

How to remote in a Global Value Study

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He has more than eighteen years of industrial and consultancy experience in Product Design, Value Management & Program Management in Automotive, Power Systems and Die Casting. Prior to his current role, he has worked as Engagement Manager and Technical lead for product design. He has an Engineering Degree in Mechanical and a Value Management Specialist (VMA).

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Introduction:

Generac is a global company out of Genesee, Wisconsin, founded in 1959. Generac has been a leading designer and manufacturer of a wide range of power generation equipment and other engine-powered products serving residential, light commercial, industrial, oil & gas, and construction markets. Unlike other generator manufacturers, power generation is the company's primary focus, with one of the widest range of products in the marketplace including residential, commercial and industrial standby generators, as well as portable and mobile generators used in a variety of applications.

Other engine powered products designed and manufactured by Generac includes, mobile light towers, mobile heaters, mobile pumps used in oil & gas, construction and other industrial markets; and a broad product line of chore-related outdoor power equipment used for residential and commercial use including pressure washers, water pumps, trimmer & brush mowers, log splitters, lawn & leaf vacuums and chipper shredders.

Their products are available primarily across the U.S and Canada, with an expanding presence internationally in the Latin America, Europe, Middle East, Africa and Asia/Pacific regions. Products are sold through a broad network of independent dealers, retailers, wholesalers and equipment rental companies under the Generac®, Pramac, Ottomotores, Tower Light, MAC, Powermate, and licensed brand names of Dewalt and Honeywell.

Generac posted \$1.67 billion revenue in 2017.

Abstract:

The success and growth of many companies have pushed them to evolve into global enterprises. Global companies have unique challenge where the product is manufactured and sold in many regions. The engineering teams, sales, marketing are all located across the globe. Planning and bringing them together for a Value study has got lot harder.

This paper explains on how we can conduct a successful online – Value Study that involves the extended team members, steps that needed to prepare as well as tools needed to do a detailed fast online.

The global presence evolves from just sales to product design and development. With this growth there is a need to expand various processes including managing the value of the product and conducting global value studies. Challenges on travel and multiple location of project teams opens up the need to conduct remote Value studies.

This paper describes on how we can follow the six steps Job plan and conduct an online – remote study. The paper also explains on identifying the team, systems and tools that need to be available to complete a successful study including an Online- FAST tool. We have been able to use the tools and systems to perform an online FAST diagram as well as a detailed study with all the team members.

Introduction:

The largest challenge many manufacturing companies face is launching a new product that is better in design, value and faster to the market in order to beat the competition. It is important for these products meet all the needs of the customer while providing adequate profit margins. A global team located across the globe engineers, manufactures and sells them. This drives a need to have all these decision makers when planning a Value study.

Cost and schedule efforts needed to bring this team together for value study has become a herculean task, motivating the team to look at new creative options and exploring the need to do remote –online Value study and what tools that could be developed to make it enable achieving this task.

Significance of Value Engineering:

Manufacturing Industry has accepted Value analysis as a method for efficiently directing engineering cost efforts. Conducting a value engineering study has always been a challenge due to the project schedule and the need for speed in launching new programs.

As value engineers, we constantly talk about the significance of conducting value studies during the early development stages of a program. The cost to influence graph (Figure 1) clearly explains the need of why value engineers need to be involved ahead of time.

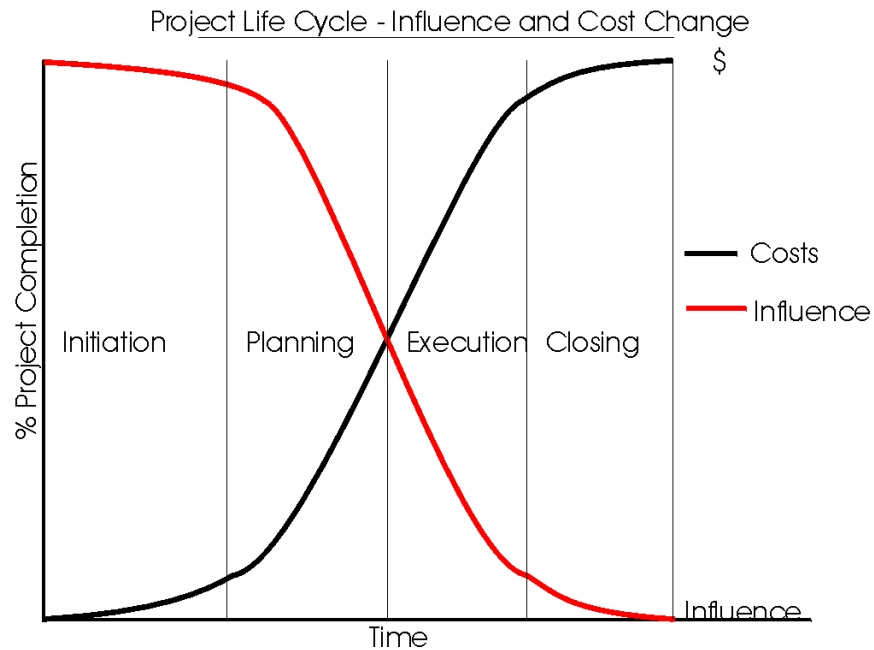


Figure 1: Product Life cycle

The boundaries for change and opportunity diminish the further into a program a team progresses. Conducting a detailed study during or before the planning phase will target success.

Value Methodology:

The Team will continue to follow the Job plan published by the SAVE. The process starts with

- a) **Pre- Study:** This is the first stage where the project in need for VE study is identified. Initiate the plan for conducting the study. This includes identifying the team, time for meeting as well as detailed product and project information on costs; supply, schedule etc. Additional information requested on Benchmarking, Quality, warranty, manufacturing, sales, Product. Team members are assigned on data as well as the physical samples that are needed before study.

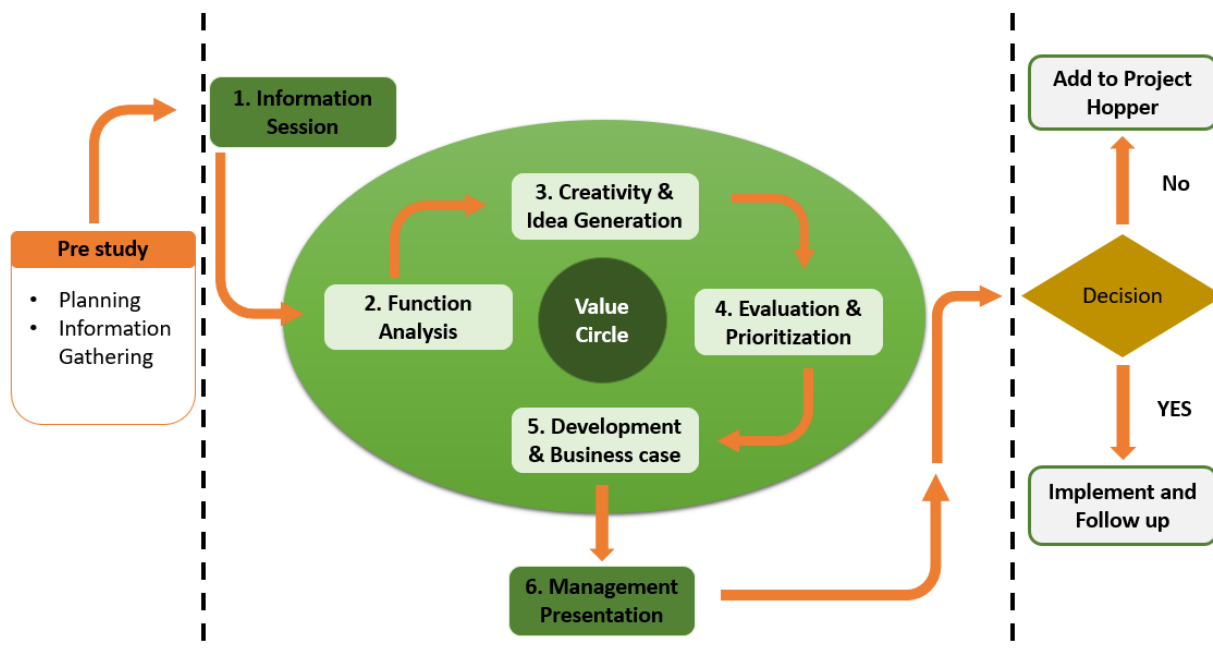


Figure 2: Value Plan

- b) **Workshop (Job Plan):** The second and main stage of the detailed study further divided to six-sub phase.

1. Information Phase: This is the first session that starts after beginning of the workshop. This phase defines the expectation from the team and an actual agreement for the team to come up with a solution. Understand the current state of the project and constraints.
2. Functional Phase: Understand the project from a functional perspective; what must the project do, rather than how the project is currently conceived. Draft the functions. Create **FAST** Diagram (**F**unctional **A**nalysis **S**pecification **T**echnique **D**iagram) using simple

“how- why” logic. Create a Cost-function worksheet to estimate the cost associated with each function of the part.

3. Creative Phase: Utilize various ideation and brainstorming tools to generate ideas related to other ways to perform functions.
 4. Evaluation Phase: Evaluate and short list the generated ideas with the greatest potential to improve the project
 5. Development Phase: further Analyze, develop the short list of ideas, and develop those with merit into value alternatives.
 6. Presentation Phase : Present value alternatives to management team and other project stakeholders or decision makers
- c) **Post-workshop session:** The team meets two weeks after the job plan to complete/ communicate the next steps to implement the ideas and saving proposals identified in the session.

Tools/ Checklists for Online Remote – Value Study:

Pre-study Planning:

Location: Select the location, which makes most sense for the project. Access to team members, product samples, need for being close to manufacturing lines factor in making this call.

Conference room: The conference room needs to have un-interrupted Wi-Fi connection and options to video call.

Additional Samples: In case we need to have actual samples, we need to order more than one set that will be available at all locations from where the team is going to call in.

Videos: Planning and shooting videos of manufacturing assembly sequence. Folks who cannot make the plant tour can understand the assembly sequence as part of Information session.

Value specialist: Plan for having local trained AVS physically present at every location that is calling in. This helps in minimizing the communication challenges.

Additional Time: Plan for extra time for completing Function analysis to make everyone heard and capturing the inputs.

Shared Project folders: All the information is available online at a shared location, so the teams can access and review them independently.

Tech Support: Please make sure the IT tech support team will be available to support on the days of study.

Job Plan:

The team will follow all the online meeting etiquette. Plan for some extra time to introduce everyone on the call. Confirm that the slides, planned components etc are available for everyone. Establish boundaries on how to handle questions and need to raise the hand etc.

Information:

- Walk thru the information slides.
- Have team members present their area of representation.
- Plan to answer all questions before proceeding to next phase.

Function Analysis:

- Extract a detailed Costed multilevel BOM. This helps us understand the cost distribution btw various assemblies and sub-assemblies.
- The second step is to create a detailed list of functions of each multilevel assembly. This helps us establish the relationship of functions performed by that sub assembly and the cost taken to achieve it.
- Classify the functions as Basic, Secondary & tertiary etc.

No.	Part/ Process #	Cost	Function (Verb-Noun)
1	Filter Bracket	\$2.23	Orient filter
			Holds assembly
			mount filter
			secure bracket
2	Top Shell	\$2.70	Contains fluid
			holds pressure
			secures centertube
			Seals element
			seals housing
			Actuates snap
			Retains snap
connects outlet			
3	Bottom Shell	\$1.83	Contains fluid
			holds pressure
			secures centertube
			Seals element
			seals housing
			Contain snap
4	inner element	\$0.75	filters fluid
			seals housing
			prevent bypass
			Direct flow
			seals mediapack
5	Oring	\$0.15	Resist pressure
			Seals housing
6	Center tube	\$0.75	Supports Media
			Directs flow
			prevent bypass
			provides alignment

Figure 3: sample Function list with cost Breakdown

- Copy the functions needed to the VB tool
- The VB tool will help create yellow Post-its

A	B	E	F	G
Number	Function List	Create PowerPoint Post-Its		
1	Actuates snap			
2	communicate information			
3	connects Inlet			
4	connects outlet			
5	Contain snap			
6	contains contaminant			
7	Contains element			
8	Contains fluid			
9	Creates circuit			
10	Directs flow			
11	Enables incenerability			
12	Filters fluid			
13	Holds assembly			
14	Holds connectors			
15	Holds label			
16	holds pressure			
17	Improves Service			
18	mount filter			

Figure 4: VB Tool that creates Post-it's of all Functions

- Answer Yes to the questions asked by the VB tool

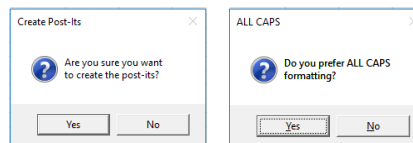


Figure 5: Questions from the VB Tool

- Yellow post-its available on a power point slide.

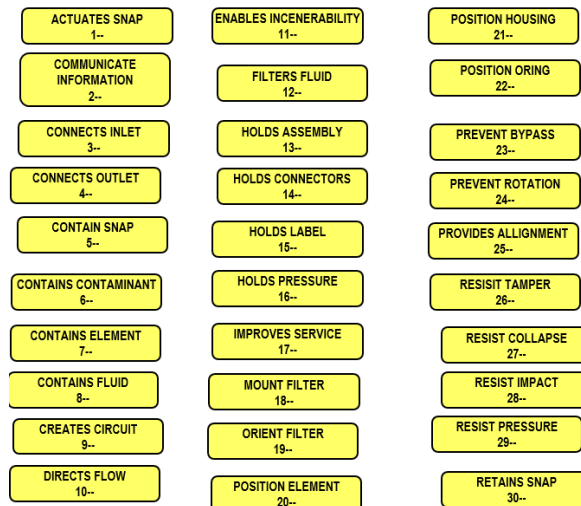


Figure 6: sample Yellow Post-its created on a PowerPoint template

FAST diagram: Utilize the listed functions to develop a Functional Analysis Specification Technique Diagram using simple “how- why” logic. This is key to identify the critical path. The functions on the critical path are taken in for next steps.

- Use the yellow posits to create the function diagram.
- A designated driver shares the screen and moves the posit to form the detailed Fast.

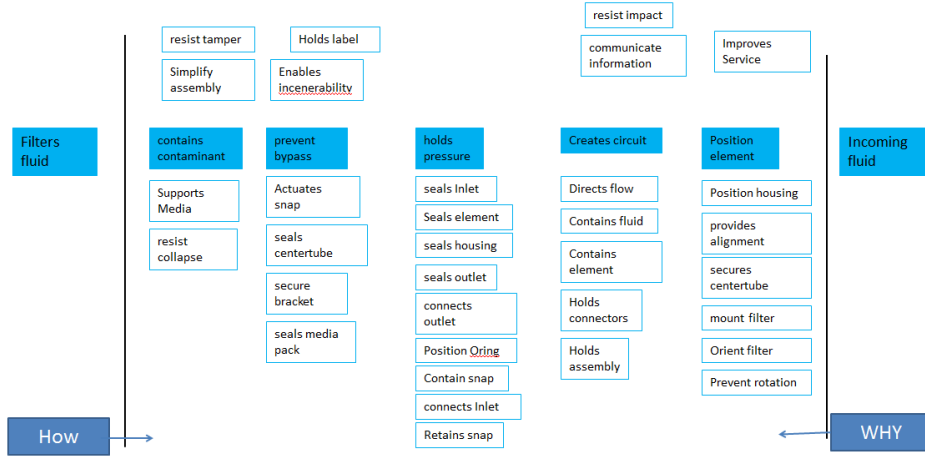


Figure 7: Sample FAST created using the yellow Post-its

- **Cost-Function Worksheet:** In this sheet, the cost of a subassembly is distributed against the various functions that it is performing. This helps us determine from a top-level assembly the cost on supporting a function. This is critical in keeping or eliminating the function for better value perspective.

No.	Description	Cost	% Alloted	Functions																					
				contains contaminant	prevent bypass	holds pressure	Creates circuit	Position element	Resist Impact	Improves service	Communicate information	simplify assembly	Enables incenerability	resist tamper											
1	Filter Bracket	2.23	100%	\$0.00	0%	\$0.00	0%	\$0.00	0%	\$0.00	0%	\$1.12	50%	\$0.56	25%	\$0.56	25%	\$0.00	0%	\$0.00	0%	\$0.00	0%		
2	Top Shell	2.70	100%	\$0.14	5%	\$0.14	5%	\$1.08	40%	\$0.27	10%	\$0.27	10%	\$0.14	5%	\$0.27	10%	\$0.03	1%	\$0.14	5%	\$0.11	4%	\$0.14	5%
3	Bottom Shell	1.83	100%	\$0.09	5%	\$0.09	5%	\$0.73	40%	\$0.18	10%	\$0.00	0%	\$0.09	5%	\$0.18	10%	\$0.02	1%	\$0.18	10%	\$0.07	4%	\$0.18	10%
4	inner element	0.75	100%	\$0.31	41%	\$0.31	41%	\$0.04	5%	\$0.02	3%	\$0.04	5%	\$0.00	0%	\$0.00	0%	\$0.00	0%	\$0.04	5%	\$0.00	0%	\$0.00	0%
5	Oring	0.15	100%	\$0.00	0%	\$0.00	0%	\$0.12	80%	\$0.00	0%	\$0.00	0%	\$0.00	0%	\$0.00	0%	\$0.00	0%	\$0.03	18%	\$0.00	2%	\$0.00	0%
6	Centertube	0.75	100%	\$0.00	0%	\$0.23	30%	\$0.38	50%	\$0.05	7%	\$0.05	6%	\$0.00	0%	\$0.00	0%	\$0.00	0%	\$0.04	5%	\$0.02	2%	\$0.00	0%
Total Cost		\$8.41		\$0.53		\$0.76		\$2.34		\$0.53		\$1.47		\$0.78		\$1.01		\$0.05		\$0.38		\$0.24		\$0.32	
Function % of Total		100%		6%		9%		28%		6%		17%		9%		12%		1%		5%		3%		4%	
Ranking				6		4		1		6		2		4		3		11		8		10		9	

Figure 8: sample Cost Function worksheet

Paired Comparison: The functions on the critical path charted in a paired comparison sheet. The importance of the two functions is determined by comparing two functions at any given time. The overall importance is calculated to help determine the percentage of cost distribution.

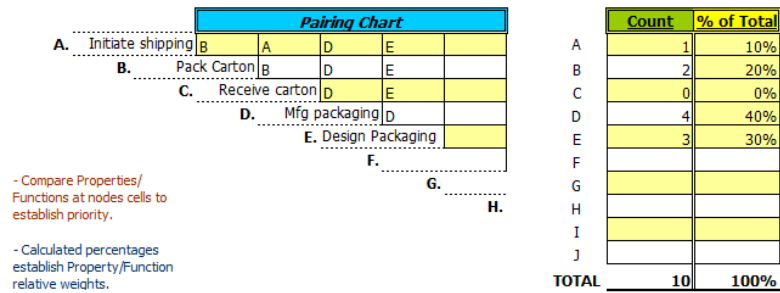


Figure 9: Paired Comparison

Creativity and Idea Generation:

- The ideation needs to be little more structured.
- We can brainstorm on one function at a time and have the team members share their thoughts one at a time.
- Following the same rules of encouraging teams with little or no criticism, we can generate large number of ideas.
- The teams can also draw up their concepts and email it across so they can be shared with the teams.

Evaluation Phase:

- Use the simple 4 blocker to rank the ideas based on estimated savings and time needed

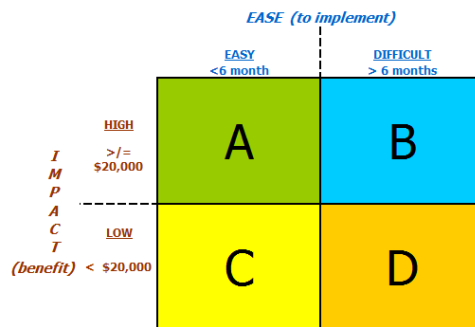


Figure 10: sample Ranking Matrix

Development & Management Presentation:

- The teams split up the prioritized ideas and develop them as a part of a group.
- The Facilitator can then collate the work completed by the sub teams.
- The output of the meeting are then presented to the management team.

Conclusion:

The above process enables to complete a Value study with multiple teams that are not co-located. Limiting from two to three locations help the efficiency of running the meeting. It is still advisable for first time participants be in the room with the value specialists.

With a little bit planning and organization, conducting online Value study has become easier. The excel VB tool helps us create post-its easily. We have proven to complete building FAST diagrams online. It also saves time from conventional post-it on white board, as we do not need to type it again.

We have seen increased participation as there is less travel. We are able to meet our project schedules and no further time is needed.

References:

1. Module I training templates, Greg Andrysiak ,Cost Innovations, LLC
2. Study guide, Save international.