

Concept Creation

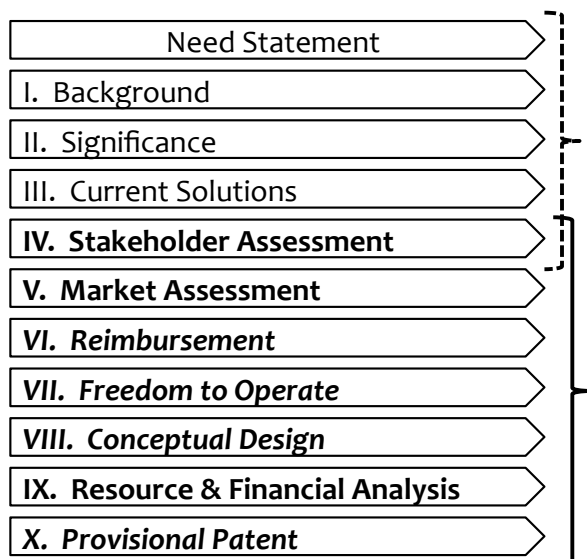


Bob Barnes and Marilyn Lombardi



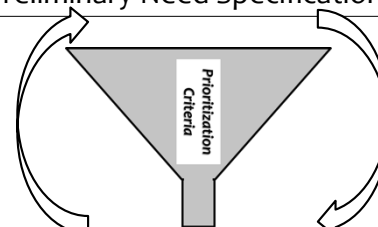
1

Need Specification



2

Preliminary Need Specification



Focus of Post Prioritization

Design = often misunderstood

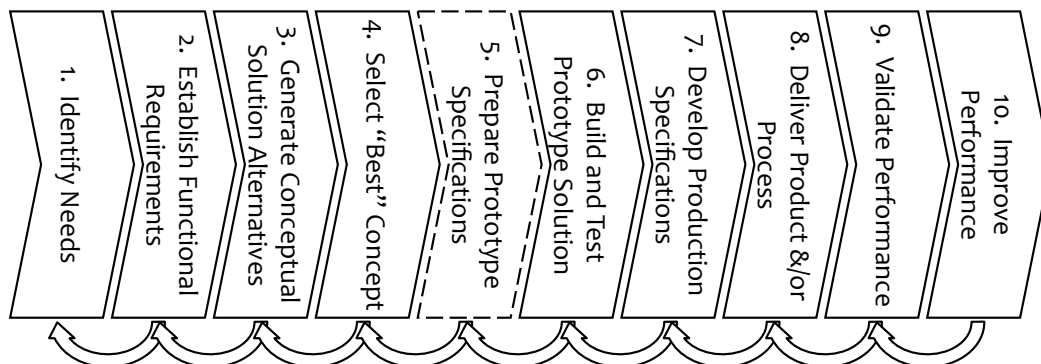
5. (a) an underlying scheme that governs functioning, developing, or unfolding, (b) a plan or protocol for carrying out or accomplishing something (as a scientific experiment); also: the process of preparing this
6. the arrangement of elements or details in a product or work of art
7. a decorative pattern (a floral design)

Dictionary.com

3

Engineering Design & Development Process

Needs Specification Addresses at Least Steps 1 - 4



Progressive Elaboration and Iterative Development Drive Successful Design

4

Video References – “the lazy instructor approach”

Conceptual Design in 2 Minutes

<http://www.youtube.com/watch?v=Jo2SG4JhohQ>

Patient Scheduling – the 357 law!!!

<http://www.youtube.com/watch?v=3mcMwlgUFiU&feature=related>

Part one – The Doctor’s Office Visit

<http://www.youtube.com/watch?v=1Ao848IJEW&feature=relmfu>

Part two – The Doctor’s Office Visit

http://www.youtube.com/watch?v=Wh5_xobt6zA&feature=related

A Medical Device in the Making – FDA & Investigational Device Exemption

<http://www.youtube.com/watch?v=FSiEWUR79EQ>

I have an Idea – barely the beginning

<http://www.youtube.com/watch?v=zKQMLBHGGPs&feature=relmfu>

Functional Requirements – wishing and hoping ...

http://www.youtube.com/watch?v=I_GTTyE9jgY

5

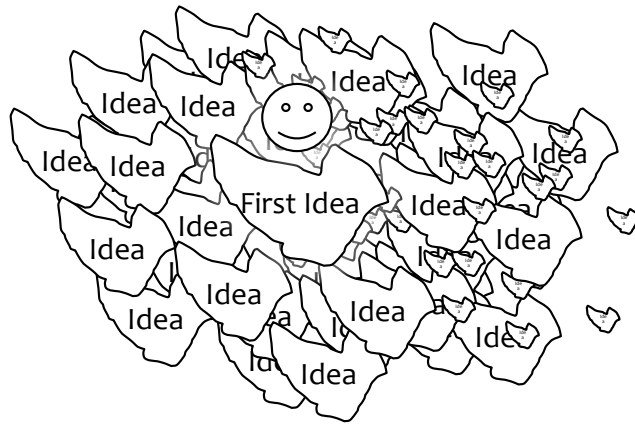
Creativity – Not Easy Fun!

A few tools

- * Brainstorming
- * Brain-writing
- * White wall
- * CEDAC
- * Take a walk – take some cards
- * Go to the hardware store
- * Technology limited
- * Nominal group techniques
- * It can’t be done because ...
- * Theirs does not work because ...
- * If only ...
- * Parallel thinking
- * What is the bigger problem ...
- * What is the smaller problem ...

6

Haloing



7

Take Out Four Sheets

No talking!!!!

Biological

Chemical

Mechanical

Electrical

8

Compare Four Sheets

1. No talking!!!! Post Sheets

2. No talking!!!! Read Sheets

3. No talking!!!! Make Notes

Charlie	Biological	Chemical	Mechanical	Electrical	Radheeka	Biological	Chemical	Mechanical	Electrical
Mary	Biological	Chemical	Mechanical	Electrical	Sneha	Biological	Chemical	Mechanical	Electrical
Sue	Biological	Chemical	Mechanical	Electrical	Wei	Biological	Chemical	Mechanical	Electrical
Juan	Biological	Chemical	Mechanical	Electrical	Guy	Biological	Chemical	Mechanical	Electrical

9

Work!

Small teams – 4 or less

Talk, Argue, Draw, Consolidate

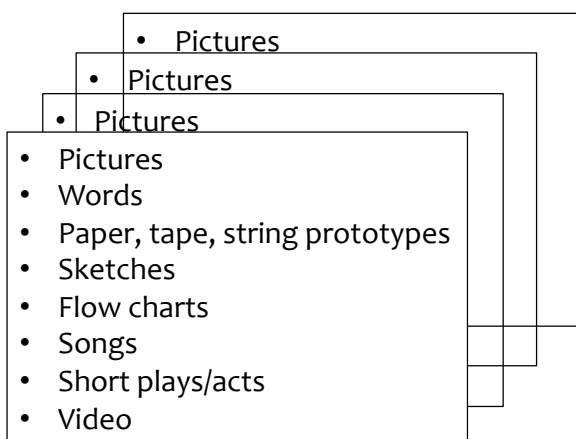
Develop a Sketch and Description

Describe how “it” works!

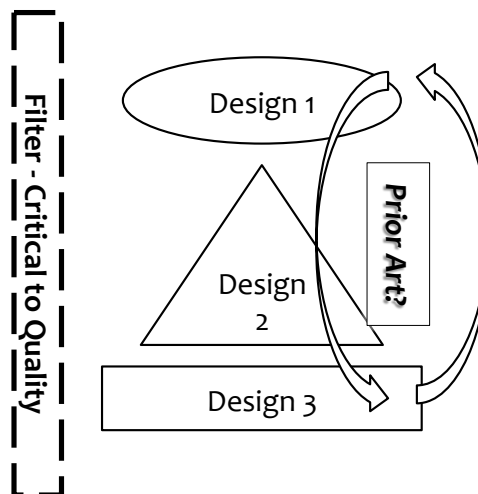
10

Produce Tangible Interim Results

Direction of Work →



11



Brainstorming: Ideation – BioDesign Stanford

http://biodesign.stanford.edu/bdn/video/20080204_GeorgeKembel_bioe374.jsp

Out of the Box Thinking: Medicine 2060

http://www.youtube.com/watch?v=oinilUp_UNQ

12