Software Needs Design Thinking

Mohinder Khosla
Twitter: @mpkhosla
Agile Alliance 25-29 July 2016
Design Thinking Agenda

1. Why Design Thinking?
2. Demystify Design Thinking or What do we mean by Design Thinking?
3. Design vs Design Thinking
4. When Design Thinking is suitable?
5. Design Thinking Process
6. Design Thinking Tools
7. What can we take away from Design Thinking?
8. Design Thinking in action
Why Design Thinking?
Random Quotes

- Impatient
- Short on Time
- Fear of Competitors
- Argue Features
- Product/Market Fit
- Bypass Product Discovery
- What to build not why
- Discover new requirements during Delivery
- Fearful not to show Product till perfect
- Believe future is predictable
- Confident our idea would work
- Business Knows best about customers
- Listen What customers say than what they do
Continuous Deployment and Delivery

Product Customer Discovery
Product Delivery

Build Integration
Testing
Release Deployment
Backlog Prioritisation
Planning Learning
Improvement
Our objective should be to validate our ideas the fastest and cheapest way possible.

Building and launching a product idea is the slowest, most expensive way to validate an idea.

Marty Cagan
Inspire: How to create products customers love
Remember that the 6 most expensive words in business are:

Catherine DeVrye
Agile Project Failure Rates

- Successful: 39%
- Challenged: 52%
- Failed: 9%

Standish Group 2015 Chaos Report
### Chaos Resolution by Agile Vs Waterfall (2015)

<table>
<thead>
<tr>
<th>SIZE</th>
<th>METHOD</th>
<th>SUCCESSFUL</th>
<th>CHALLENGED</th>
<th>FAILED</th>
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<tbody>
<tr>
<td>ALL SIZE PROJECTS</td>
<td>AGILE</td>
<td>39%</td>
<td>52%</td>
<td>9%</td>
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<td>WATERFALL</td>
<td>11%</td>
<td>60%</td>
<td>29%</td>
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<td>AGILE</td>
<td>18%</td>
<td>59%</td>
<td>23%</td>
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<td>WATERFALL</td>
<td>3%</td>
<td>55%</td>
<td>42%</td>
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<td>MEDIUM SIZE PROJECTS</td>
<td>AGILE</td>
<td>27%</td>
<td>62%</td>
<td>11%</td>
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<td>WATERFALL</td>
<td>7%</td>
<td>68%</td>
<td>25%</td>
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<td>SMALL SIZE PROJECTS</td>
<td>AGILE</td>
<td>58%</td>
<td>38%</td>
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<td>WATERFALL</td>
<td>44%</td>
<td>45%</td>
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The resolution of all software projects from EY2011-2015 within the new CHAOS Database segmented by the agile and waterfall method. The total number of software projects is over 10,000.
1 in 4 projects fail to REACH the MARKET

50-80% projects fail to MEET their GOALS

1 Product from A suite FAIL at LAUNCH

64% of the Features NEVER USED

Product value realised AFTER Deployment
Top 6 Reasons for Failures

- Lack of Customer Involvement
- Lack of Management Commitments
- Lack of Clear Requirements
- Lack of Resources
- Unrealistic Expectations (goals)
- Lack of Planning
“I beg you, to have patience with everything unresolved in your heart and to try to love the questions themselves as if they were locked rooms or books written in a very foreign language. Don’t search for the answers, which could not be given to you now, because you would not be able to live them. And the point is to live everything. 

Live the questions now. Perhaps then, someday far in the future, you will gradually, without even noticing it, live your way into the answer.”

- Rainer Maria Rilke
it's more about understanding needs. Asking what people want or don't want is an ineffective approach - @jchyip

#Agile is not enough, sure. But nor is any one idea, umbrella term or otherwise - @neil_killick
WHAT IS AGILE?

AGILE IS A MINDSET
DESCRIBED BY 4 VALUES
DEFINED BY 12 PRINCIPLES
MANIFESTED THROUGH AN UNLIMITED NUMBER OF PRACTICES

Mindset | Values | Principles | Practices
---|---|---|---

Implementing the practices, tools and processes without the Agile mindset, values and principles of the Agile Manifesto is not Agile.

Image from Ahmed Sidky, Riot Games and IC Agile reproduced with permission
What is Design Thinking?
Design Vs Design Thinking
Design:
- Empathy
- Invention
- Iteration

Design Thinking:
A Practical tool
Collaborative Tools
A Great Design

Bay Bridge

Golden Gate Bridge

Sydney Opera House

Sagrada Familia
“DESIGN IS NOT JUST WHAT IT LOOKS AND FEELS LIKE. DESIGN IS HOW IT WORKS”

- Steve Jobs
Where does Design Thinking Fits in the Scheme of Things?
What Are Modern Thinking Challenges?
The Modern Thinking Challenge

Analytical Thinking
- Data Driven
- Manipulations of Quantities

Design Thinking
- Omnivorous
- Comprehensive Considerations

Intuitive Thinking
- Judgement Oriented
- Appreciation of Qualities

Source: Roger Martin, speaking at Scrum Alliance Webinar September 2015
The New Central Question

- What is True?
- What might be True?
- What would have to be true?
Modern Thinking Tasks

Analysing the Past

- Demonstrating What is/must be True?

Imagining Possibilities

- Choose the Most Persuasive

What would have to be true?

Things cannot be other than they are - Aristotle
Design Process
Tim Brennan – Apple’s Creative Services
What is Design Thinking?
Defining Design Thinking

Technology

Viability

Design Thinking

Desirability

By Tim Brown
CEO, IDEO
Design Thinking is a human-centered approach to innovation that draws from the designer’s toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success.” — Tim Brown, CEO IDEO
A **Disciplined** Process
From the world of industrial product Design
that involves a deep **Understanding** of customers and problem they Face,
prototyping and **experimentations** with the users
An attractive way to describe a new innovation model based on human-centered observation and prototyping.
Design Process

4 Questions

Concept

Cash $
Design Thinking Process

Concept

What is?

Cash $
Design Thinking Process

Concept

What is?

What if?

Cash $
Design Thinking Process

Design Thinking Process

Concept

Design Thinking Process

Concept

What is?

What if?

What wow?

What works?

Cash

?
Product Delivery Cycle

- **Product Discovery**
- **Daily Development Cycles**
- **Sprint**
- **Incremental Delivery**
- **Public Release**

Time

Reproduced from Jeff Patton QCON 2011 Talk
Design Thinking Toolbox

10 Tools
4 Project management aids
Suitability of Design Thinking
Types of Problems

Mysteries

Puzzles

Wicked

Tame
Design Thinking is Appropriate if

- Human-centered
- How well we understand Problem?
- Level of Uncertainty
- Degree of Complexity
- Availability of Data
- Level of Curiosity and Influence
Frame A Problem

Problem
# Design Brief

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Launch tailor-made holidays to European and Asian Destinations</th>
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</table>
| **Scope** | **Initial focus** on selected European Destinations  
Focus on tailor-made holidays |
| **Constraints** | Comply with European Aviation, ABTA and ATOL **regulations** |
| **Competitors** | Companies with similar offerings (America and Europe) |
| **Budget Allocation** | $200K |
| **Target Users** | North/South America, European and Asians Customers  
Particular focus on **existing customers** |
| **Exploration Questions** | **European Destination Offerings** for existing customers  
Offerings for New European and Asian customers |
<p>| <strong>Success Metrics</strong> | <strong>Capture 10% of the European market</strong> in the first year of the launch |
| <strong>Project Plan</strong> | Start as soon as possible and complete study with 6 months |</p>
<table>
<thead>
<tr>
<th>Who we will study?</th>
<th>Where we will find them?</th>
<th>What questions/issues we will explore</th>
<th>How many contacts?</th>
<th>Timeline</th>
<th>Team Member Responsible</th>
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Visualisation

Concept

What is?

What if?

What wow?

What works?

Design Brief

Design Criteria

Napkin Pitch

Learning Guide

Journey Mapping

Value Chain Analysis

Mind Mapping

Brainstorming

Assumption Testing

Rapid Prototyping

Co-creation

Learning Launch

Cash

Design Thinking Process
What is?

- Ethnographic Research (Journey Mapping)
  - Projection Techniques (journaling, Collage, Pinwheel)
- Value Chain Analysis
- Mind Mapping
Ethnographic Research

Social Sciences

Human cultures and People

Understand user needs

Systematic and Descriptive Approach

Qualitative Data

Observation and Interviewing
Customer Journey Mapping

Concept

What is?

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Cash

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Design Thinking Process
Customer Journey

A Journey

1. Press Snooze Button
2. Use Bathroom
3. Make Breakfast

A Touch Point

A Moment of Truth

Emotions

Time
Design Thinking Emotional Journey

- Problem Framing
- Exploration
- Ideation
- Prototyping
- Iteration/Implementation
- Optimism
- Anxiety

Credit: Jump Associate LLC
What is?

- Ethnographic Research (Journey Mapping)
- Value Chain Analysis
- Mind Mapping
Value Chain Analysis

Concept

What is?

Journey Mapping

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Brainstorming

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What if?

Napkin Pitch

Learning Guide

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Design Thinking Process
What is?

- Ethnographic Research (Journey Mapping)
- Value Chain Analysis
- Mind Mapping
Design Criteria

- Design Goals
- User Perceptions
- Physical Attributes
- Functional Attributes
- Constraints
What if?

- Brainstorming
- Concept Development
Right Challenge
Right people
Right Stimuli
(Trigger Questions, metaphors, analogy)
Right Facilitator
60-90 Min
90% Preparation -10% Execution
What if?

• Brainstorming

→• Concept Development
Anchors
Forced Connections
Bring-Build-Buy
Combinatorial Play
Napkin Pitch

Design Thinking Process

Concept

Journey Mapping
Value Chain Analysis
Mind Mapping
Brainstorming
Concept Development
Assumption Testing
Rapid Prototyping
Co-Creation
Learning Launch

What is?
What if?
What wow?
What works?

Design Brief
Design Criteria
Learning Guide

Cash $
<table>
<thead>
<tr>
<th>Concept Name</th>
<th>Need</th>
<th>Approach</th>
<th>Benefit</th>
<th>Other Service Providers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>What is the <strong>unmet</strong> need we are addressing and for <strong>what</strong> customers?</td>
<td>What is our approach to meeting that need and for which customers? What are key <strong>features</strong> of the approach? What are the different ways that the <strong>service</strong> could meet the need?</td>
<td>How does the customer benefit from the <strong>service</strong>?</td>
<td>What <strong>competition</strong> out there will we face? What advantage will we have over competitors? What other <strong>partners</strong> are essential for the concept’s success?</td>
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What Wows?

- Assumption Testing
- Rapid Prototyping
Assumption Testing

1. Immerse yourself in Customer Data
2. Generate Ideas
3. Surface Assumptions
4. Conduct Experiment
   - Assumptions Proven: Scale
   - Assumptions Disproven: Table
   - Revise Idea
What Wows?

Assumption Testing Exercise

Build a website (www.instructions.com) of universal portal of instruction manuals of all sorts of games, toys, gadgets and appliances
What Wows?

- Assumption Testing

- Rapid Prototyping
Power of Play
Thinking what to build
And
Building what to think
Western Town Concept
Rapid Prototypes

- Flow Chart
- Powerpoint
- Storyboard (Screen shots, photos, sketches, speech bubbles)
- Comic Strip
- Cards
- Posters
- Video
- Role Playing
Fake it till you build it
What works?

- Co-Creation
- Learning Launch
Co-Creation
What works?

- Co-Creation ✓

→ Learning Launch
Concept

What is?

What if?

What wow?

Design Thinking Process

Learning Launch

Cash

$
Launch into the Unknown
<table>
<thead>
<tr>
<th>Key Assumption</th>
<th>Who</th>
<th>How</th>
<th>Timeline</th>
<th>Cost</th>
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Learning Launch Process

1. State your Hypothesis
2. State key Assumptions
3. Prioritise key Assumptions
4. Design Test for key Assumptions
5. Do the Test
6. Confirming Data
   - Continue Development
7. Disconfirming Data
   - Pivot
either trash/table
Innovation Practices

Constantly ask the following four questions

• What do we know?
• What do we not know?
• What we need to know?
• How do we learn what we need to know?
What can we take away from Design Thinking?
One Size Fits All
Design Thinking Process

Concept Journey Mapping Value Chain Analysis Mind Mapping Brainstorming Design Criteria Concept Development Assumption testing Rapid Prototyping Co-creation Learning Launch Co-creation

Visualisation

What is? What if? What wow? What works?

Napkin Pitch Learning Guide

Design Brief

Concept Cash
Design Thinking is Appropriate if

- Human-centered
- How well we understand Problem?
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Material Resourced from

The Designing for GROWTH Field Book
(a step-by-step project guide)

JEANNE LIEDTKA, TIM O'GILVIE, AND RACHEL BROZENSKA

Designing for GROWTH
a design thinking tool kit for managers

JEANNE LIEDTKA AND TIM O'GILVIE
SUNGLASS HUT
Nordstrom Experiment-Prototyping & Assumption Testing