BEST CONSULTING PRACTICES

If you wish to know where the Six Sigma methodology can be applied, you can follow below steps:

- Identify if the business process meets all **process hygiene** factors
- To ensure the **process hygiene** factors are **met**, answers to ALL of the following questions must be "**Yes**":
    - Are all policies and procedures being followed without extensive monitoring?
    - Are employees adhering to scheduled login/logout times, breaks, meeting, training time?
    - Is the process turnover (attrition) under control?
- Identify if the key metrics of the business process are Red, Amber OR Green
- Use the below table to evaluate whether a business process qualifies for executing Six Sigma projects

CATEGORY	PROCESS HYGIENE	METRICS	IMPROVEMENT METHOD
A	MET	GREEN	SIX SIGMA
B	MET	AMBER / RED	SIX SIGMA / LEAN
C	NOT MET	RED	CHECKLIST / LEAN

Copyright © Smart Growth Hacks

KAIZEN VS. LEAN VS. SIX SIGMA

Kaizen, Lean as well as Six Sigma are focused on improving business processes. Below is the outline of the difference between them:

KAIZEN	LEAN	SIX SIGMA
Any Small Improvement	Waste Elimination	Variation Reduction
Implemented when: • Cause(s): KNOWN • Solution(s): SIMPLE	Implemented when: • Cause(s): KNOWN • Solution(s): COMPLEX	Implemented when: • Cause(s): UNKNOWN • Solution(s): COMPLEX
Do NOT Require a Team Effort	Requires a Team Effort	Requires a Team Effort
Estimated Time: 0 days to 5 days	Estimated Time: 45 to 90 days	Estimated Time: 90 to 180 days

Copyright © Smart Growth Hacks

DIFFERENCE BETWEEN DMADV & DMAIC

TOPIC: DIFFERENCE BETWEEN DMAIC & DMADV

DMADV

ACRONYM FOR DEFINE, MEASURE, ANALYZE, DESIGN & VERIFY/VALIDATE

HELPS CREATE NEW PRODUCTS / SERVICES

DOES NOT REQUIRE HISTORICAL DATA

GENERALLY USED IN MANUFACTURING ORGANIZATIONS. E.G. JOHN DEERE (TRACTOR MANUFACTURING)

DMAIC

ACRONYM FOR DEFINE, MEASURE, ANALYZE, IMPROVE & CONTROL

HELPS IMPROVE BUSINESS PROCESSES OF EXISTING PRODUCTS / SERVICES

REQUIRES HISTORICAL DATA

GENERALLY USED IN MOST ORGANIZATIONS ACROSS ALL INDUSTRIES

WHY WE FOCUS ON DMAIC COMPARED TO DMADV?

DMADV

NEWER PRODUCTS ARE LAUNCHED AT A LESSER FREQUENCY – SO NUMBER OF DMADV PROJECTS ARE LESS

WHEN LAUNCHING A NEW PRODUCT, THE FOCUS IS ON CREATING THE RIGHT PRODUCT – CONSTRAINTS OF TIME, MONEY & RESOURCES IS LESS

DMAIC

NEED FOR DMAIC PROJECTS IS HIGHER IN ON-GOING BUSINESS PROCESSES BECAUSE THEY FACE SEVERAL CHALLENGES INCLUDING COST, TIME AND RESOURCES

THE FOCUS OF ON-GOING BUSINESSES IS TO MAXIMIZE PROFITS BY INCREASING SALES, REDUCING COST & IMPROVING PRODUCTIVITY

Copyright © Smart Growth Hacks

15 PHASES OF DMAIC ROADMAP

TOPIC: DMAIC ROADMAP

15 STEPS OF DMAIC ROADMAP

DEFINE → **MEASURE** → **ANALYZE** → **IMPROVE** → **CONTROL**

What Problems are You Trying to Solve?	What is the extent of the Problem?	Why is the Problem Occurring?	What do you propose to do & Why?	How will you ensure that the problem stays fixed?
1. Understand Customer & Business Requirements	4. Identify What to Measure	7. Identify Performance Gaps	10. Generate, Prioritize & Select Solutions	13. Institutionalize the Solution(s)
2. Complete the Project Charter	5. Plan & Collect Data	8. Ascertain Critical Root-Causes	11. Pilot Solution(s)	14. Replicate & Share Best Practices
3. Complete the High-Level As-Is Process Map	6. Determine Baseline Performance	9. Validate Root Causes	12. Validate Impact of Solution(s)	15. Celebrate & Recognize Success
TOLL GATE DEFINE	**TOLL GATE MEASURE**	**TOLL GATE ANALYZE**	**TOLL GATE IMPROVE**	**TOLL GATE CONTROL**

Copyright © Smart Growth Hacks

SIX SIGMA DMAIC TOOLKIT

TOPIC: DMAIC TOOLKIT

SIX SIGMA DMAIC TOOLKIT

DEFINE	MEASURE	ANALYZE	IMPROVE	CONTROL
1. Understand Customer & Business Requirements Voice of Customer	4. Identify What to Measure Process Maps 8 Wastes	7. Identify Performance Gaps Review of Process Map Brainstorming Fishbone Diagram 5 Why Analysis	10. Generate, Prioritize & Select Solutions Brainstorming Brain-writing 6-3-5 Assumption Busting	13. Institutionalize the Solution(s) Common vs. Special Causes Control Charts Control Plan
2. Complete the Project Charter Project Charter	5. Plan & Collect Data Continuous Data Discrete Data Mean Median Mode Standard Deviation Data Collection Plan Sampling	8. Ascertain Critical Root-Causes Control Impact Matrix	11. Pilot Solution(s) Pilot Plan Risk Analysis	14. Replicate & Share Best Practices Communication
3. Complete the High-Level As-Is Process Map SIPOC	6. Determine Baseline Performance Run Chart Defects Defectives Opportunity for Error Unit Process Capability Analysis	9. Validate Root Causes Line Chart Bar Chart Pareto Chart Pareto Chart Histogram Scatter Diagram Correlation Analysis	12. Validate Impact of Solution(s) Process Capability Re-Analysis	15. Celebrate & Recognize Success Celebrate

Copyright © Smart Growth Hacks

ROLE OF A YELLOW BELT

TOPIC: SIX SIGMA YELLOW BELT

YOUR ROLE AS A SIX SIGMA YELLOW BELT

- Part-time role
- Execute smaller projects & help Green Belt
- Help the Green Belt facilitate discussions on various topics including SIPOC, Process Maps, Brainstorming, Root-Cause Analysis & Solution Identification
- Conduct data collation activities
- Perform basic level of data analysis
- Effectively implement & monitor pilot
- Update control charts & execute control plan
- Mentored by Green Belt

Copyright © Smart Growth Hacks

VOICE OF CUSTOMER (VOC) TECHNIQUE

TOPIC: VOC TECHNIQUES

SURVEYS

USED WHEN YOU NEED TO REACH LARGE NUMBER OF CUSTOMERS

REQUIRES RELATIVELY LESS TIME

PROVIDES GENERIC FEEDBACK

USED WHEN CUSTOMERS ARE MOSTLY ACCESSIBLE THROUGH EMAILS ONLY

RESPONSE RATE IS TOO LOW

INTERVIEWS

USED WHEN YOU NEED RELATIVELY SMALLER NUMBER OF CUSTOMERS

REQUIRES MORE TIME

USED WHEN CUSTOMERS ARE ACCESSIBLE THROUGH PHONES OR IN-PERSON MEETINGS

REQUIRE SKILLED INTERVIEWERS

USED CUSTOMERS ARE WILLING TO SPEND TIME FOR THE INTERVIEW

FOCUS GROUPS

USED WHEN YOU NEED RELATIVELY SMALLER NUMBER OF CUSTOMERS

REQUIRES MORE TIME

USED WHEN CUSTOMERS ARE ACCESSIBLE THROUGH PHONES OR IN-PERSON MEETINGS

REQUIRE SKILLED FACILITATORS

USED CUSTOMERS ARE WILLING TO BE PRESENT AT A SPECIFIC VENUE ALONGWITH OTHER CUSTOMERS

OTHERS

OTHER VOC METHODS INCLUDE:

- CUSTOMER SUGGESTIONS
- COMPLAINTS
- COMPLIMENTS
- OBSERVATIONS
- FACEBOOK / LINKEDIN LIKES
- ONLINE POLLS

Copyright © Smart Growth Hacks

TRANSLATE VOC TO REQUIREMENTS (STEPS)

TOPIC: VOC TO REQUIREMENTS (STEPS)

Voice of Customer (Verbatim)	Critical Customer Criteria (Need)	Critical to Quality (CTQ) (Requirement / Performance)
Take the exact voice of customer	Write excerpt from customers verbatim showcasing the customer's need	Write the customer's need in measurable terms

Steps to Translate VOC to Requirements:

1. **Take the exact voice of customer & update in column 1 "Voice of Customer (Verbatim)"**
2. **Write in column 2 the excerpt from customers verbatim showcasing the customer's need**
3. **Write the customer's needs in measurable terms**

Copyright © Smart Growth Hacks

PROBLEM STATEMENT EXAMPLES (GOOD VS. BAD)

EXAMPLE 01:

POOR EXAMPLE

Our customers are angry with us and thus delay paying their bills

GOOD EXAMPLE

In the last 3 months, 12% of our customers are late, by over 45 days in paying their bills. This represents 20% of our outstanding receivables & negatively affects our operating cash flow.

When? Magnitude Consequence What?

EXAMPLE 02:

POOR EXAMPLE

Our customers are not paying credit card dues on time. This needs to be improved.

GOOD EXAMPLE

In the last 10 months in the Americas region, 32% of our credit card users are more than a month late in paying the dues. The percentage of late payments is up from 15% in the previous year to 43% of outstanding receivables this year. This is negatively affecting our recoverable cash flow by 445K USD/year

When? What? Where? Magnitude Consequence

Copyright © Smart Growth Hacks

SIX SIGMA PROJECT TEAM & RESPONSIBILITIES

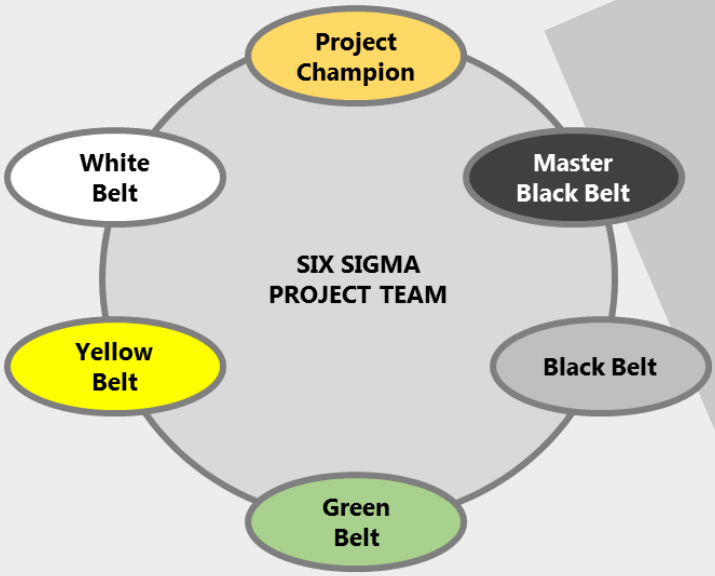
SIX SIGMA PROJECT TEAM & RESPONSIBILITIES

PROJECT CHAMPION:
- Owns vision & business direction
- Sponsors change
- Reviews Tollgates
- Project owner OR Business Manager OR Key Stakeholder

MASTER BLACK BELT:
- Drive Organizations Vision
- Review Tollgates
- Coach & Train Black Belts
- Full Time Role

BLACK BELT:
- Drive large projects
- Leads Tollgates
- Coach & Train Green Belts
- Full Time Role

GREEN BELT:
- Drive process level (smaller) projects
- Do Intermediate level of data analysis
- Participate Tollgates
- Coach & Train Yellow & White Belts
- Part-Time Role



YELLOW BELT:
- Drive project activities
- Participate Tollgates
- Be a subject matter expert
- Help Green Belt Facilitate discussions
- Do basic level of data analysis
- Part-Time Role

WHITE BELT:
- Drive project activities
- Be a subject matter expert
- Have Six Sigma Awareness
- Understand 7 Basic tools of Quality
- Part-Time Role

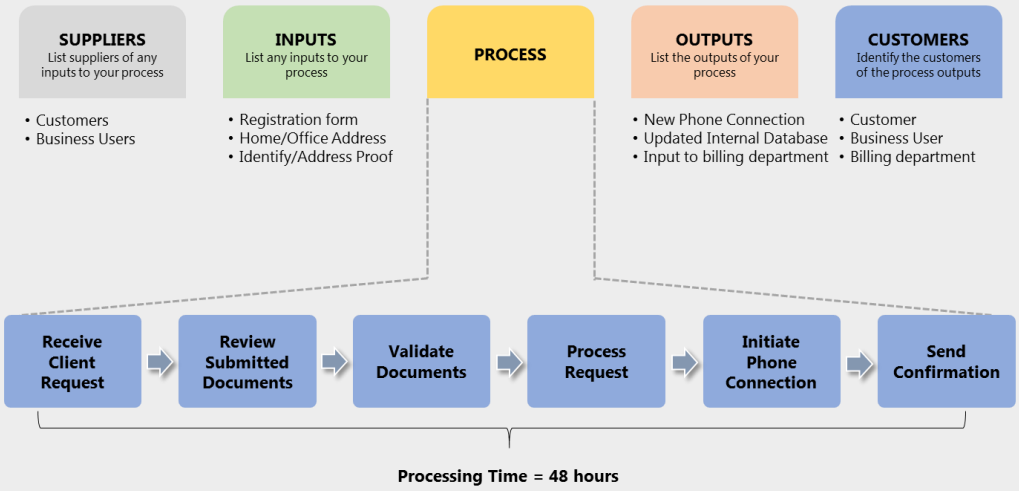
Copyright © Smart Growth Hacks

STEPS TO CREATE A SIPOC

TOPIC: STEPS TO CREATE A SIPOC

1. IDENTIFY 5-7 KEY HIGH LEVEL STEPS IN THE PROCESS
2. IDENTIFY THE CUSTOMER WHO WILL RECEIVE THE OUTPUTS OF THE PROCESS
3. IDENTIFY THE OUTPUTS OF THE PROCESS (INCLUDING INTERNAL OUTPUTS; FOR EXAMPLE, PRODUCTIVITY REPORTS)
4. IDENTIFY ALL INPUTS REQUIRED FOR THE PROCESS TO FUNCTION
5. IDENTIFY THE SUPPLIERS FOR THE INPUTS REQUIRED BY THE PROCESS
6. VERIFY THE FLOW OF INFORMATION FOR THE PROCESS
7. VALIDATE THE SIPOC MAP WITH THE KEY STAKEHOLDERS. CONFIRM IT IS "AS IS", AND NOT "AS IT SHOULD BE"

SIPOC EXAMPLE – GET A NEW WIRELESS CONNECTION



Copyright © Smart Growth Hacks

DO'S AND DON'TS OF CREATING PROCESS MAPS

TOPIC: DO'S AND DON'TS OF CREATING PROCESS MAPS

DO map the process as it actually happens	DON'T map the process as you think it happens or as you think it ought to happen
DO think about the process across the entire organization	DON'T restrict your process map to the activities in your own department
DO talk to the other people who are involved in the process	DON'T work in vacuum
DO define the beginning and end of the process before you start	DON'T attempt to process map before you identify a beginning and an end
DO the process map at a high level	DON'T get bogged down with too much detail
DO ask questions	DON'T struggle on your own

Copyright © Smart Growth Hacks

COMMONLY USED PROCESS MAPPING SYMBOLS

SYMBOL	DESCRIPTION & USAGE
Connector	• Connects any two steps and shows the path or direction of the process
Terminal Activity	• Indicates where the process starts and stops
Activity	• Describes the actual work task that occurs at that point in the process; • It generally is best to include only one task in each activity symbol
Delay	• Identifies when the process comes to a temporary halt • Also identifies what has to happen before the process resumes
Database	• Shows that a database is associated with this step
Document	• Indicates that a written document is prepared or used at that step of the process; the name of the document appears in the symbol
Predefined Process	• Indicates a pre-defined process
Storage	• Indicates when something goes into storage for some period of time; it contains a brief description of what is stored and for how long
Decision	• Displays a question that has several optional answers/flows that lead away from the diamond; • Answers can be simple “Yes” or “No” or specifically described choices • Answers are labeled on connector lines

Copyright © Smart Growth Hacks

8 WASTES & DOWNTIME

TOPIC: 8 WASTES & DOWNTIME

	What it is?	What to Look For?
1 **D**efects	• Defective transactions, errors leading to rework	• Rejects, not in good order transactions sent for research or repair • Missing information, rework loops or breaks
2 **O**ver Production	• Producing too much, or producing too soon	• Effort not aligned with risk, complexity or customer needs • More information requested than required
3 **W**aiting	• Waiting for documents, resources or information	• Idle time, waiting for information • Overfull inboxes
4 **D**efects	• Failure to utilize the time and talents of people	• Significant portion of expert time "wasted" on low value activities
5 **O**ver Production	• Work transferring across platforms or teams, non essential transportation	• Excessive back and forth, repeated follow-ups • Movement from location to location, building to building
6 **W**aiting	• Work stuck in In-boxes not being processed, idle financial or fixed assets	• Bottlenecks leading to "staging" areas for work in progress • Idle or underutilized equipment
7 **O**ver Production	• Inefficient placement of resources creating motion	• Inefficient placement of office resources • Physical distance between workstations
8 **W**aiting	• Excessive processing of transactions	• Similar information being captured in several places • Large variations in time to do similar tasks

Copyright © Smart Growth Hacks

TYPES OF DATA

TOPIC: TYPES OF DATA

DATA

DISCRETE DATA

- aka Attribute Data
- Discrete data is information that can be categorized into a classification
- Discrete data is based on counts
- Finite number of values is possible and values cannot be subdivided meaningfully
- E.g. No. of Parts damaged in shipment

CONTINUOUS DATA

- aka Variable Data
- Continuous data is information that can be measured on a continuum or scale
- Continuous data can have almost any numeric value and can be meaningfully subdivided into finer and finer increments
- E.g. Length, Size, Width

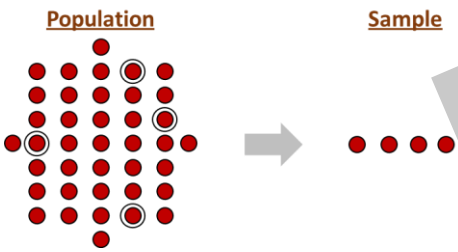
Copyright © Smart Growth Hacks

WHAT ARE THE DIFFERENT SAMPLING METHODS?

TOPIC: DIFFERENT SAMPLING METHODS

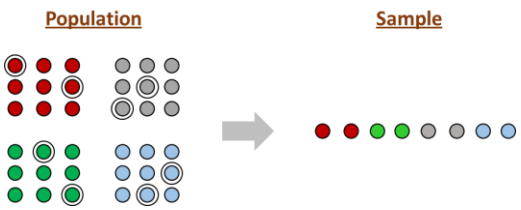
SIMPLE RANDOM SAMPLING

SIMPLE RANDOM SAMPLING IS A METHOD OF SAMPLING IN WHICH EVERY UNIT HAS EQUAL CHANCE OF BEING SELECTED



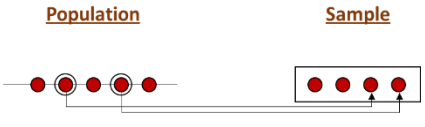
STRATIFIED RANDOM SAMPLING

STRATIFIED RANDOM SAMPLING IS A METHOD OF SAMPLING IN WHICH SUBSETS/GROUPS ARE CREATED AND THEN UNITS ARE PICKED RANDOMLY



SYSTEMATIC SAMPLING

SYSTEMATIC SAMPLING IS A METHOD OF SAMPLING IN WHICH EVERY n^{th} UNIT IS SELECTED



Copyright © Smart Growth Hacks

DEFECTS, DEFECTIVES, UNIT & OPPORTUNITIES OF ERRORS

TOPIC: DEFECTS, DEFECTIVES, UNIT & OPPORTUNITIES OF ERRORS

WHAT IS A UNIT? AN ITEM BEING PROCESSED

WHAT IS A DEFECT? FAILURE TO MEET A CUSTOMER REQUIREMENT OR A PERFORMANCE STANDARD

WHAT IS AN OPPORTUNITY? ANY PRODUCT / SERVICE CHARACTERISTIC WHICH IS MEASURED TO A STANDARD

WHAT IS A DEFECTIVE? A UNIT THAT HAS DEFECTS

DEFECTS PER MILLION OPPORTUNITY – NUMBER OF DEFECTS THAT WOULD ARISE GIVEN A MILLION OPPORTUNITIES

Copyright © Smart Growth Hacks

STEPS TO IDENTIFY PROCESS CAPABILITY

TOPIC: STEPS TO IDENTIFY PROCESS CAPABILITY – DPMO METHOD

STEP 01 – COMPUTE DEFECTS PER OPPORTUNITY

DPO = D / (O*U)

D = TOTAL NUMBER OF DEFECTS

O = OPPORTUNITY FOR DEFECTS PER UNIT

U = TOTAL NUMBER OF UNITS

STEP 02 – COMPUTE DPMO (DEFECTS PER MILLION OPPORTUNITIES)

DPMO = 1,000,000 * DPO

D = 1,000,000 * D/(O*U)

STEP 03 – LOOK UP DPMO IN SIGMA CONVERSION TABLE

Copyright © Smart Growth Hacks

STEPS TO IDENTIFY PROCESS CAPABILITY

TOPIC: SIGMA CONVERSION TABLE

Sigma	DPMO	Sigma	DPMO	Sigma	DPMO
0.1	919243.3	2.1	274253.1	4.1	4661.2
0.2	903199.5	2.2	241963.6	4.2	3467
0.3	884930.3	2.3	211855.3	4.3	2555.2
0.4	864333.9	2.4	184060.1	4.4	1865.9
0.5	841344.7	2.5	158655.3	4.5	1350
0.6	815939.9	2.6	135666.1	4.6	967.7
0.7	788144.7	2.7	115069.7	4.7	687.2
0.8	758036.4	2.8	96800.5	4.8	483.5
0.9	725746.9	2.9	80756.7	4.9	337
1	691462.5	3	66807.2	5	232.7
1.1	655421.7	3.1	54799.3	5.1	159.1
1.2	617911.4	3.2	44565.4	5.2	107.8
1.3	579259.7	3.3	35930.3	5.3	72.4
1.4	539827.9	3.4	28716.5	5.4	48.1
1.5	500000.0	3.5	22750.1	5.5	31.7
1.6	460172.1	3.6	17864.4	5.6	20.7
1.7	420740.3	3.7	13903.4	5.7	13.4
1.8	382088.6	3.8	10724.1	5.8	8.5
1.9	344578.3	3.9	8197.5	5.9	5.4
2	308537.5	4	6209.7	6	3.4

Copyright © Smart Growth Hacks

BRAINSTORM THE ROOT CAUSES

TOPIC: BRAINSTORMING

GENERAL BRAINSTORMING GUIDELINES

- **CONDUCT BRAINSTORMING IN SMALL GROUPS (4 – 8)**
- **HAND OUT GROUND RULES FOR THE SESSION, CREATE A POSTER OF "PLAYFUL RULES"**
- **ASK PARTICIPANTS TO DO INDIVIDUAL BRAINSTORMING OR HOMEWORK BEFORE THE GROUP SESSION**
- **CONSIDER A WARM UP ACTIVITY, ESPECIALLY IF YOU HAVE A NEW GROUP**
- **TAKE SHORT BREAKS (5 MINUTES) EVERY 15-30 MINUTES**
- **START AND END WITH "AROUND THE ROOM" TO BE SURE EVERYONE IS HEARD**
- **MAKE IDEAS VISIBLE AND RECORDABLE**
- **KEEP TOPIC OPEN – PARTICIPANTS OFTEN THINK OF ADDITIONAL IDEAS AFTER SOME TIME HAS PASSED**
- **NUMBER THE ITEMS**

Copyright © Smart Growth Hacks

BRAINSTORM THE ROOT CAUSES

TOPIC: BRAINSTORMING

GENERAL BRAINSTORMING GUIDELINES (CONTINUED...)

- **ONE PERSON SPEAKS AT A TIME**
- **BE AWARE OF SUBTLE CRITISM OR PRAISE**
- **PREPARE A CHECKLIST OF TECHNIQUES FOR EXPANDING IDEAS – MODIFY, MINIFY, MAGNIFY OR SUBSTITUTE**

7 TIPS TO CONDUCT EFFECTIVE BRAINSTORMING SESSIONS

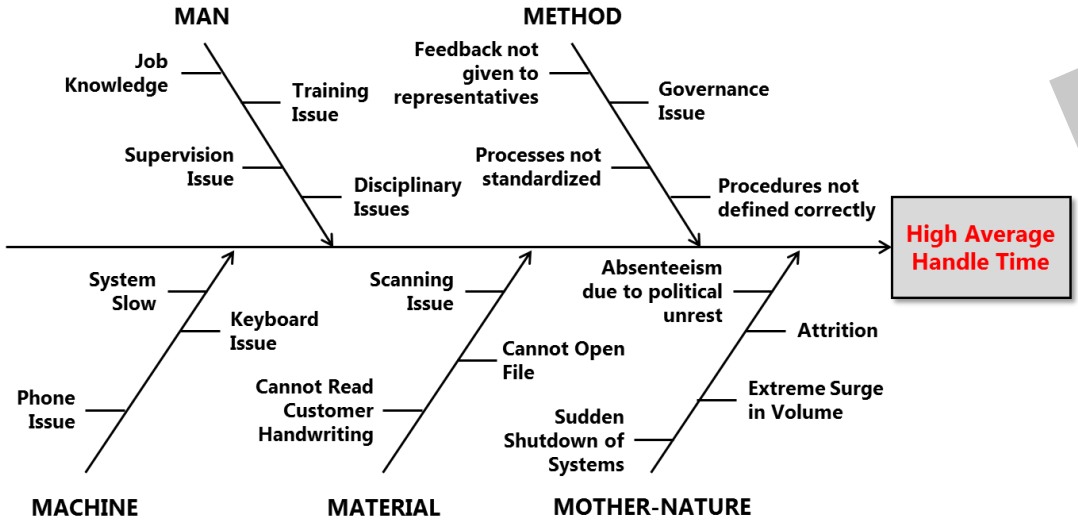
1. **ESTABLISH THE NEED FOR A BRAINSTORMING**
2. **DON'T ALLOW PARTICIPANTS TO DEVIATE FROM THE TOPIC**
3. **ENSURE DOMINATING PARTICIPANTS ARE EFFECTIVELY MANAGED**
4. **ENSURE EVERYONE PARTICIPATES IN THE DISCUSSION**
5. **DON'T ENGAGE IN EVALUATING VIABILITY OF THE IDEA**
6. **ANY CRAZY IDEA IS WELCOME**
7. **GENUINELY APPRECIATE AND THANK EVERYONE FOR THEIR CONTRIBUTIONS AT THE END OF THE SESSION**

Copyright © Smart Growth Hacks

CREATE A FISHBONE DIAGRAM

TOPIC: FISHBONE DIAGRAM

FISHBONE DIAGRAM EXAMPLE



STEPS TO CREATE A FISHBONE DIAGRAM

1. DECIDE THE MAJOR CATEGORIES FOR CAUSES
2. ONE OPTION: THE 5M'S
   - MACHINES
   - MANPOWER
   - METHODS
   - MATERIALS
   - MOTHER NATURE
3. IDENTIFY THE MOST IMPORTANT CAUSES
4. ASK WHY? 5 TIMES TO DETERMINE THE PROBABLE ROOT CAUSES
5. WORK ON THE MOST IMPORTANT ROOT CAUSES
6. BRAINSTORM FOR MORE IDEAS IN THOSE CATEGORIES THAT CONTAIN FEWER ITEMS
7. PERFORM ANOTHER ITERATION TO DETERMINE ROOT CAUSES IF NECESSARY

Copyright © Smart Growth Hacks

EFFECTIVELY USE 5 WHY ANALYSIS

TOPIC: 5 WHY ANALYSIS

5 WHY EXAMPLE

One of the monuments in Washington D.C. is deteriorating!

1	Why is the monument deteriorating?	Because harsh chemicals are frequently used to clean the monument
2	Why are harsh chemicals needed?	To clean off the large number of bird droppings on the monument
3	Why are there a large number of bird droppings on the monument?	Because the large population of spiders in and around the monument are a food source to the local birds
4	Why is there a large population of spiders in and around the monument?	Because vast swarms of insects, on which the spiders feed, are drawn to the monument at dusk
5	Why are swarms of insects drawn to the monument at dusk?	Because the lighting of the monument in the evening attracts the local insects

Solution: Change how the monument is illuminated in the evening; prevent attraction of insects

STEPS TO CONDUCT THE 5 WHY ANALYSIS TECHNIQUE

1. DEFINE THE PROBLEM FOR WHICH YOU ARE TRYING TO IDENTIFY THE ROOT CAUSE. INSERT THE STATEMENT YOU WISH TO INTERROGATE
2. KEEP ON ASKING "WHY" UNTIL THE TEAM AGREES THEY HAVE REACHED THE ROOT CAUSE, OR THE ANSWER PROVIDED DOES NOT HAVE A FURTHER "WHY" (NOTE THIS MIGHT BE AFTER 4 WHYS OR AFTER MORE THAN 5)
3. ONCE THE ROOT CAUSE HAS BEEN IDENTIFIED, HIGHLIGHT IT
4. DEVELOP A CORRECTIVE ACTION AND ASSIGN RESPONSIBILITY FOR ACTION
5. ADD THE DATE WHEN THE ACTION GETS COMPLETE

Copyright © Smart Growth Hacks

CREATE A CONTROL IMPACT MATRIX

TOPIC: CONTROL IMPACT MATRIX

CONTROL IMPACT MATRIX EXAMPLE

Control \ Impact	High	Medium	Low
In Control	• Job Knowledge • Disciplinary Issue • Feedback not given to representatives • Governance Issue • Processes not standardized • Procedures not defined correctly • Attrition (Employee Turnover)	• Supervision Issue • Training Issue	• Keyboard issue • System Issue • Phone issue
Out of Control	• Absenteeism due to political unrest • Sudden shutdown of systems	• Cannot Open File • Scanning Issue • Cannot read customer handwriting	• Extreme surge in volume

STEPS TO CREATE A CONTROL IMPACT MATRIX

1. **ASSEMBLE A FOCUS GROUP DISCUSSION WITH SUBJECT MATTER EXPERTS**
2. **LIST ALL TRIVIAL MANY ROOT-CAUSES IDENTIFIED FROM STEP 07**
3. **CLASSIFY WHICH OF THOSE ROOT CAUSES ARE IN YOUR DIRECT CONTROL FOR ACTION IMPLEMENTATION AND WHICH ARE OUT OF CONTROL**
4. **FURTHER CLASSIFY WHICH OF THOSE ROOT CAUSES HAVE HIGH, MEDIUM OR LOW IMPACT ON THE PROBLEM (PROJECT METRIC)**
5. **BASED ON YOUR CLASSIFICATION, CREATE YOUR CONTROL IMPACT MATRIX**
6. **OUT OF THE ALL THE IDENTIFIED TRIVIAL MANY ROOT CAUSES, THOSE THAT ARE CATEGORIZED / CLASSIFIED AS "IN-CONTROL" HAVING "HIGH AND/OR MEDIUM IMPACT" ARE PRIORITIZED AS CRITICAL ROOT CAUSES**

Copyright © Smart Growth Hacks

GENERATE, SELECT & PRIORITIZE POTENTIAL SOLUTIONS

TOPIC: SOLUTION GENERATION TECHNIQUES

BRAINSTORMING

BRAINSTORMING ACTIVITIES HELD IN STEP 10 ARE FOCUSED ON IDENTIFYING SOLUTIONS TO ADDRESS AND ELIMINATE THE 3 TO 6 VITAL FEW ROOT CAUSES IDENTIFIED IN THE ANALYZE PHASE

BRAINWRITING 6-3-5 TECHNIQUE

BRAIN-WRITING 6-3-5 REFERS TO THE PROCESS OF HAVING 6 PEOPLE WRITE 3 IDEAS IN 5 MINUTES ON A PRE-DEFINED PARAMETER

ASSUMPTION BUSTING

ASSUMPTION BUSTING AS A TECHNIQUE IS USED TO TRACE BACK FROM THE CURRENT PERFORMANCE PROBLEMS TO IDENTIFY RULES AND THEN SURFACE UNDERLYING ASSUMPTIONS

Copyright © Smart Growth Hacks

GENERATE, SELECT & PRIORITIZE POTENTIAL SOLUTIONS

TOPIC: PRIORITIZE AND SELECT SOLUTIONS

SCREEN AGAINST "MUSTS" AND "WANTS"

ONCE POSSIBLE SOLUTIONS ARE LISTED, YOU CAN BEGIN THE PROCESS OF SEEING HOW THEY PERFORM AGAINST YOUR PROJECT CONSTRAINTS SUCH AS BUDGET, TIME AVAILABILITY, RESOURCES, ETC

YOU CAN SCREEN YOUR SOLUTIONS AS "MUSTS" AND "WANTS"

WHAT ARE "MUSTS"?

SOLUTIONS IN THIS CATEGORY ARE ABSOLUTELY NECESSARY. SOMETHING YOU HAVE TO HAVE. WITHOUT THESE SOLUTIONS, YOU WILL NOT BE ABLE TO SEEK THE DESIRED RESULTS

WHAT ARE "WANTS"?

SOLUTIONS IN THIS CATEGORY ARE DESIRES. SOMETHING YOU WOULD LIKE TO HAVE. THERE ARE VIABLE (BETTER) ALTERNATIVES AVAILABLE WHICH COULD REPLACE SOLUTIONS IN THIS CATEGORY

Copyright © Smart Growth Hacks

GENERATE, SELECT & PRIORITIZE POTENTIAL SOLUTIONS

TOPIC: PRIORITIZE AND SELECT SOLUTIONS

SCREEN AGAINST "MUSTS" AND "WANTS"

ONCE POSSIBLE SOLUTIONS ARE LISTED, YOU CAN BEGIN THE PROCESS OF SEEING HOW THEY PERFORM AGAINST YOUR PROJECT CONSTRAINTS SUCH AS BUDGET, TIME AVAILABILITY, RESOURCES, ETC

YOU CAN SCREEN YOUR SOLUTIONS AS "MUSTS" AND "WANTS"

WHAT ARE "MUSTS"?

SOLUTIONS IN THIS CATEGORY ARE ABSOLUTELY NECESSARY. SOMETHING YOU HAVE TO HAVE. WITHOUT THESE SOLUTIONS, YOU WILL NOT BE ABLE TO SEEK THE DESIRED RESULTS

WHAT ARE "WANTS"?

SOLUTIONS IN THIS CATEGORY ARE DESIRES. SOMETHING YOU WOULD LIKE TO HAVE. THERE ARE VIABLE (BETTER) ALTERNATIVES AVAILABLE WHICH COULD REPLACE SOLUTIONS IN THIS CATEGORY

Copyright © Smart Growth Hacks

PILOT IMPLEMENTATION

TOPIC: IMPLEMENTATION

STEPS TO IMPLEMENT PILOT

1. CREATE A PILOT PLAN
2. ENSURE STRONG LEADERSHIP SUPPORT
3. COMMUNICATE THE PLAN TO KEY STAKEHOLDERS
4. TRAIN THE PILOT GROUP
5. IMPLEMENT THE PILOT
6. COLLECT AND ANALYZE FEEDBACK
7. DIAGNOSE GAPS AND REVISE SOLUTIONS
8. IMPLEMENT THE SOLUTIONS

PILOTING TIPS

- MAKE CAREFUL OBSERVATION OF ALL ACTIVITIES, EFFECTS, AND INTERACTIONS DURING PILOT
- ACTIVELY MANAGE YOUR IMPLEMENTATION PLAN. MANAGE EXPECTATIONS AND PERCEPTIONS OF CUSTOMERS, MANAGEMENT, EMPLOYEES
- CONTINUE THE PILOT LONG ENOUGH TO ESTABLISH RELIABLE BASELINE PERFORMANCE DATA
- CELEBRATE SUCCESS
- COMMUNICATE SMALL VICTORIES
- IMPROVE THE ACTIONS IF THE PILOT DEMONSTRATES WEAKNESSES
- OFTEN THE PILOT WILL UNCOVER ADDITIONAL OPPORTUNITIES FOR IMPROVEMENT

Copyright © Smart Growth Hacks

RISK ANALYSIS

TOPIC: PERFORM RISK ANALYSIS

STEPS TO IMPLEMENT PILOT

BRAINSTORM ALL POTENTIAL RISKS THAT MIGHT DECREASE THE PROBABILITY OF SUCCESSFUL PROJECT COMPLETION

ASSIGN HIGH, MEDIUM OR LOW RATING TO HIGHLIGHT THE IMPACT OF RISK ON THE PROJECT

THE TEAM SHOULD IDENTIFY ACTIVITIES THAT NEED TO OCCUR TO MITIGATE RISK. ADDITIONALLY, ENSURE THAT A CONTINGENCY PLAN IS IN PLACE. OWNERS SHOULD BE ASSIGNED

RISK ANALYSIS TEMPLATE

RISK	RISK RATING	MITIGATION	CONTINGENCY	ASSIGNED TO?
Risk Identification	High / Medium / Low	What are you going to do to avoid / minimize risk?	What are you going to do if the risk does surface?	Who's Responsible?

Copyright © Smart Growth Hacks

COMMON VS. SPECIAL CAUSE VARIATION

TOPIC: DIFFERENCE BETWEEN COMMON AND SPECIAL CAUSES

COMMON CAUSES

- PRESENT ALL THE TIME
- HAVE A SMALL EFFECT INDIVIDUALLY
- RESULTS IN A RANDOM VARIATION
- EFFORTS CAN BE TOLERATED

SPECIAL CAUSES

- NOT ALWAYS PRESENT
- TYPICALLY HAS A BIGGER INFLUENCE
- COMES FROM OUTSIDE INFLUENCES
- EFFECT WE WANT TO KNOW ABOUT

Copyright © Smart Growth Hacks