge.

Tips

- The fishbone diagram is also known as the Ishikawa diagram or the cause and effect diagram.
- The usage of this tool necessitates divergent thinking because out of one you come up with many. Out of one issue you come up with as many causes as possible.
- Don’t be too anal on the classification. If you feel undecided on which category to put a cause just go with your gut feel.
- Focus on the quantity of responses.

Exercise

- Your website conversion has been rather poor. The target is 10% and currently your website is only performing at 5%. Use the fishbone diagram to show the possible causes of the poor conversion.

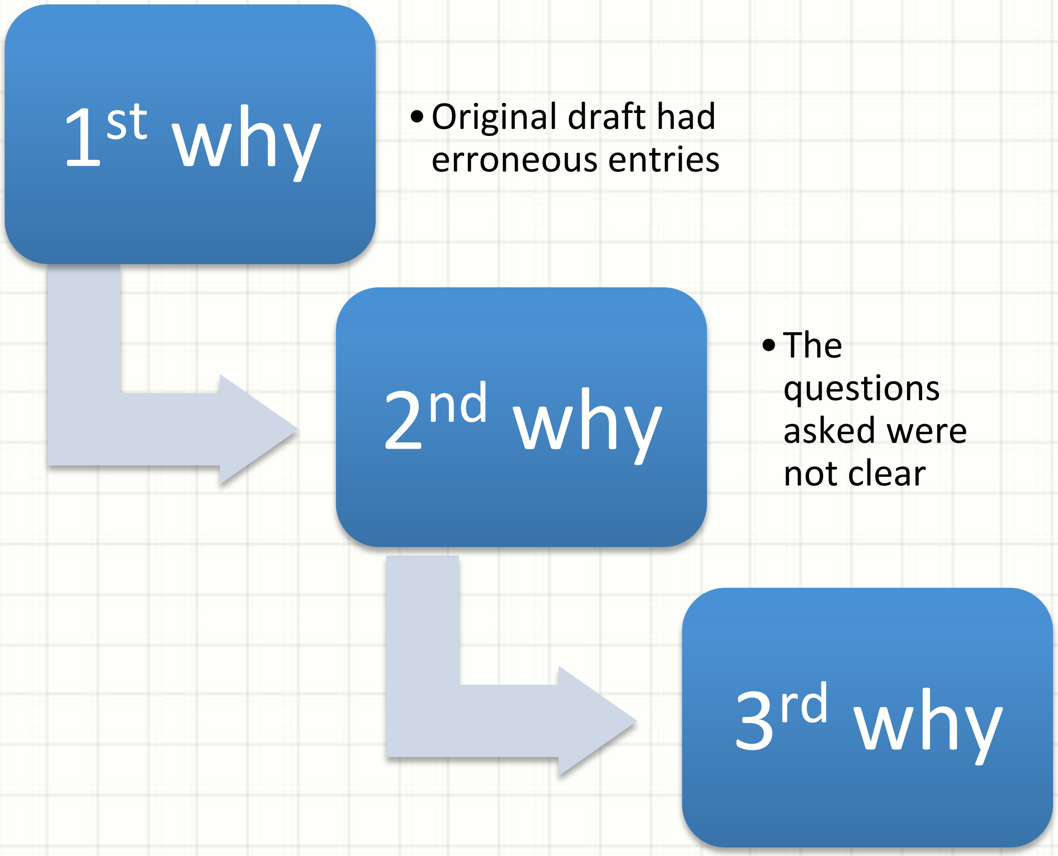
Tool No. 7
5 Whys

How it works

- The 5 Whys is a tool that is used when you want to peel off the layers of a perceived cause. Sometimes the cause identified can be symptoms of an underlying root cause.
- 5 Whys is done by asking the question “why” several times. Rule of thumb is around 5 questions could lead to the root cause, but it can be less or more.

Example

You want to find out why submission of your proposal to the client was late.



- Original draft had erroneous entries
- The questions asked were not clear
- There is no reference of what good looks like.

Action: Provide a reference on what good looks like.

When to use it

- When you want to challenge superficial causes and arrive at the root cause.
- When you want to identify long term solutions for recurring problems.
- When you want to address systemic problems.

Tips

- This tool should be used in conjunction with the fishbone diagram.
- This tool focuses more on the depth whereas fishbone focuses more on the breadth.
- To check if the root cause you've identified makes sense go backward and use "so" to connect the responses to why.
- Once you have reached the root cause, come up with a specific action to address it.

Exercise

- You have been repeating the same New Year's resolution for 3 years now. This resolution is on spending at least 15 minutes a day to read a book. Use 5 Whys to identify the root cause of the problem and suggest an action plan.

Tool No. 8 Pareto Principle

How it works

- Pareto is used to put your focus on the most impactful items.
- It works on the premise that 80% of the results come from 20% of the factors, the so-called vital few.
- If you are able to identify the vital few then you can already address 80% of the problems

Example

You work in a call center and would like to launch an improvement program to reduce call-handling complaints. The following is a classification of the complaints.

Complaint Type	Number of Incidents
Rude operators	5
Transferred more than 3 times	10
Poor use of language	7
Poor root cause analysis	40
Poor audio	2
Total	**64**

Example cont.

The use of Pareto requires some basic math. You need to rearrange the types from highest to lowest then get their cumulative frequency.

Complaint Type	Number of Incidents	Frequency	Cum. Frequency
Poor root cause analysis	40	62.5%	62.5%
Transferred more than 3 times	10	15.6%	78.1%
Poor use of language	7	10.9%	89%
Rude operators	5	7.8%	96.8%
Poor audio	2	3.2%	100%
Total	**64**	**100%**	

The percentage is computed by dividing the count over the total. 40/64 = 62.5%. The cumulative frequency is built by adding the previous cumulative frequency value with frequency of the row. In this example by focusing only on “poor root cause analysis” (1 out of 5 types which is 20%) you are already able to address 62.5 % of the problem.

Real Life Examples

- 20% of your clothes are worn 80% of the time.
- In a product portfolio 80% of the sales are brought in by 20% of the products.
- 20% of your files in the computer are used 80% of the time

When to use it

- When you have limited resources and want to focus on the most important items first.
- When supporting data is available and you want to maximize impact.
- When you want to prioritize action items.

Tips

- Sometimes it doesn't have to be exact 80/20
- It can be 70/30 or 90/10. The general principle is to focus your efforts on the vital few.
- Pareto principle requires a bit of math in computing for the cumulative frequency but the principle of the vital few can almost always be applied without going through the math.

Application

- Using the Pareto Principle or the 80/20 rule how are you going to apply it to learning a new language?

Tool No. 9
Anti-Solution

How it works

- Sometimes brainstorming for solutions for a problem might hit a blank wall.
- One way to generate out of the box ideas is to flip the thinking process hence the term anti-solution.
- Once the ideas have been exhausted you can flip them back to get the desired solutions

Example

Your team is brainstorming for ways to increase website conversion. One way to gather options is to flip the thinking. How do you make the situation worse?

In this case you will ask, how do we decrease website conversion?
The following could be potential answers

- Provide confusing details
- Put broken links
- Design that are heavy on the eyes
- Use crazy fonts
- Put as many dropdowns as possible
- Install a lot of popups
- Hide the navigation button
- Do not put pictures just text
- Drown the audience with information

Example

But it shouldn't stop there. The next step will be to flip it back to explore the actual solutions

How do we increase website conversion?

Anti-solution	Actual solution
Provide confusing details	Provide clear instructions
Put broken links	Ensure that the links work
Design that are heavy on the eyes	Use design that is gentle on the eyes like pastel colors
Use crazy fonts	Use easy to read fonts
Put as many dropdowns as possible	Keep things simple. Use maximum of 5 dropdowns
Install a lot of popups	Use popups at appropriate stages
Hide the navigation button	Make navigation intuitive and easy to locate
Do not put pictures just text	Break text monotony
Drown the audience with information	Limit to top 3 takeaways per page

When to use it

- When you have limited engagement from participants in a brainstorming session.
- When generating solutions become difficult.
- When you want to explore creative and out-of-the-box solutions.

Tips

- Identify the most likely causes then flip them back.
- Encourage idea generation. Don't shoot down ideas.
- Prepare the mood for some lateral thinking.

Exercise

- You are facing some challenges in reaching your target savings for the year. Using the anti solution technique find ways on how you can save enough money to hit your target.

Tool No. 10 Affinity Diagram

How it works

- The affinity diagram is used when you want to identify the common themes of the topics, concepts or terms you are dealing with.
- This tool requires convergent type of thinking. Out of the many, you come up with a few.
- This tool helps in providing focus by clustering similar ideas. Because you are able to trim down your options you are able to maximize the use of resources.
- This tool is usually used in project creation or coming up with point persons in action planning.

Example

The following have been the feedback regarding a training your department has conducted

The room temperature was cold	*Would have wanted more activities*	*Prizes for the team competition*
The noise from the other hall was distracting	*Please allot more time for Q&A*	*Some topics were too heavy.*
Please provide more examples	*Would like to know the benefit of the course for the participant*	*The section on history was too much*
It would be good if there were cases in the hospital industry	*Would like to know the benefit of the course for the participant*	*Icebreakers after lunch*

Example

To come up with an effective action plan you may cluster similar ideas together

VENUE

The room temperature was cold
The noise from the other hall was distracting

CONTENT

Please provide more examples	*Some topics were too heavy.*
It would be good if there were cases in the hospital industry	*The section on history was too much*
	Would like to know the benefit of the course for the participant

DELIVERY

Prizes for the team competition
Please allot more time for Q&A
Icebreakers after lunch
Would have wanted more activities

Three themes have emerged and you can draft your action plan focusing on these three items – Venue, Content and Delivery.

When to use it

- When you have limited resources and want to prioritize items.
- When you want to identify relationships, themes and patterns.
- When you want to organize seemingly disparate ideas.

Tips

- Find a way if you can cut the clutter by 60%.
- From ten ideas try to cluster them to form 3-4 themes.
- Look for ways where you can relate one group to the other.
- There is no one correct way but it would be good to consistently refine your method.

Application

- The following are the top of mind responses of the people when they mentioned what can be improved on the website booking. What can be considered as the high level themes?

- *Slow to load.*
- *I had to scroll down repeatedly.*
- *The default language was Russian.*
- *The submit button doesn't work.*
- *The currency reflected was not in US$.*
- *I keep going back to the homepage when I make a booking.*
- *The font color is difficult to read.*
- *The back to home link sends me to a different page.*
- *I couldn't find the next step button.*

Recap

Recap

Once again here are the 10 tools.

1. SIPOC
2. Process Map
3. VOC to CTQ
4. Kano Model
5. SMART Goals
6. Fishbone Diagram
7. 5 Why's
8. Pareto Principle
9. Anti-Solution
10. Affinity Diagram

I hope that you will find these tools useful. If you any questions or clarification send us a note at inquiries@lssexperts.com

Want to know more?

LSS Experts will be conducting a one-day hands on course on Lean Six Sigma Tools in Cebu City on March 9, 2019.

While the content was designed with the freelancer in mind, this course can be useful to any individual that wants to improve his work or life process.

- Course fee is PhP 3,500/pax
- Avail of the discounted rate of PhP 1,500 if you sign up and pay on or before February 28,2019.
- Sign up here.
- If you want to know more you can email us at inquiries@lssexperts.com