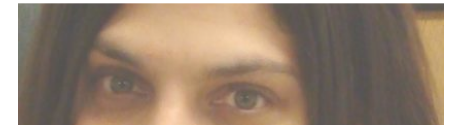
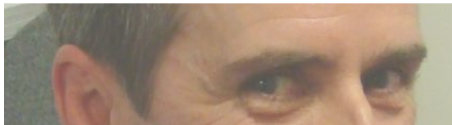
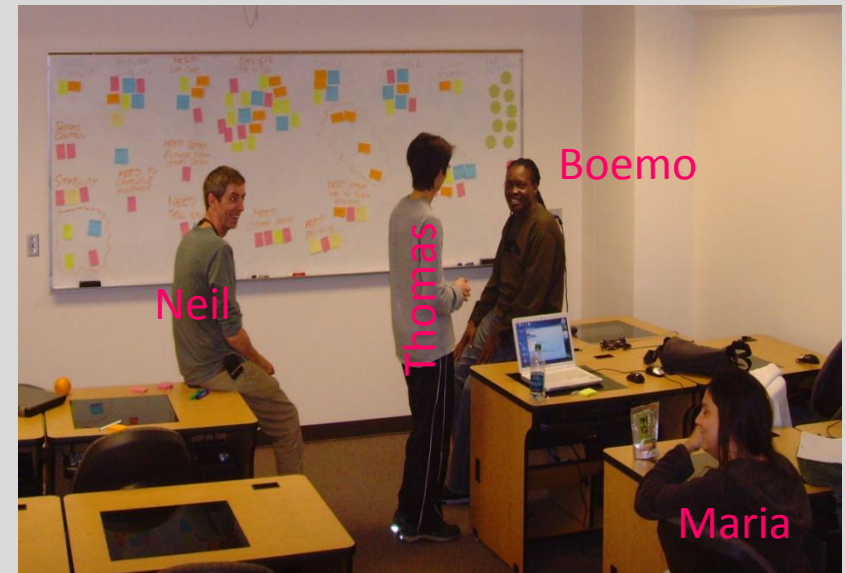


User Centred Innovation

Project Group 4

Personal Photography Experience



Neil O Connell

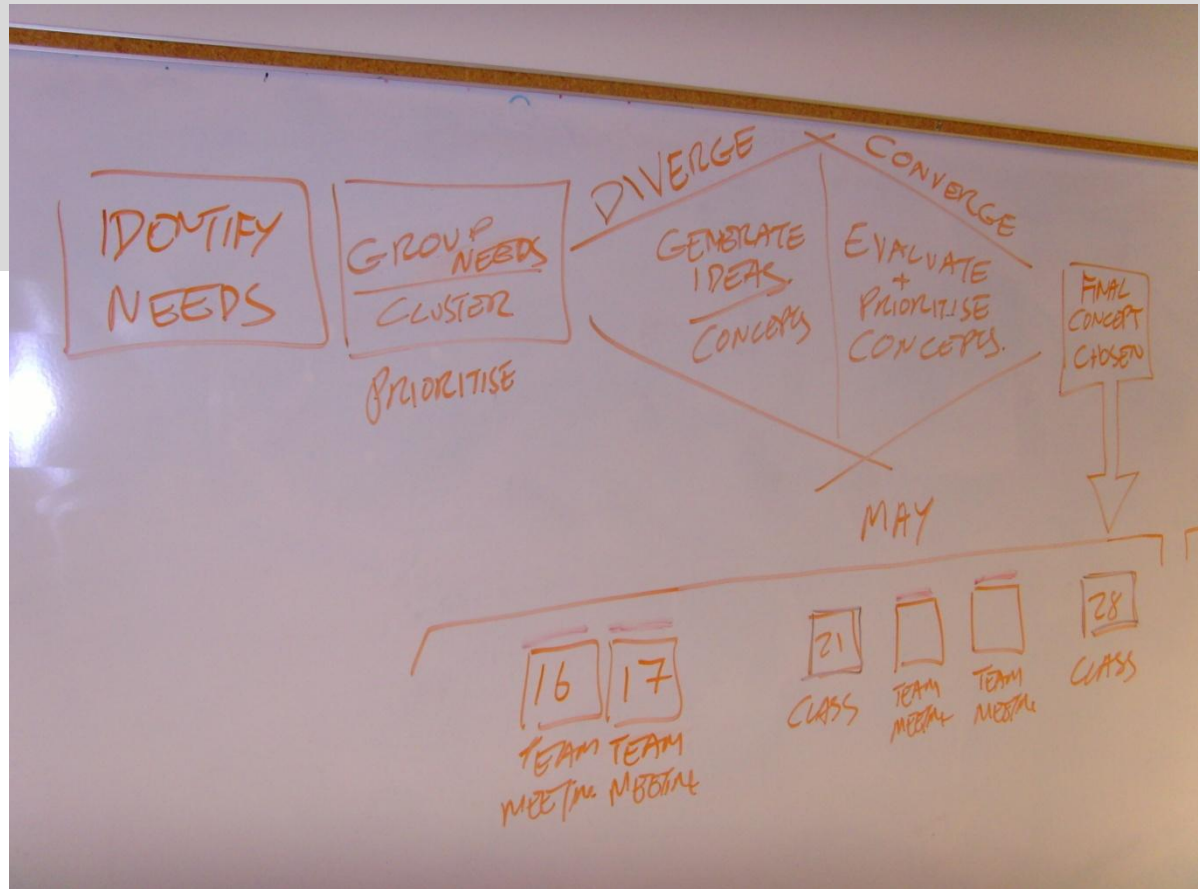
Chih-HsunLin

Nametsegang Boemo-Mokhawa

Maria Schenk

Introduction

- Which area to study?
- Project proposal selection
- Evaluative criteria reference
- Project Framework
- Qualitative research
- Field research
- Data analysis
- Transform voices into requirements
- Identify themes
- Propose solutions to needs
- Scoring method example
- Concept scoring
 - Concept scoring result
 - Concept ranking and choice
- Final concept
- Conclusion
 - Q/A



Project proposal selection?

- Each member suggested proposals
- Used evaluative matrix to rank and discuss
- Final choice was 'personal photography experience'

#	Project Title	Boemo	Thomas	Maria	Neil	total score
1	Talking shoes for kids	4	5	4	3	16
2	Green tea cigarettes	5	3	5	3	16
3	Mechanical speedometer	3	2	3	2	10
4	Bike safe rails	2	4	4	3	13
5	Electronic reminder board	3	3	3	3	12
6	Electronic errands listing	4	4	3	3	14
7	Speaking alarm clock with reminders	2	3	4	2	11
8	recyclable-used electronic products` case	2	3	4	3	12
9	cyber auto-shot camera	5	5	5	3	18

How we decided to study 'personal photography experience'
Maria

Evaluative criteria reference

- Cost
- Ease of use
- Suitability for a project
- Potential of technical success
- Potential of market success

Reference, evaluative criteria example

Understand What Customers Value

Example: Product Value Index

Rank	Customer Value Drivers in Order of Importance	Competitor A	Competitor B				
No.	Importance	Rating (1-10)	Score				
1	25% Ability to address existing and anticipated technical problems	Ben/Tech	8	2.32	10	2.50	You need to be the BEST at satisfying the most important Customer Value Drivers (CVDs)
2	18% Positive experience with the product	Ben/Emo	9.5	1.71	8	1.44	
3	15% Positive experience with the company	Ben/Emo	9	0.75	9.5	1.43	
4	12% Ease of operating and maintaining the system through its life	Ben/Tech	7	0.84	8.5	1.02	You can be CONSIDERABLE to competitors in the second tier of CVDs
5	8% Increased asset utilization	Ben/Emo	8	0.64	4	0.32	
6	5% Ease of integration into company processes and operations	Ben/Emo	9.5	0.48	4	0.20	
7	5% Cost of ownership (CoO)	Cost/Money	8.5	0.43	6	0.30	You can be DIFFERENTIAL in the third tier of CVDs. You are at least important, provided your performance is still acceptable
8	3% Impact on the organization if something goes wrong	Cost/Risk	9	0.27	7	0.21	
9	3% Increased revenue/throughput	Ben/Emo	7	0.21	4	0.12	
10	2% Purchase price	Cost/Money	6	0.12	4	0.08	
ALL	100% Product Value Index		7.39		8.82		

The Product Value Index (PVI) is a numerical expression of value. By quantifying the value that a product represents to a target segment, you can determine how the offering of one company ranks compared to that of another company. The PVI is calculated by first multiplying the Importance percentage shown in the Rating Item 5's - this generates the Score Item 6's for each CVD - and then totaling the Scores to create the PVI (Item 7).

For comments, questions or additional copies please e-mail the authors: VOC@engdissolution.com

Project Framework

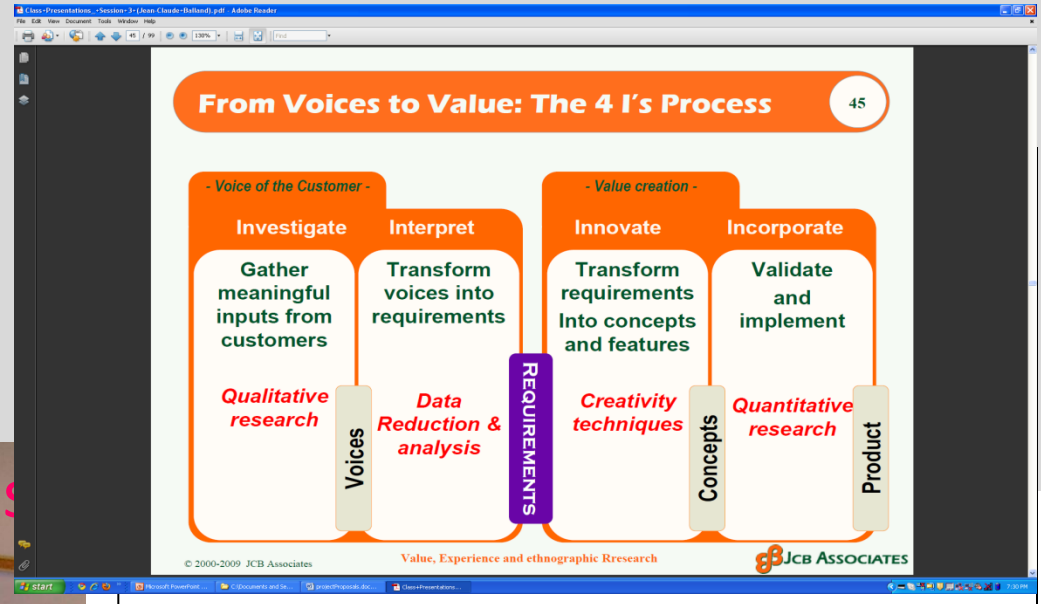
- Adopted phase/gate approach
 - JC Ballard

- Four stage design process

— Nigel Cross

Gather inputs from Users

- Use different methods to gather data
- Capture contexts
- To sample most important contexts we need to know the most important data flows



Stage Gate Approach

1. Investigate
2. Interpret
3. Innovate
4. Incorporate

Qualitative research phase

Methods use to gather Data

- Conducted in-house training to ensure consistency among team members during interviews.

1) One-on-one interviews

Constructed interview questions based on different Benefit categories. The Cost categories will only be considered at the Third Gate – Innovate, when evaluating viable solutions.

- **Technical**
- **Operational**
- **Economic**
- **Emotional**
- **Network**

Reference: www.rapidinnovation.com

Dr. Ballard

2) Observation

Video recorded some sessions to capture unexpressed

- # Qualitative research phase

Methods used

 - Economical questions
 - How much did you pay for your camera?
 - How do you earn?
 - Is cost a factor when buying a camera?
 - Do you find cameras expensive or cheap?
 - Does owning a camera improve your income?
 - Does owning a camera improve anyone's income?
 - How much do you want to spend on camera accessories? Which camera buying first? (tri-pod, bag, spare lens ect...)
 - How long have you had your camera?
 - How many cameras do you own? Do you also own a camera-phone? often? Why? Which one do you use less? Why?
 - How often do you buy a camera?
 - How often do you tend to upgrade as new feature become available?
 - What do you think is a reasonable amount for a camera?
 - Technical questions
 - How do you show your pictures to others?
 - What is your method of showing pictures to others?
 - Do you own?
 - Do you have your camera?
 - Do you have your batteries?
 - What features do you like most and why?
 - Do you have your camera have?
 - Do you like pictures? If no, why not?
 - Do you operate other cameras?
 - Could you demonstrate how you use some of these special features?

1) One-on-one

Conducting a one-on-one interview is a common method for qualitative research. It allows the researcher to explore the user's experience in depth and to understand the context of their behavior. The researcher can ask open-ended questions and follow up on interesting responses. This method is often used to gather rich, detailed data that can be used to inform the design of a new product or service.

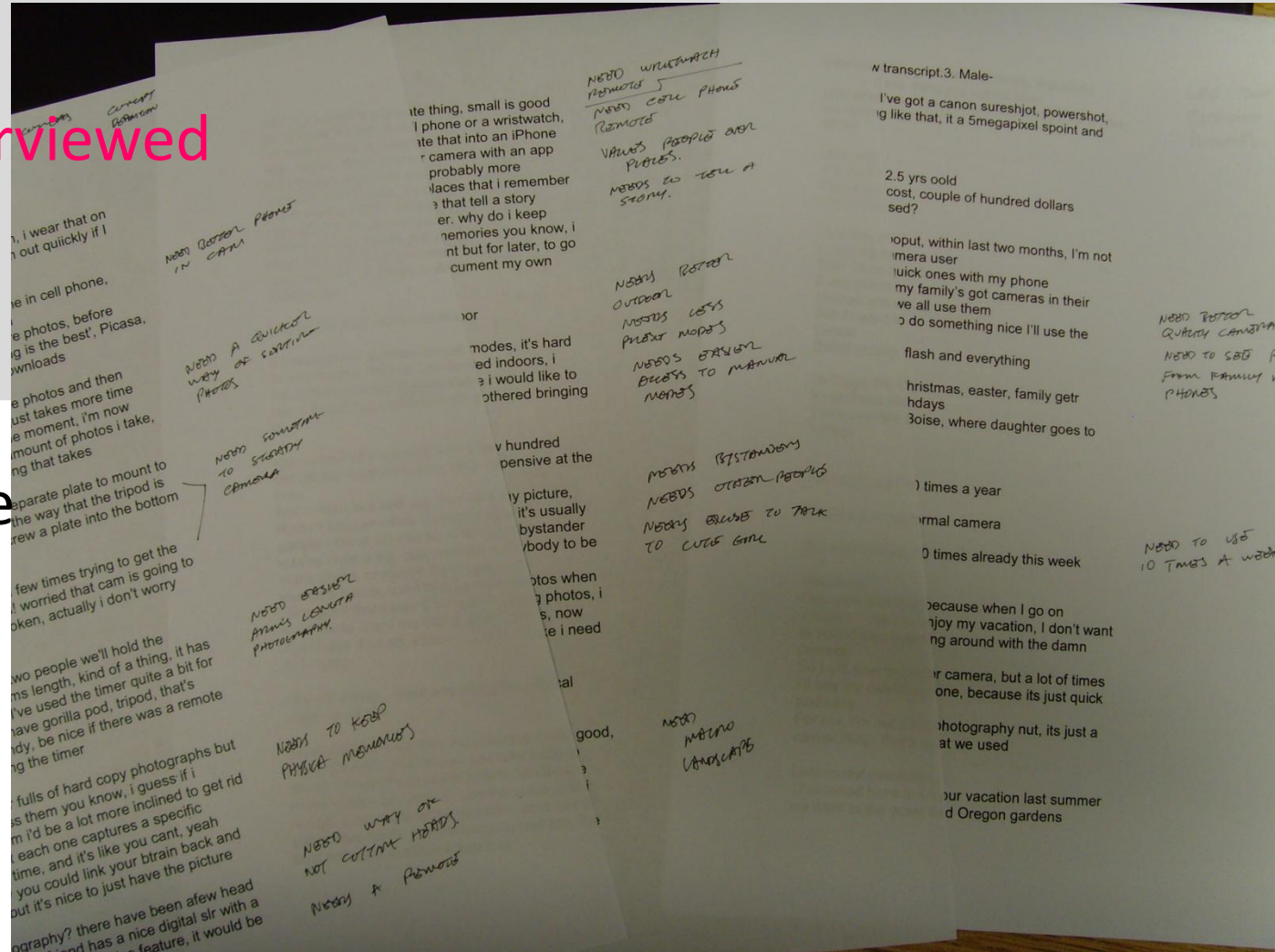
2) Observation

Observation is another common method for qualitative research. It involves watching users as they interact with a product or service. This can be done in a laboratory setting or in the field. Observation allows the researcher to see the user's behavior in real-time and to understand the context of their actions. This method is often used to identify usability issues and to gather insights into user behavior.

Field research data

- 10 people interviewed
 - Text
 - Audio
- Voice to text
- Post to website

- Validate our interpretations in order to ensure that users' goals are the same as 'needs' crafted from data gathering

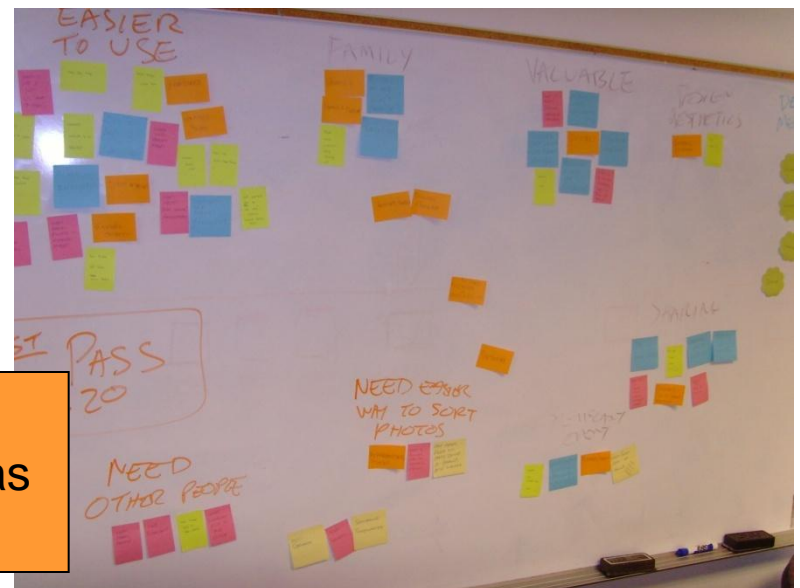


Transforming voices into requirements

Step 2:

- *Brainstorm then Cluster First Pass*

- Web enable
- Picture quality
- Cost
- Easier to use
- Family
- Valuable
- Design aesthetics
- Sharing
- Significant event
- Need easier way to sort photographs
- Need other people
- Need to show journey



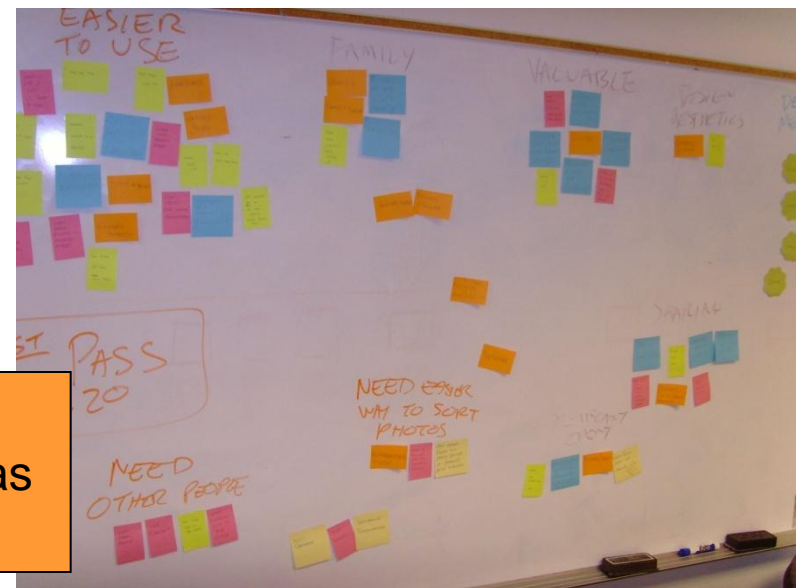
Thomas

Transforming voices into needs

Step 3:

- *Cluster Second Pass*
(convert to 'needs')

- Need picture quality
- Need low cost
- Need ease of use
- Need to hold family together
- Need to guard memory
- Need to look good
- Need to share
- Need to mark event
- Need easier way to sort photos
- Need security
- Need photos of self
- Need to tell story
- Need better picture from other person
- Need to capture movement
- Need stability
- Need better control

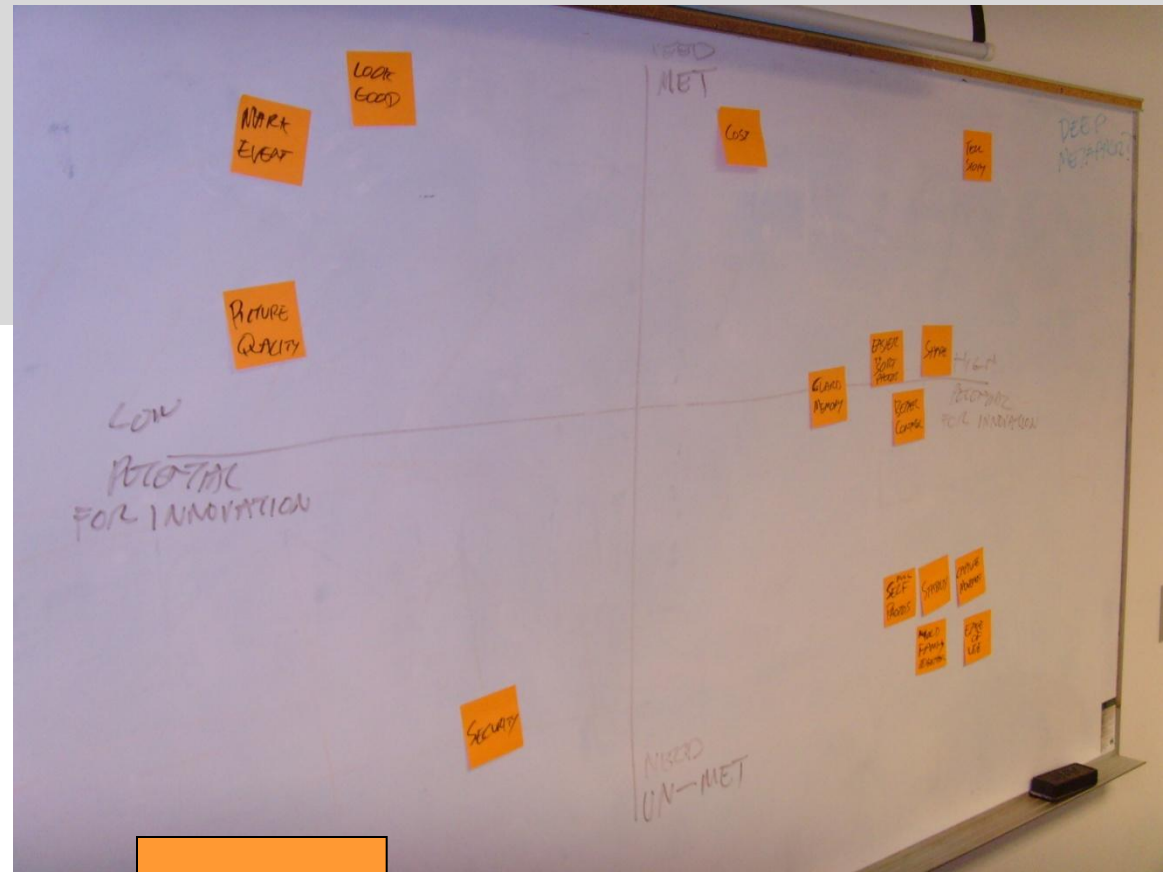


Thomas

Analyze NEEDS

Step 4:

- *Create a grid*
 - Vertical
 - Met/unmet
 - Horizontal
 - Potential for innovation



Thomas

Converge

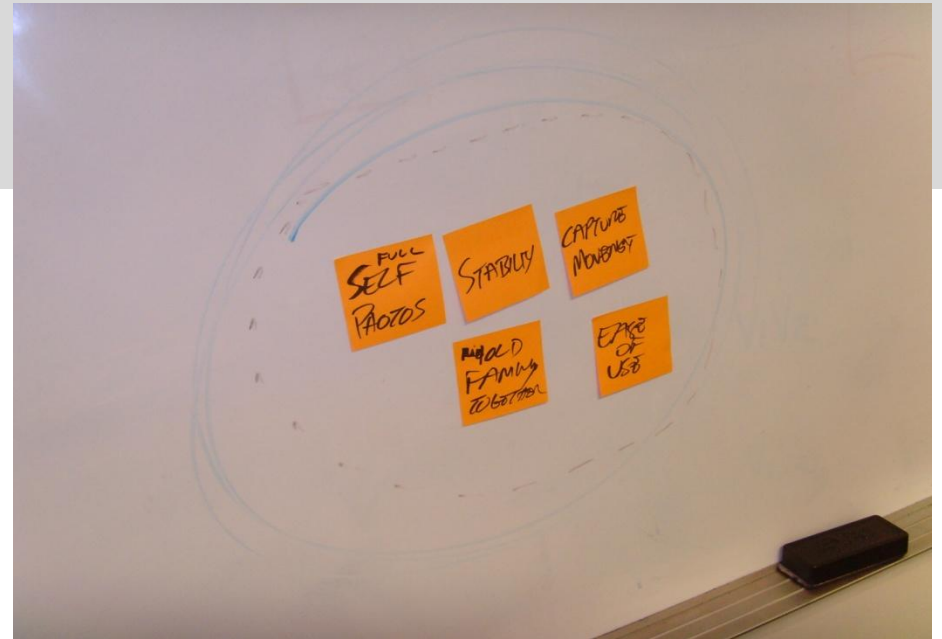
Step 5:

- *Identify themes*

We wanted to identify needs that were unmet and also had high potential for innovation

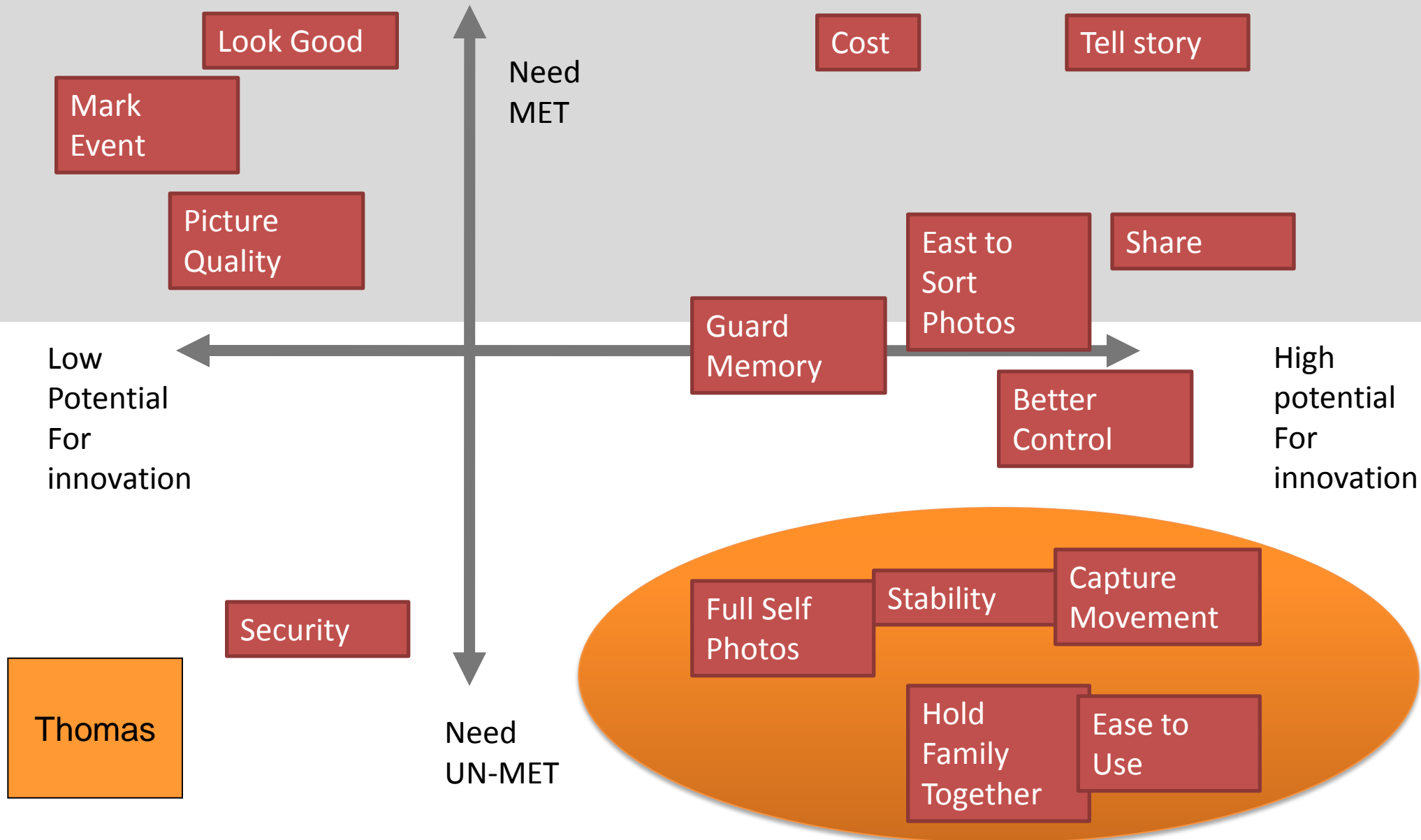
The theme that we chose were:

- Full Self Photo
- Stability
- Capture movement
- Hold family together
- Ease of use

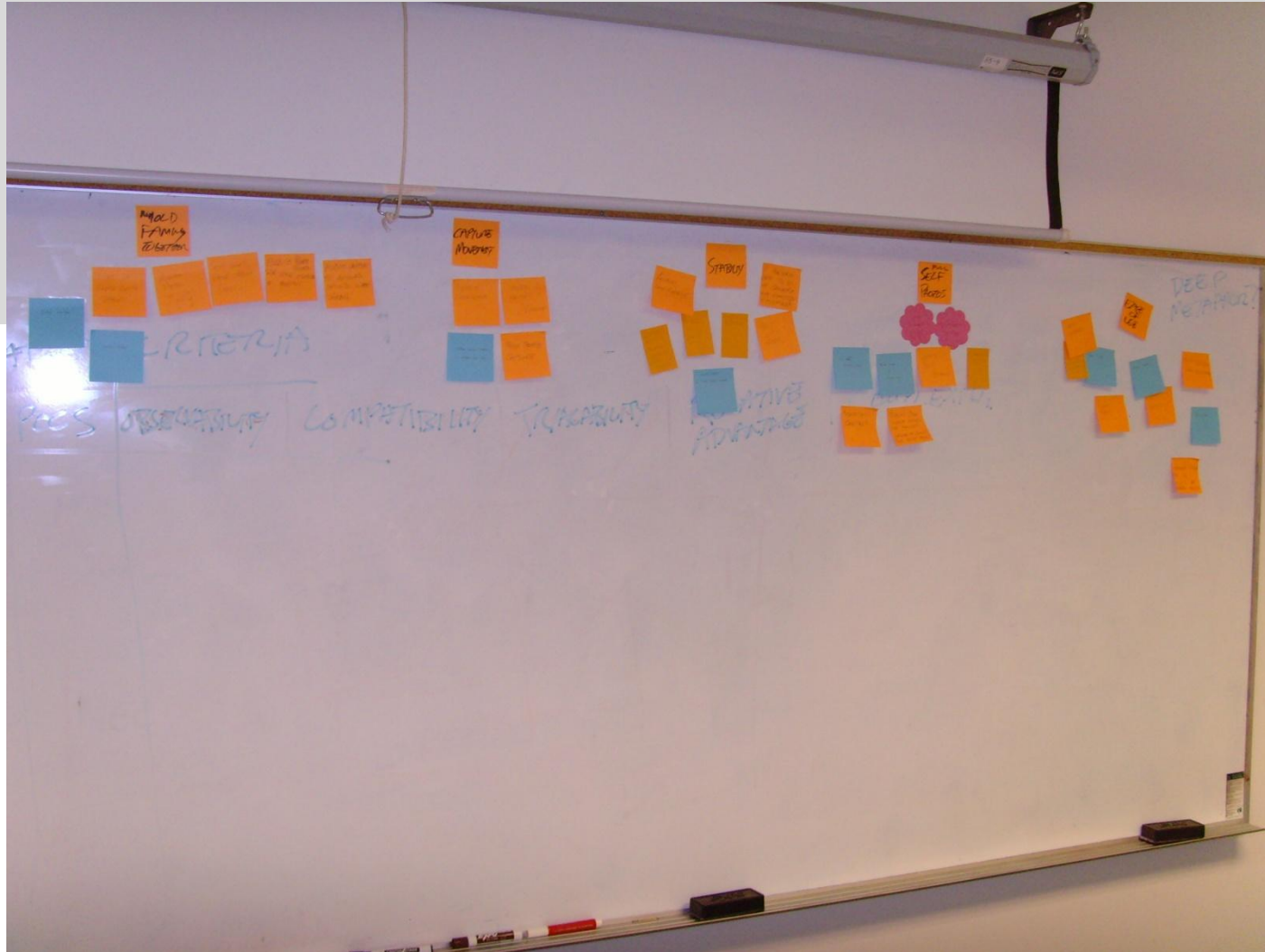


Thomas

NEEDS evaluation



Brainstorm: Propose solutions to **NEEDS** (diverge)



Maria

Score proposed solutions to **NEEDS**
(converge)



Maria

Scores

1. Laser frame(4) CM(capture movement)
2. Fold-out foot(3) ST(stability)
3. Give-away button(6) SF(self photo)
4. Picture reminder(3) HF(hold family)
5. One shot many captures(1) CM
6. Big Screen(1) EOU (easy to use)
7. Video plus photo(6) CM
8. High speed capture(2) CM
9. Less keys(1) EOU
10. Audible count-down(4) CM
11. Forward screen(3) SF

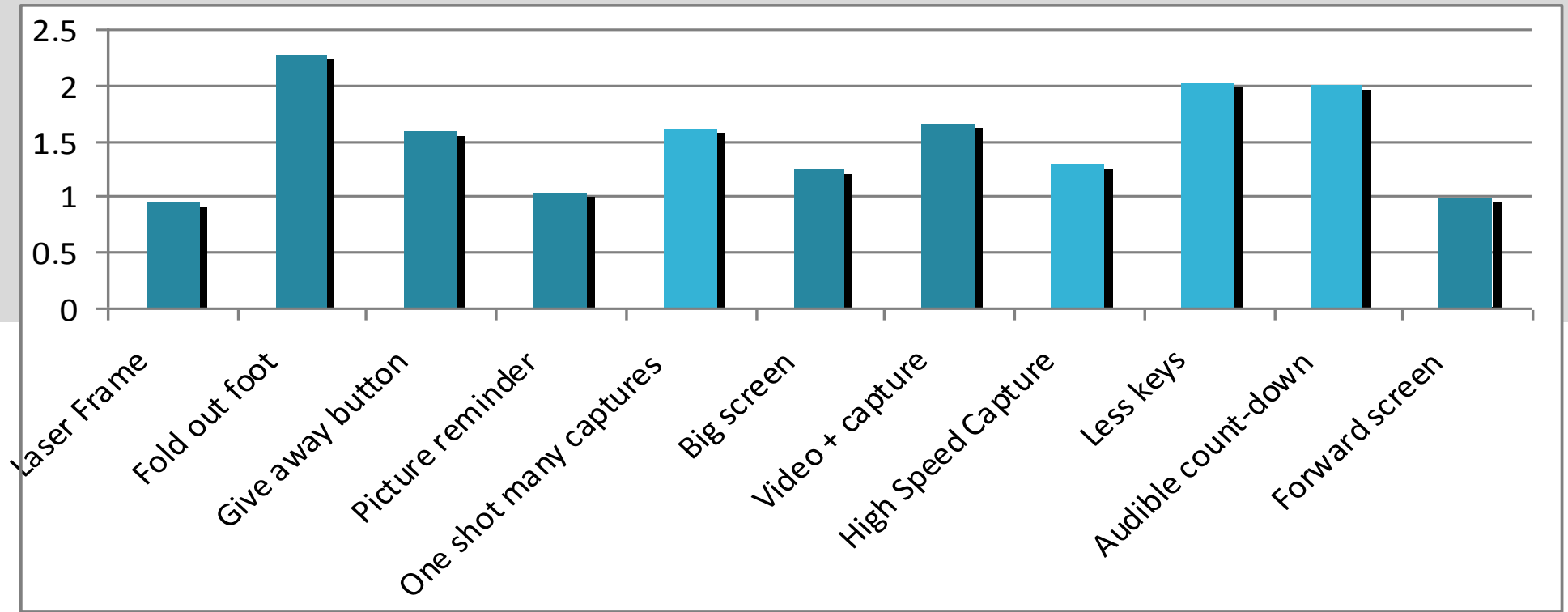


Maria

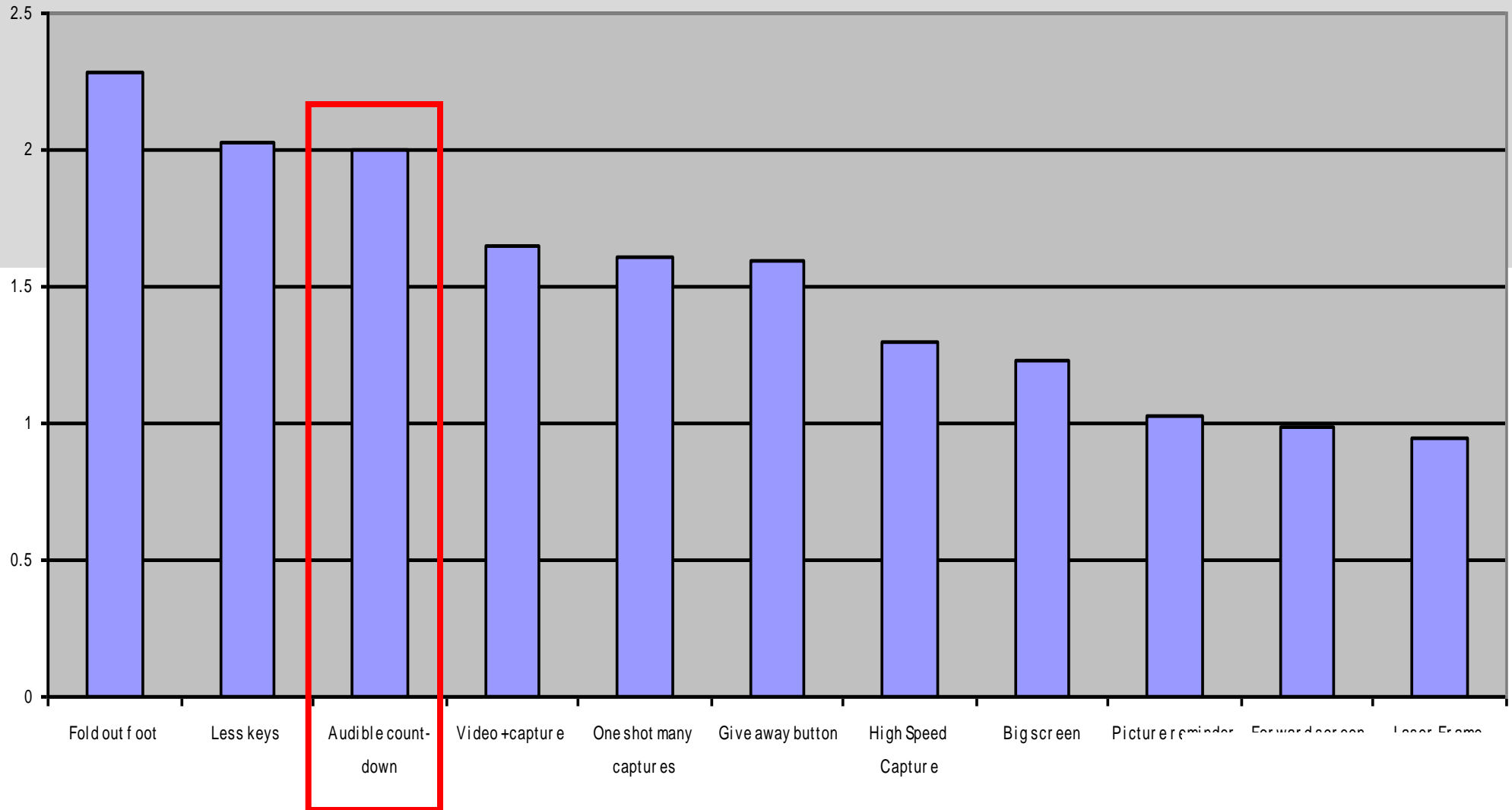
Concept Scoring

	Needs Description	Neil	Boemo	Thomas	Maria	Average
1	Laser Frame	0.5	1.2	1.333333	0.75	0.945833
2	Fold out foot	4.5	1	1.285714	2.333333	2.279762
3	Give away button	2	1.75	1.75	0.875	1.59375
4	Picture reminder	1.666667	0.875	0.75	0.833333	1.03125
5	One shot many captures	2.666667	1.285714	1.75	0.714286	1.604167
6	Big screen	1.5	1.4	0.875	1.142857	1.229464
7	Video + capture	2.666667	1.666667	1.5	0.75	1.645833
8	High Speed Capture	2.25	1.5	0.8	0.625	1.29375
9	Less keys	1.5	1.666667	2.25	2.666667	2.020833
10	Audible count-down	1.166667	1.4	1.428571	4	1.99881
11	Forward screen	0.888889	0.666667	0.875	1.5	0.982639

Concept scoring result



Concept ranking and choice



Final concept:

123Freeze!



Final concept: 123Freeze!



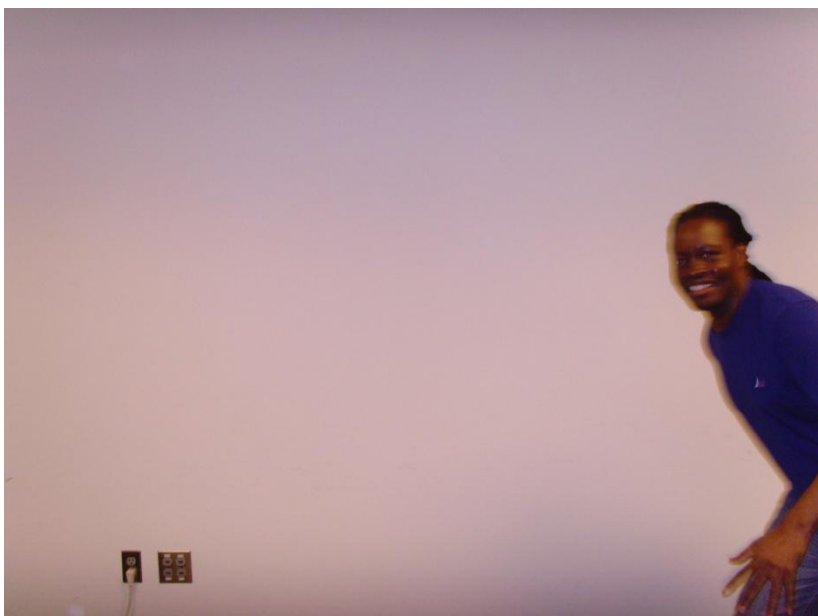
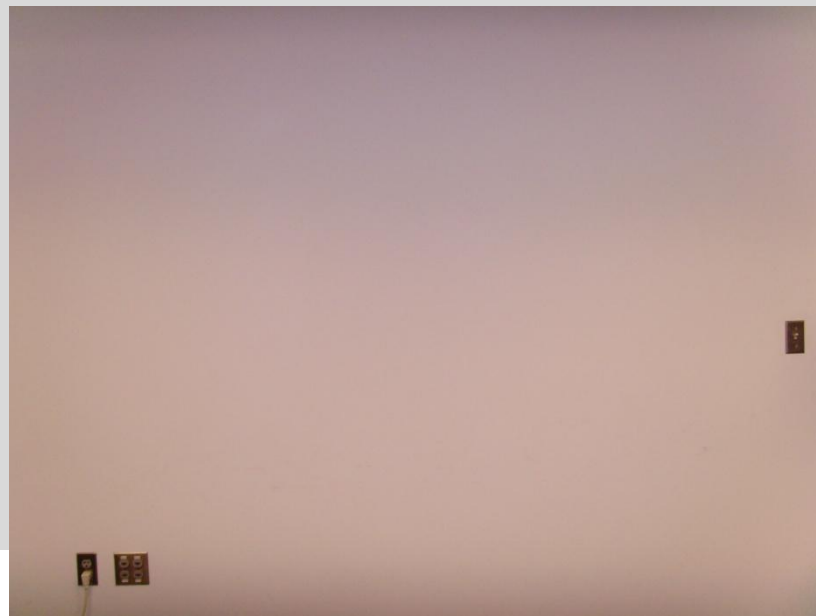
3..... 2..... 1.....

Step 3. Camera speaker audibly counts down to 'freeze' frame!

Step 2. Depress shutter

Step 1. Cycle through self timer options until 'freeze' icon is selected.







Conclusion

- Learnings/insights
 - Simple (cheap) processes and tools can be extremely effective
 - Design thinking works
 - Teams = more than the sum of their value
- Q&A

Convergent /
divergent
thinking



Phase gate
project
structures



Design
Thinking



Prototyping and
Iteration

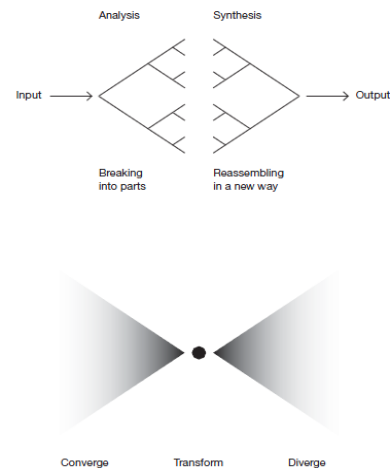
Appendix

Diverge / Converge vs Narrow / Expand

Often designers describe themselves as creating many options (diverging) and then narrowing down their options (converging). Alexander (1962) and other designers have described analysis as a process of breaking a problem into pieces—of “decomposing” it. Synthesis follows as re-ordering the pieces based on dependencies, solving each sub-piece, and finally knitting all the pieces back together—“recombining” the pieces. This decomposition-recombination process also diverges and then converges.

We may just as easily describe the process by reversing the sequence (narrowing down, expanding out). Analyzing a problem leads to agreement—to definition—a convergent process. At that point, hopefully, the “miracle” of transformation occurs in which the solution concept arises. Then, the designer elaborates that concept in greater and greater detail—a divergent process.

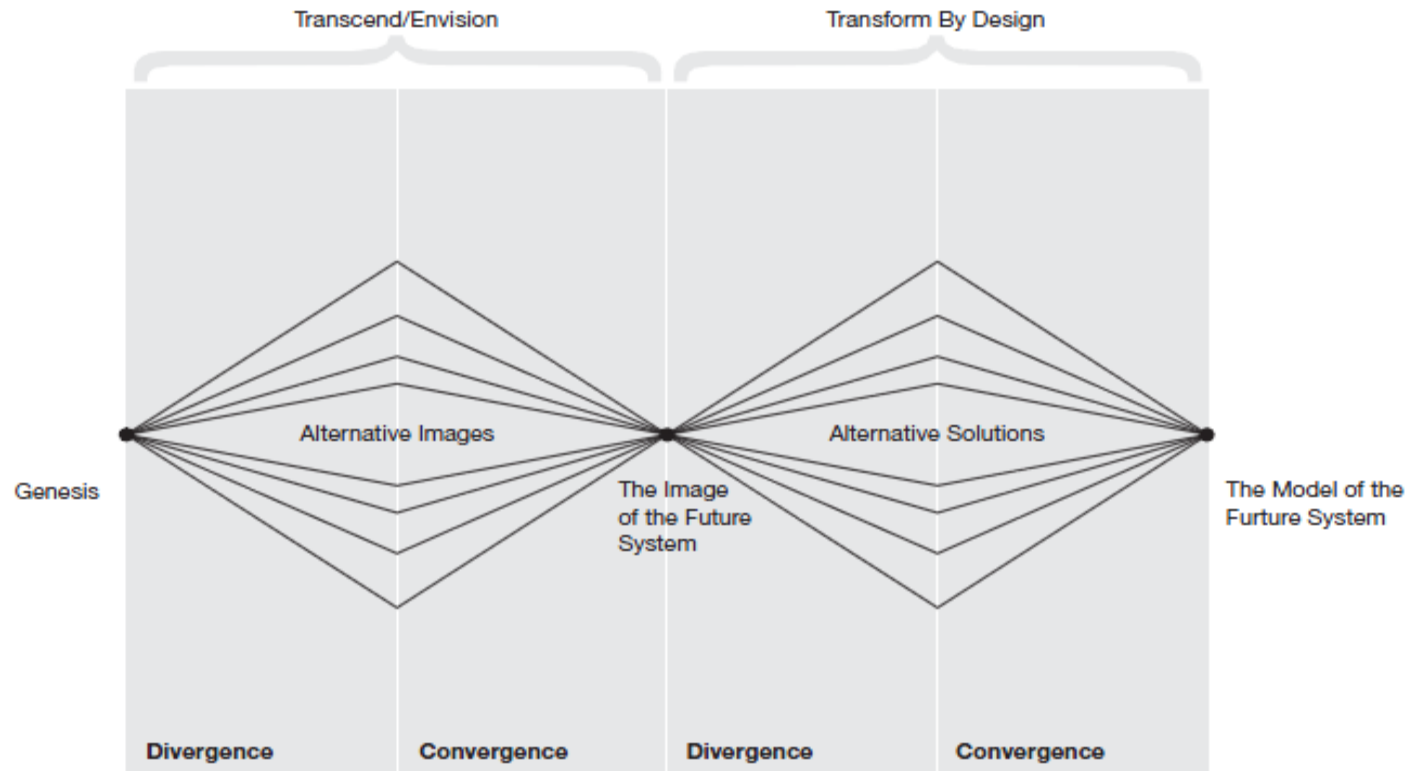
Later, we see this question arise again in the section on spiral models. Some (Souza) converge on a solution. Others (Boehm) diverge from a center, suggesting the accumulation of detail. (See pages 122-125.)

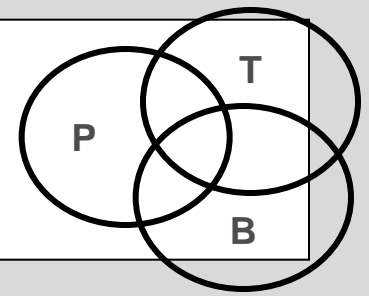


process, repeating a process of divergence and convergence, analysis and synthesis.

In Banathy's view, "We first diverge as we consider a number of inquiry boundaries, a number of major design options, and sets of core values and core ideas. Then we converge,

systemic the same type of divergence-convergence operation in the design solution space. For each of the substantive design domains (core definition, specifications, functions, enabling systems, systemic environment) we first diverge as we create a number of alternatives for each, and then converge as we evaluate the alternatives and select the most promising and most desirable alternative."





Brown: MIT

