Software Product Definition

September 20, 2016
Week 4

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Today’s Agenda

• Feedback on Questions/Transcripts
• Importance of Interviews
• Personas
• Scenarios
• Affinity diagrams and hot ideas
• The Design Process
• Next Task
Feedback on Task 2

- **General Feedback – Interview Script**
  - Will questions lead to insights?
  - Will you get a sense of flow for problem being addressed?
  - Think about *relevant* input needed – e.g. education level?
  - Discover the obstacles & issues in dealing with the problem
  - Avoid “pleasant conversation” questions

- **General Feedback – Transcripts**
  - Clarity on context
  - Share insights in a discussion (expand “Key” thoughts)
  - Quotes (relevant) and more “why’s”
  - Ability to see what was important to the individual
  - Challenge in creating personas from small sample
SPD Deliverables and Dates

- **September 24:** Task 3 Deliverables: Personas (*Individual*)
- **October 1:** Task 4 Deliverables: Scenarios(*Individual*)/User workflows/model (*Team*)
- **October 11/15:** Task 5 Deliverables: Business/Product Vision Presentation and Document (*Team*)
Team Updates

• How is it going?
• How many interviews done?
• How many are still scheduled?
Why the interview?

• You interview to reveal the tacit aspects of the user’s work practice
  • Motivations, work-arounds, strategies, structures
• Is the problem worth solving?
• Who has the problem?
• Who cares about the problem?
• What is the value of solving it?
• Listen for opinions, ideas, and insight for the problem.
What did you learn from interviews?

- Consistent confirmations of your identified problem?
- Multiple constructive perspectives?
- Mixed reactions?
- Lack of interest?
Analyze what did you learned from interviews

• Do the problems really exist?
• Are the problems commonly experienced?
• Are the problems severe? Painful? How?
• Are there problems you didn’t anticipate?
• Is this the right customer?
• Create a persona or refine a current one.
• Should you kill/pivot/persevere?
Interview & Revisit Problem Statement

• Identify problems you think the customer has and that you know.
• Identify new problems the customer brought to the discussion.
• Rate the priority of the problem (low medium, high)
• How does the customer solve the problem today?
• How common are the problems with other customers interviewed?
• Adjust your problem statement... if needed.
If Consistent Confirmation...

• You found a common problem – good start!
• Next steps:
  • Identify personas for stakeholders
  • Identify scenarios
  • Sharpen vision to focus on key innovation

This consistency doesn’t happen often!
If Multiple Constructive Perspectives...

- Multiple user-identified problems
  - Different perspectives on the same problem?
  - Which, if any, is most promising?

- Next steps
  - Create affinity diagrams in interpretation session
  - Identify personas
  - Build sequence diagrams as needed
  - Seek out “hot ideas”
If Mixed Reactions...

• Give a fair hearing to all perspectives:
  • Evaluate the objections with the interviewee in mind.
• Does your vision address problems of a subset of the interviewees?
• Is your vision too broad or too narrow for the interviewees?
• Are you slightly “off target”? 
If Lack of Interest...

• Not a perceived problem from interviewees
• Did you find the right people to interview?
• Did you ask the right questions about the topic?
• Did they identify a way that they address the problem currently?

Is it time to pivot to something else?
What next?

• Multiple ideas and problems
• Team meeting to assess interviews
• Post-it notes (or equivalent)
  • Write up key thoughts from each interview
  • Different colors for constructive versus negative responses
• Group the different constructive areas
  • Problems
  • Personas
  • Alternatives/new ideas
Watch for certain phrases.

• “Here’s what I would like...”
• “Here’s where I have a problem...”
• “That doesn’t really address my issue.”
• “I don’t see how that problem can be addressed.”
• “Here’s how I get around that problem...”
• What other phrases did you hear?
Next Steps

• Focus on the most promising ideas.
• Refine interview questions based on responses.
• Identify new or different interviewees.
• Go back to interviewees for clarification.
• Be prepared to make minor or major changes based on what you have heard.
Qualitative Personas

Goals & Attitudes  Behaviors

User interviews  Usability testing

Field studies

Segmentation

Qualitative Research

Personas

Molecular
Tasks for Persona/Scenario

• Persona creation
• Scenario creation
• The first is an individual exercise and the second, a team.
• One persona per person, may duplicate
• There can be multiple scenarios depending on persona
Background: Barry loves his job. As a child, he dreamed of becoming a firefighter, saving lives and conquering danger. He has been a member of the Palo Alto Fire Department since graduating from Stanford’s paramedic program, 30 years ago. (That program was moved to Foothill College about a decade ago.) Prior to that, he received local training in fire science, a program that no longer exists. Barry participates in continuous education and training that focuses on improved incident response techniques, new regulations and changes in fire station protocols and practices. His wife of 25 years worries about him each day he goes to work, but understands that his job is important and that it sometimes involves getting in harm’s way.

Job Description: As a captain, Barry has responsibilities in addition to those of firefighter and paramedic. In fact, for some incidents, Barry must be in a position of command-and-control, taking orders from the incident commander and relaying that information to his team members. His department relies heavily on the use of push-to-talk radios, which are subject to frequent audio dropouts and poor quality audio—a situation that sometimes affects the safety of his team. In Palo Alto, the department responds to structure fires, roadside fires, wild fires, hazardous materials incidents and emergency medical incidents. Over his career, Barry estimates that he’s gone out on over 15,000 calls. Back at the fire station, he serves as a post-trauma counselor to help his department “brothers and sisters” deal with some of the horrific situations they encounter.

Characteristics: Barry is from the old school. He believes that the command-and-control model for incident response is the best way to keep his team safe and to ensure the best achievable incident outcome. He is not much for the use of high tech on the job, although he does surf the ‘Net and reads every issue of FireRescue 1 online. Much to the delight of the station personnel, Barry is a terrific cook, serving up meals that are tasty and reheatable, should an incident require those on duty to respond immediately. His specialty is a killer lasagna.

Goals
- **Personal agenda:** Maintain deep, caring relationships with his brothers and sisters in the department
- **Aspirations:** To retire with a full pension within 5 years
- **On-the-job priorities:** Ensure the safety of the incident first responders—firefighters, hazmat specialists, paramedics and emergency medical technicians; make every effort to save the lives of incident victims
Persona Creation

Who is my customer? Sketch a persona

- Name & Sketch
- Problems
- Behaviors
- Goals
Segmentation by Behaviors and Attitudes

Explore different combinations

<table>
<thead>
<tr>
<th>Frequency of real estate activity</th>
<th>Knowledge about real estate</th>
</tr>
</thead>
<tbody>
<tr>
<td>The risk-taker who thinks he knows more than he actually does</td>
<td>The pro who wants to use site tools and doesn’t need help</td>
</tr>
<tr>
<td>The novice who needs a lot of guidance</td>
<td>The smart one who wants validation of what she already knows</td>
</tr>
</tbody>
</table>
Qualitative Personas with Quantitative Validation

Goals & Attitudes
- User interviews
- Field studies

Behaviors
- Usability testing
- Site traffic analysis

Quantitative Research
- User survey

Qualitative Research

Segmentation

Personas
What are Personas?

• Alan Cooper’s Definition:

“ personas are not real people...

they are hypothetical archetypes of actual users... defined with significant “rigor and precision.”

The Inmates are Running the Asylum, 1999, p 124
Personas are...

- Fake people (concrete representations) based on *real data*
  - Which provide context and motivation regarding goals, behaviors, and beliefs
- A practical tool to help prioritize features and maintain focus on target customers
- A vehicle for bringing customer data alive
**Persona example**

**Primary Persona**

**Francis the First-Time Home Buyer**

**Personal Profile**

Francis and her husband Michael have dreamed of owning their own home for years, and love to look through real estate listings together on Sunday mornings. Now that Michael's promotion has come through, they can finally get serious about it. The only problem is, Francis has no idea where to start.

She has ideas about what they want: newer home, closer to the city, 3 bedrooms, pool. But she knows she has a lot to learn about real estate, and she's intimidated by the number of factors and decisions. What can they really afford? How can they avoid buying a home in an area they won't like? Francis simply doesn't know all the steps involved in buying a house, and is reluctant to ask her home-owning acquaintances dumb questions.

What Francis wants is a site that will explain the whole process without drowning her in confusing jargon. But she also wants it to have everything she needs to actually begin the process and look for houses, so she doesn't have to go to multiple sites. She likes sites that are friendly and straightforward, especially the ones that remember who she is so she doesn't have to enter her information each time. But most of all, she wants to use a site that she can trust to give her good advice and good information.

**User Goals**

- Learn more about the home-buying process, including jargon, realtors, mortgages, insurance, and how to evaluate houses
- Find out what they can afford based on current rates and first-time buyer programs
- Discover what areas of Atlanta are desirable, taking into account schools, taxes, mass transit, crime, etc.
- Find a house that matches their criteria
- Find the best mortgage lender
- Find the best homeowners insurance

**Business Objectives**

We want Francis to...

- Visit the site often (ad revenue)
- Register for email alerts and newsletters
- Subscribe to premium services
- Follow through on individual listings by contacting realtor
- Follow through on mortgage and insurance by contacting partner
- Recommend the site to others

**Personal Information**

Profession: Registered Nurse, Northside Hospital
Location: Atlanta, GA
Age: 33
Home life: Married to Michael (pharmaceutical sales); no children, but planning to start a family soon
Hobbies: Cooking, matchmaking among her many friends, tennis
Favorite TV shows: Oprah, The Apprentice
Personality: Outgoing, friendly, a bit meddling, detail oriented

**Real Estate Information**

Current home: Apartment south of downtown (for 6 years)
Household income: $70,000
Savings: $10,000
Credit: Good
Purchase timeframe: 3-6 months
Real estate knowledge: Low

**Internet Usage**

Internet experience: Intermediate (online 2 years)
Primary uses: Shopping, email, horoscope
Favorite sites: Coolsavings, Pragad, GAP, E Online
Hours online per week: 3
Computer: iMac, 56K modem. Internet Explorer 5
Personas work because...

- They bring focus on important aspects of target users
- They build empathy, we remember things about “people”
- They encourage consensus, reduce bias
- They create efficiency
- They lead to better decisions
  - For strategy, for marketing, for design
- They bring the user to life
- They simplify the world with no distracting idiosyncrasies
- They assist in the deriving of user scenarios
Scenario Creation from interviews

1. Problem
2. Environment
3. Objectives
4. Human Factors
5. System Factors
6. Roles and responsibilities
7. Refine

What did you hear?
What did you learn?
Scenario Application

Scenario Quadrants

Globalisation

Global Market

Strong Europe

Social Integration

Individualisation

Transatlantic Market

Regional Communities

Regionalisation
Steps for scenario creation

Steps

- Determine key variables that impact performance of the system of concern
- Dimension the "scenario space" in terms of the key variables
- Develop storylines by choosing plausible and consistent points in scenario space
- Optimize the scenarios
- Assess the implications and likelihood of the scenarios

Sample Scenario Space

- Systems are robust
- Events are discrete & episodic
  - Best Case
  - Next Worst
- Events are widespread & sustained
  - Next Best
  - Worst Case
- Systems are vulnerable
Multiple Scenarios

Scenario 1

Scenario 2

Scenario 3

Understanding the impact of far too many non-delivery activities in your project plans
Scenario Guidelines

- Organize your information
- Reveal the business plan
- Include specific quantifiable actions
- Make it readable – Build suspense
- Have a conclusion
- Does it present the problem (before)
- Does it solve a problem (after)
- Make a current scenario – reveal the problems
- Make a future scenario – illustrate the benefits of solving
Scenarios

• Context scenario
  • Select the persona
  • Provides the context

• Key path scenario
  • Describes the flow of the work
  • Most critical or key paths

• Requirements scenario
  • Describes exact controls, resources needed

*Designing for the Digital Age*, by Kim Goodwin
Example of veterinary receptionist

• Imagine you are designing a practice management application for veterinary hospitals. You have determined that you need 2 distinct interfaces, a business interface and a clinical one. Laura, the receptionist, is the primary persona for the business interface.

• Through an interview you determined that her goals are
  • Stay calm amidst the chaos
  • Keep clients and clinical staff from getting cranky
  • Keep all the details straight
Example continued...

- Her key activities include the following:
  - Review the day’s appointments
  - Create records for a new client
  - Check someone in
  - Check someone out
  - Send bills
  - Follow-up on a billing question
  - Follow-up on overdue bills
  - Make an appointment
  - Change an appointment
  - Take a message for a vet

- For the sake of illustration, let’s consider these as separate scenarios. So focusing on making an appointment is illustrated in the next slide.
Example: a veterinary receptionist, Context scenario with needs...

**Context Scenario**

- Laura takes a call from Mr. Cowell who needs to make an appointment for his cat to have a tumor removed. Laura looks him up and see he has 2 cats.
- Xena is flagged for follow-up, so she confirms with Mr. Cowell that the procedure is for Xena. She selects the pet’s name and chooses the appropriate procedure.

**Functional Needs**

- Look up callers among existing clients
- See overview information about each client and pet
- See what pets need follow-up of some kind without delving into detail
Example continued:

**Context Scenario**

- The system shows the next several appointments for the usual vet for Xena when the surgery and hospital space is available.
- She suggests several dates but Mr. Cowell wants one sooner and he only wants his usual vet. She looks at vet’s calendar and sees she can move an item and offers the new date.

**Functional Needs**

- System should know how much staff time and resources are needed for procedures.
- System should suggest suitable appointment times when required resources are available
- Have the ability to see other times that almost work to allow for human judgment
Affinity Diagrams and Hot Ideas
And... Hot Ideas
Evaluate the Hot Ideas...
The Design Process and Strategy
The SPD Process

- Decide Who To Interview
- Conduct CI Interviews
- Interpret Interviews
- Consolidate Models/Affinity
- Write Problem Statement
- Define Persona(s)
- Write Scenario(s)
- Walk Through Hot Ideas
- Derive Requirements
- Write Product Vision
- Formulate Business Vision

9/22/15 CMU SPD
Do customers value solving the problem?

- **Craft your value proposition:**
  My solution/product is a better way to __________________________

- **And, with my solution/product, you can**
  __________________
  and __________________
  and __________________
The product design process

“Walk” your affinity diagram and work models

↓

Hot ideas × Persona

↓

Write “context scenarios”

↓

Select the most compelling scenario (plus/minus analysis)

↓

Fix any “minuses” and consider elaborating it with strong, unique aspects of other scenarios

↓

Derive functional (and implied nonfunctional) requirements
Positioning is Strategy

Position statements are:
- Concise
- Reflective of your role and relevance
- Fact based
- The basis for all external messages

Position statements do not contain:
- Opinions
- Fluff
- Non-factual statements
The product positioning statement:
A succinct version of your vision

- **For** [targeted user or customer]
- **Who wants/needs** [compelling reason to buy]
- **The** [product name] is a [product category]
- **That provides** [key benefit].
- **Unlike** [main competitor]
- **The** [product name] [key differentiation]


Is this a sufficient description of your product? Of course not, but the discipline required to write this will help to focus your thinking (and it’s the basis of an elevator pitch about your product).
Factors Affecting Business Model

- Foresight
  - Key Trends

- Business Model

- Industry Forces

- Market Forces

- Macro-Economic Forces

- Macro-economics

- Competitive Analysis

Business Model Generation, p201
“How We Win” - Alternatives Map

TRANSFORMATION

- Biz paradigm
- Use of technology (Internet)
- New Market

PRODUCTS/COMPONENTS

OPERATIONAL EXCELLENCE

BIZ NEED/PROBLEM SOLUTION

- Understand customer’s business problem
- Anticipate customer’s needs

9/22/15
Strategic vs Operational Management

Strategic Management
- Frame
  - Value Trade-offs
- Information
- Logic
- Alternatives

Decision Focused
Choosing Good Roads

Operations Management
- Decision
- Plan
- Action
- Results

Results Focused
Running Well on the Chosen Roads

Value Trade-offs
Information
Logic
Alternatives

CMU SPD
Opportunity ID

Evolving/Future Landscape

COMPETITOR
THREATS
- Shifts in control/influence

TRENDS
- Technology shifts
- Business shifts
- Patterns shaping in the industry
- Value Migration
- Competitive Player Positions
- Standards
- De-integration/Re-integration
- Convergence

CUSTOMER
- Customer value drivers
- Opportunity segments
- Growth areas

SOLUTION SPACE
- Technology shifts/enablers
- Opportunities to provide greater value
- Solution space alternatives
- Service alternatives

Strategic Direction (focus, boundaries)

Current State

Horizon 1

Horizon 2

Horizon 3

Value Innovation Paradigm 1

Value Innovation Paradigm 2

Value Innovation Paradigm 3

Vision

9/22/15
SWOT Analysis

Strengths
- Technological skills
- Leading Brands
- Distribution channels
- Customer Loyalty/Relationships
- Production quality
- Scale
- Management

Weaknesses
- Absence of important skills
- Weak brands
- Poor access to distribution
- Low customer retention
- Unreliable product/service
- Sub-scale
- Management

Opportunities
- Changing customer tastes
- Technological advances
- Changes in government politics
- Lower personal taxes
- Change in population age
- New distribution channels

Threats
- Changing customer base
- Closing of geographic markets
- Technological advances
- Changes in government politics
- Tax increases
- Change in population age
- New distribution channels
# SWOT Strategic Alignment

<table>
<thead>
<tr>
<th>Internal</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Customer Knowledge</td>
<td>1. Marketing resources</td>
</tr>
<tr>
<td></td>
<td>2. Established base of contracts</td>
<td>2. Siloed approach to growth</td>
</tr>
<tr>
<td>External</td>
<td></td>
<td>4. Timely resolution of quality issues</td>
</tr>
<tr>
<td>Opportunities</td>
<td></td>
<td>Possible Strategies</td>
</tr>
<tr>
<td>1. Product use in outpatient</td>
<td>1. Leverage customer knowledge to drive consulting services in outpatient facilities</td>
<td></td>
</tr>
<tr>
<td>2. Baby Boomer need</td>
<td>1. Apply limited marketing resources to the high-growth segment of outpatient facilities</td>
<td></td>
</tr>
<tr>
<td>3. Expansion of consulting services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threats</td>
<td></td>
<td>Possible Strategies</td>
</tr>
<tr>
<td>1. Competitor partnerships w/nontraditional players</td>
<td>1. Build value-added items to the established base of contracts to add switching costs that prevent use of non-exclusive agreements</td>
<td></td>
</tr>
<tr>
<td>2. Increasing power of buyers</td>
<td>1. Create cross-functional SWAT team to speedily address issues from key customers</td>
<td></td>
</tr>
<tr>
<td>3. Customers awarding non-exclusive agreements</td>
<td></td>
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</tr>
</tbody>
</table>

## Adjust the Business Model

<table>
<thead>
<tr>
<th>Key Partners</th>
<th>Key Activities</th>
<th>Value Propositions</th>
<th>Customer Relationships</th>
<th>Customer Segments</th>
</tr>
</thead>
</table>
| Who are our key partners?  
Who are our key suppliers?  
Which key resources are we acquiring from our partners?  
Which key activities do partners perform?  | What key activities do our value propositions require?  
Our distribution channels?  
Customer relationships?  
Revenue streams?  | What value do we deliver to the customer?  
Which one of our customers’ problems are we helping to solve?  
What bundles of products and services are we offering to each segment?  
Which customer needs are we satisfying?  
What is the minimum viable product?  | How do we get, keep, and grow customers?  
Which customer relationships have we established?  
How are they integrated with the rest of our business model?  
How costly are they?  | For whom are we creating value?  
Who are our most important customers?  
What are the customer archetypes?  |

<table>
<thead>
<tr>
<th>Key Resources</th>
<th>Channels</th>
<th>Customer Segments</th>
</tr>
</thead>
</table>
| What key resources do our value propositions require?  
Our distribution channels?  
Customer relationships?  
Revenue streams?  | Through which channels do our customer segments want to be reached?  
How do other companies reach them now?  
Which ones work best?  
Which ones are most cost-efficient?  
How are we integrating them with customer routines?  | |

<table>
<thead>
<tr>
<th>Cost Structure</th>
<th>Revenue Streams</th>
</tr>
</thead>
</table>
| What are the most important costs inherent to our business model?  
Which key resources are most expensive?  
Which key activities are most expensive?  | For what value are our customers really willing to pay?  
For what do they currently pay?  
What is the revenue model?  
What are the pricing tactics?  |
Wrap Up

• Questions?
• Task Issues?
• Halfway through course, reflections?