

## **TOOLS TO ENHANCE VALUE METHODOLOGY – A LEARNING FROM DESIGN THINKING**

### **BIODATA**

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Anita completed her B Tech in Civil Engineering from MA College of Engineering, Mahatma Gandhi University, Kerala and started her career with famous Architect Laurie Baker who is well known for his environmentally friendly design and construction practices. She has over 25 years of experience in Construction industry. Currently she is a VE consultant and a guest Faculty in Christ University. She conducts SAVE certified Value Engineering workshops in different domains - construction, manufacturing, automotive, oil & gas industry etc.

Anita worked for over 11 years as AGM & Head of Value Engineering and Innovation at M/s Sobha Ltd., a premier Indian Real Estate and Construction contracting organization. Anita's engineering and management experiences laid foundation for Sobha's Value Engineering programme in 2008. She had been responsible in overseeing and guiding many VE projects and Innovation initiatives.

Anita is a National Council member of INVEST and the Secretary of the South Zone Council of INVEST. Anita is a member of the SAVE International Certification Board from 2015 to 2018. She was a member of the E06 Subcommittee on Building Economics (E06.81) which developed the ASTM standards for Value Engineering.

Anita has presented VE papers to national and international audience. Her papers "Gandhian Sustainability – a VE perception" and "VE – Fostering Frugal Innovation" was well received at the Value Summit 2012 and 2013, the annual conference of SAVE International, USA.

Anita received the SAVE paper of the year award in 2014 SAVE Value Summit at San Diego, USA. She is a recipient of the prestigious Soundaram Kannappan Award in 2013 from INVEST for spreading Value Methodology in India.

Anita is the first Indian lady and the first Indian Civil Engineer to become the CVS.

### **ABSTRACT**

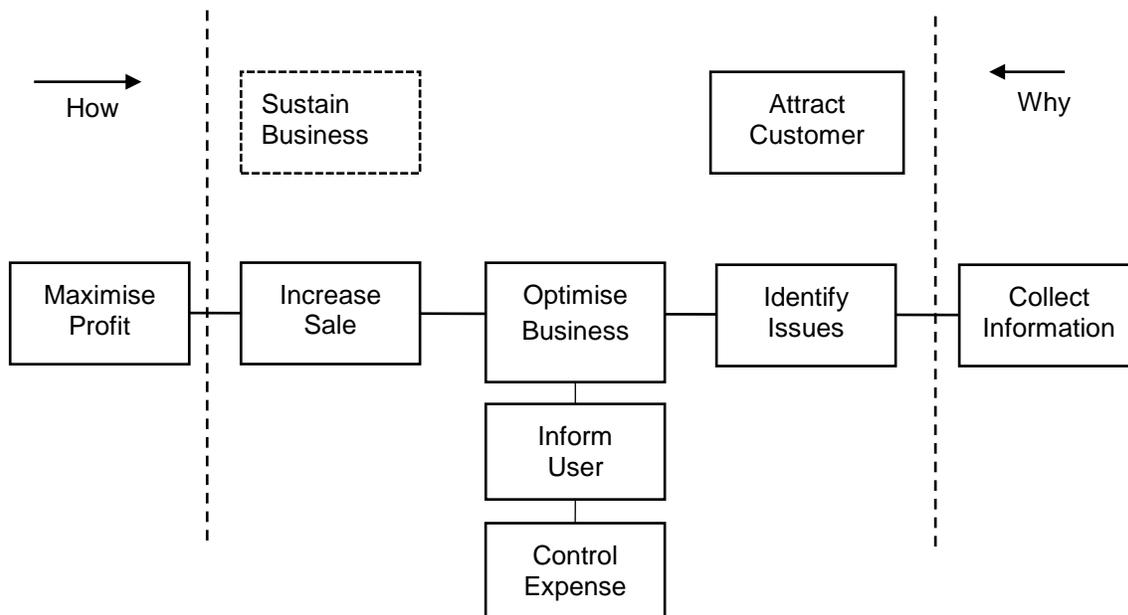
With the current trend of start-ups addressing the unarticulated problems faced by users, increased focus is given to the customer centric approach in products and services. There are different methods and procedures to ensure this value enhancement. Design thinking is a widely embraced method to deliver better customer experience, by understanding very methodically their requirements, with a healthy business orientation.

This paper compares the approach of design thinking with Value Engineering. The function analysis will give a cutting edge to Design Thinking. The customer-oriented functions will be an effective guidance while understanding the product requirements from the customers. Value Engineering, a game changer in creating the customer excitement, will be more powerful when coupled with awareness on Design Thinking and its tools. The paper also discusses the points of improvement to make the Value Methodology more efficient.

## Introduction

Value Methodology helped organisations to optimise resources for the last 72 years. Many governments and corporates have mandated it in their process. With its strengths, namely systematic methodology, function analysis, multi-disciplinary team approach and the possibility to apply different tools within the methodology, VM can stimulate the thought process of the team to achieve bigger results. But VE studies are often sought after as a method for problem solving or even cost cutting. This paper suggests areas to be focused during job plan especially in the information phase.

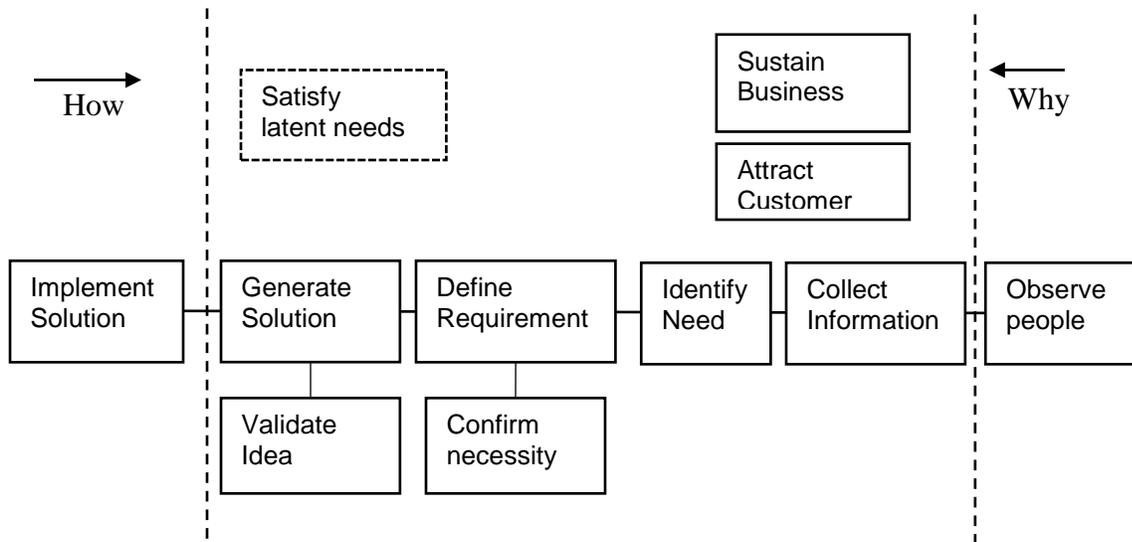
The following is the FAST diagram of an organisation which operates in the traditional way. When the business concern is identified, it is translated as a cost saving target and a VE study is initiated. The team identified, the data shared, and the time allocated for the study, usually curb the opportunity to address the stakeholder requirement or even relooking at the suggested study objective. The team members have the tendency of jumping into solutions when they are discussing the present stage data and the issues during the information phase. The immediate problems or the symptoms of problems related to the product or process are addressed.



**Figure 1: FAST Diagram for traditional business**

The world is focusing on the customer now with evermore importance. Figure 2 shows the FAST diagram of a customer focused business. Moving forward from customer requirement and satisfaction, organisations are now talking about customer delight and excitement. They collect such data by observing the user and generating data about the moments of truth. They also have conversations with stakeholders. But organisations continue to experience the project issues associated with poor performance of requirements-related activities. So, a methodology which can address both business and the technical issues is highly required for the industries. Value Methodology (VM) is a proven methodology for such projects. Design thinking is also a methodology which is adopted for such problems. Let us understand Design Thinking little more to see what we can learn from it.

“Most of the innovations result from a conscious purposeful search for opportunities to solve problems or please customers.” – Peter Drucker



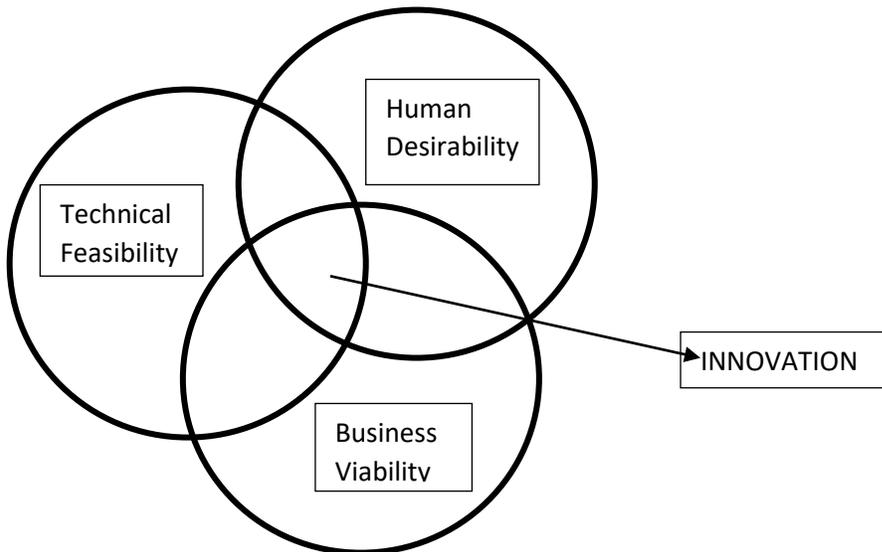
**Figure 2: FAST Diagram for customer focused business**

### What is Design Thinking?

“A desk is a dangerous place from which to view the world” – John le Carre

Leaders now look to innovation as a principal source of differentiation and competitive advantage; they would do well to incorporate design thinking into all phases of the process. (Tim Brown, 2008).

The DT is regarded as a system of three overlapping spaces, in which viability refers to the business perspective of DT, desirability reflects the user’s perspective, and feasibility encompasses the technology perspective. Innovation increases when all three perspectives are addressed.



**Figure 3: DT – A system of three overlapping spaces**

Design Thinking (DT) process is based on the concept that great ideas or breakthrough innovations happens because of a collaborative team operating with a human centred iterative process of prototyping, testing and refinement.

DT helps channel conversations with all stakeholders into productive areas and create a better understanding of their needs and wants. Observing the customer at his place and the related conversations with him, create a human centric understanding of the present reality, better than the traditional problem analysis performed with impersonal consumer data. It defines the problem in a more people-oriented view. By reducing the assumptions and listing more facts, right problems are addressed. Iteration helps to reduce the stress in the creativity phase.

These advantages make DT a methodology to help the ideating team to generate effective solutions orienting themselves for the actual requirements of the stakeholders. DT approach changes how we design the solution by understanding the present situation through the interactions with the stakeholders. It is not an individual effort and not a homogenous team effort. It involves people from different areas which bring in different expertise to the team. It is not about a tool used by the identified set of experts, but a methodology and thinking followed by the entire team. Design thinking is about defining the right problem and identifying a solution which was not thought of in the normal analysis.

The 4 phases of Design thinking are, What is, What if, What Wows and What Works.

In the 'What is' phase of Design Thinking, Customer Journey map helps to identify the unseen emotion of the customer which may bring a whole new dimension to the present scenario. It captures the true emotion of the person as it focuses on the people's actions than words. This helps to focus on the more apt areas even if it is not well articulated by the customer. As it is not about the correctness of the map, free flowing discussions occurs with a focus to develop the hypothesis closest to the right one. So, Customer Journey map helps to understand the present situation in a more effective way.

Initially not so exciting ideas are generated in the brainstorming session, like a simple model we get out of just joining Lego pieces. Later when the simple ideas are combined and modified, great innovations - like rockets or ships out of Lego blocks - becomes the outcome. The transformative ideas come from assembling brainstorming results into new solutions.

## **The Four Questions of DT**

Design thinking is a tailor-made approach to solve wicked problems. Like VE, it is a questioning method. The following are the four questions which are adopted during the process:

1. "What is?" focuses on discovering the latent needs - deep unmet needs of people stakeholder group you want to innovate.
2. "What if?" generates numerous ideas using the approach, "what if everything is possible". These ideas turn into new concepts and its business case.
3. "What Wows?" introduces the experimental dimension to more viable, but small bets. Such iterations are quick and inexpensive means of learning that resonate with the user and the market.
4. "What works?" determines the solution for the actual users which works for them.

## **Value Engineering and Customer Orientation**

Value Engineering is one of the first methodology to have a focused customer orientation while analysing a product or a process. It is a methodology with deep customer focus. "That a thing may have any value, it must be of some USE and it must satisfy some DESIRE"-this is understood as Value by a Value

Engineer. Thomas Snodgrass and Theodore Fowler, Fellows of the Society of American Value Engineers, developed the user/customer oriented FAST diagram.

But while conducting a VE study, the team depend on the technical knowledge and data available. Not much effort is taken for a proper understanding from the customer/ user perspective. We all get excited with the story of the soap manufacturing company which adopted the idea of a rank-and-file employee of installing an industrial fan for separating the empty soap boxes against the idea of engineers to use X-rays. Even though the learning from the story is that the ideas can come from anywhere, we rarely include or approach a non-expert in our studies. Their practical knowledge is often not used in the studies.

## **Opportunities for VM**

Design thinking adopts a human centred approach for generating solutions. The solution identification is done with iterations which creates a learning approach and releases the stress on the creative process. The tactic adopted is "Fail Fast". The idea that will not work out is identified in a short time without much utilisation of resources. This learning helps the team better identify the solution that works. Tools like customer journey mapping, Visualisation, Storytelling, learning launch etc. are used in the process.

Generally, in Value Engineering studies, the technical and financial details are collected and studied. Based on review of Design thinking, the following enhancements can be adopted in value engineering studies:

1. Increased user customer Interaction: Collecting customer centric details along with technical and financial details of the project will lead the team towards a solution with better user experience on account of increased user/customer interaction.
2. Iterations in the development phase: VM Job Plan has a linear process of creating the idea, evaluating them to identify the effective idea, developing it and then seeking approval in the presentation phase. If the approval is denied, the team loses the time spent on the development. An iterative approach of seeking the approval for the first draft of the idea may be more viable.
3. Inclusion of tools like Customer journey mapping, visualisation, storytelling in Value studies.

Function analysis of VM coupled with these improvements will certainly enhance the outcome of a VE study.

## **When VE and DT were combined – A case Study:**

"You've got to start with the customer experience and work back toward the technology - not the other way around"

– Steve Jobs

Design Thinking was adopted for setting up the activities for the Continuous Improvement of an organisation. The manager was given the responsibility of addressing the ideas received from the employee's suggestion scheme. She noticed that the scheme was not a favoured by the employees, despite the huge award money and the CEO support. Interview with the different department heads and employees revealed the dissatisfaction of the different stakeholders. Some of the major complaint was the awarded ideas were not implemented as no proper detailing was done. Award committee was accused of favouritism and the process which started for continuous improvement and collaboration brought in ill feeling among the employees and the scheme proposed by the management faded except

for the posters and campaigns. No fresh ideas were received in the suggestion scheme. The newly appointed manager started interacting with the key personals:

- The members of the award committee for understanding the process followed in awarding
- The awarded employees to understand the details of the suggestion given
- The departments which could have benefited by the suggestions to understand why they were not implemented
- The tasks and the problems with the way of accomplishing it, where the ideas could have made a difference
- Other owners of the process

Using the data, she and her team identified the root cause. Using visualisation, the team listed all the functions necessary for the ideal situation of handling suggestions. Different discussions and process iterations helped the finalisation of the concept. The resulting FAST diagram gave them a bigger vision of formulating the innovation activities of the organisation. The initial process of manual hard copy submission of suggestions was improved to online submission which allowed different forums for discussion of ideas, with the process owners, the subject experts and the award committee. When Value Methodology and Design Thinking were adapted together, the output was exponentially benefiting to the stakeholders.

## **Lessons for VM**

A thorough understanding of the present reality gives us deep insight into the true needs and wants of the stakeholders which reduces the risk of failure associated with a new idea. Focusing on present scenario and the customer needs helps us to visualize a great solution without telling us the solution itself.

Use procedures and tools which will capture more accurate information from the actual place and people.

Iterations help in quick validation and effective implementation at a controlled expense.

## **Conclusion**

VE is one of the first methodology to include customer orientation in product or process study. It continues to be the most structured approach by capturing the customer centric functions which is imperative to sustain the competitive advantage that VE possess today.

## **References:**

1. Thomas Snodgrass, Muthiah Kasi, 1986, Function Analysis – the stepping stone to good value, University of Wisconsin-Madison
2. Jeanne Liedtka , Daisy Azer, Randy Salzman, 2017, Design Thinking for the Greater Good: Innovation in the Social Sector, Columbia Business School Publishing

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