

The Foundations of Design: Scenarios and Requirements

About Face 3

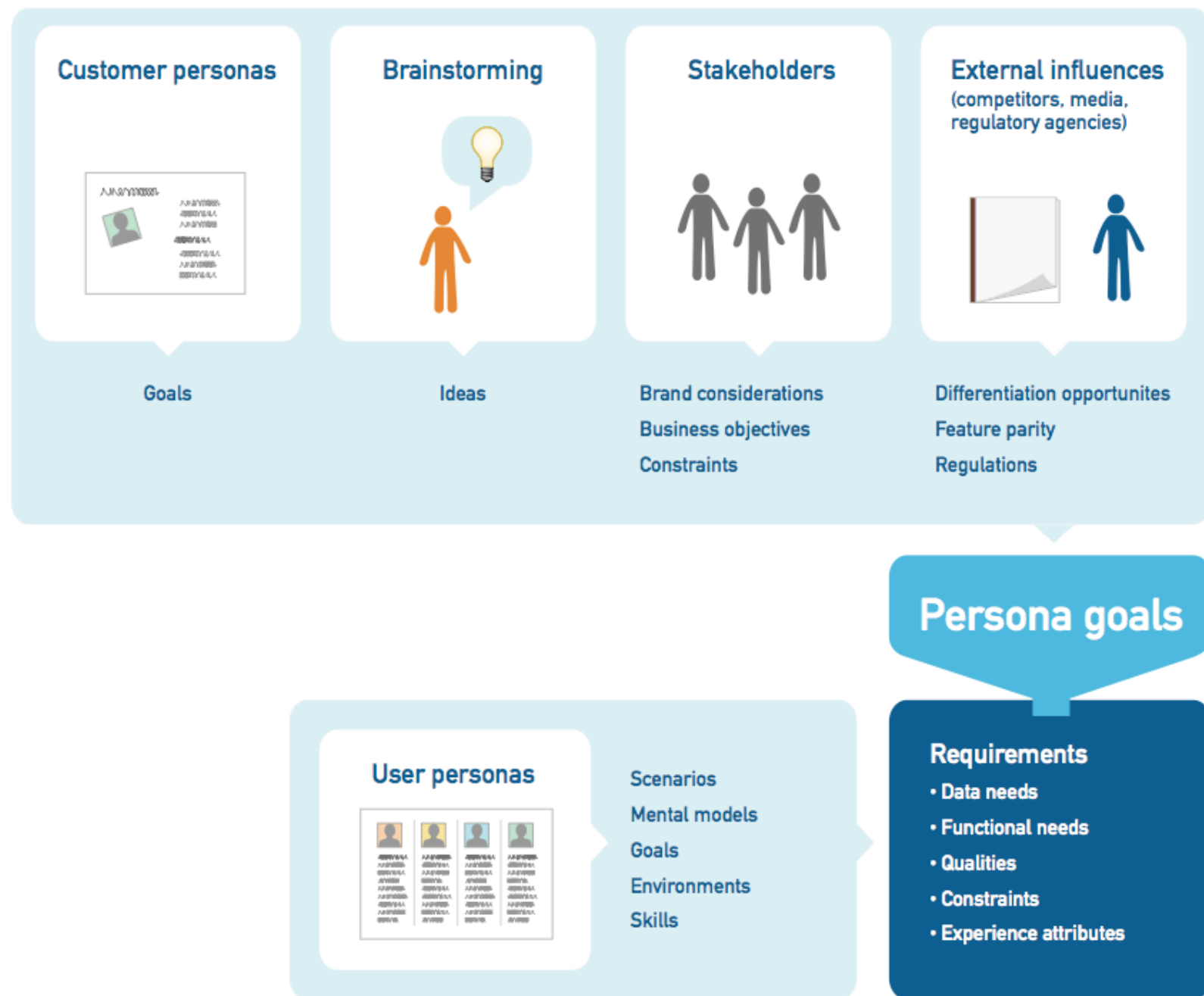


Figure 12.1. Persona goals serve as a filter for requirements from a variety of sources.



Figure 12.2. An overview of requirements definition.

Table 12.1. Example requirements matrix.

Source	Data needs	Functional needs	Product qualities	Constraints
Katie (primary)				
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Scenario #2	<ul style="list-style-type: none"> – Number of photos on the card – How long they will take to load 	<ul style="list-style-type: none"> – Some kind of automatic backup – Ability to connect to PC 		

Continued

Source	Data needs	Functional needs	Product qualities	Constraints
Mental model		<ul style="list-style-type: none"> Understand the effect the setting will achieve 		
Goals		<ul style="list-style-type: none"> Easier, more effective ways to teach her about exposure Auto modes for dealing with sharp contrast 	<ul style="list-style-type: none"> Easier, more effective ways to teach her about exposure "Professional" camera look and feel ("crisp" shutter, "solid" body) 	
Environment			<ul style="list-style-type: none"> Screen visible in bright sunlight Tolerant of dampness, temperatures from below freezing to inside a car on a hot day 	
Skills and abilities		<ul style="list-style-type: none"> Easier, more effective ways to teach her about exposure Auto modes for dealing with sharp contrast 	<ul style="list-style-type: none"> Fit comfortably in average woman's hand 	<ul style="list-style-type: none"> Fit comfortably in average woman's hand

Brainstorming

- gathering a group of people in a room and generating a bunch of possibilities—is a popular way to begin defining requirements.
- Open-spaced

Most of the work in scenario creation happens in team meetings.

Scenarios

Once you have personas to reflect the users of your application, you can begin the process of creating scenarios. Scenarios are mini stories that reflect situations your personas may find themselves in. In a scenario, you pay particular attention to how your application will enhance the experience of the user.

Ideally you'll create many scenarios and situations that your persona will encounter with your application. If you're honest about your application's limitations, exploring different scenarios can help you understand just how much of an issue a particular limitation is.

scenarios provide a concrete way to think about human behavior and needs and their implications for system behavior.

STEP 1: IDENTIFY WHAT CONTEXT SCENARIOS YOU NEED

Product	Persona	Scenarios
E-mail system	A system administrator with simple needs (primary administrator)	<ul style="list-style-type: none"> – Set up the system – Add an account – Change settings – Delete an account – Upgrade the system
	A system administrator who makes complex connections to other systems (secondary administrator)	<ul style="list-style-type: none"> – Set up the system
	Someone who uses e-mail in a single location (primary end user)	<ul style="list-style-type: none"> – First use at the beginning of the day – Use throughout the day
	A mobile e-mail user (secondary end user)	<ul style="list-style-type: none"> – Remote use
Consumer digital camera	A family photographer of average skill (primary)	<ul style="list-style-type: none"> – Out-of-box experience – Taking photos at an event – Taking photos here and there – Uploading photos
	A hobbyist photographer with high standards who takes a lot of photos (secondary)	<ul style="list-style-type: none"> – Photo shoot – Uploading photos

STEP 2. DEVELOP EACH STORY

Context scenarios address questions such as the following:

- ▶ In what setting(s) will the product be used?
- ▶ Will it be used for extended amounts of time?
- ▶ Is the persona frequently interrupted?
- ▶ Are there multiple users on a single workstation or device?
- ▶ With what other products will it be used?
- ▶ What primary activities does the persona need to perform to meet her goals?
- ▶ What is the expected end result of using the product?
- ▶ How much complexity is permissible, based on persona skill and frequency of use?

As your design unfolds, the scenarios can help uncover gaps in your solutions and potential usability issues. They are also useful when demoing your working app or authoring user interface specifications. Scenario content will vary depending on the app, but it typically includes the following information:

- **Motivation**

What prompted the persona to embark on the scenario?

- **Context**

Where is the persona while the scenario is taking place?

Does the context change over the course of the scenario?

Who else is involved?

What other devices are involved?

- **Distractions**

What kinds of distractions or interruptions typically occur in the scenario?

How does the persona deal with such distractions?

- **Goal**

What is the persona's goal in the scenario?

Is it information, an artifact, an emotion?

Devise a few realistic, typical scenarios for each persona, following the steps below, and record notes on each one:

- Consider carefully the typical environment your persona is in. Where are they when they're interacting with your web site. Are they at work? At home? In an airport?
- What other factors impact the persona's context of use? What speed of internet connection do they have? How much time do they have? What distractions are there?
- What specific goal is driving the persona to interact with the web site on this occasion? What event triggered this scenario?
- Picture the scene. What considerations will be foremost in the persona's mind? What clues are they looking for in particular?

Scenarios

For instance, let's say we're building a smartphone application that helps Susan, our persona, find low-fat recipes. Here would be some appropriate scenarios we might encounter:

- Susan is at home. She's looking through her cupboards and trying to locate items for a chosen recipe. How might our application help with that?
- Susan is at the park with her children. She wants to find a lasagna recipe to cook for dinner. What features of the application would she use to accomplish this?
- Susan is talking on her smartphone with a friend about a recipe for a low-fat casserole. How might she send this recipe to her friend? Could she accomplish this without hanging up the phone?
- Susan is out shopping and wants to locate a particular spice that's used in a recipe she's found. How would the application assist her in finding it?

An example context scenario

The following is an example of a first iteration of a context scenario for a primary persona for a personal digital assistant (PDA) type phone, including both the device and its service. Our persona is Vivien Strong, a real-estate agent in Indianapolis, whose goals are to balance work and home life, close the deal, and make each client feel like he is her *only* client.

Vivien's context scenario:

1. While getting ready in the morning, Vivien uses her phone to check her e-mail. It has a large enough screen and quick connection time so that it's more convenient than booting up a computer as she rushes to make her daughter, Alice, a sandwich for school.
2. Vivien sees an e-mail from her newest client, Frank, who wants to see a house this afternoon. The device has his contact info, so now she can call him with a simple action right from the e-mail.
3. While on the phone with Frank, Vivien switches to speakerphone so she can look at the screen while talking. She looks at her appointments to see when she's free. When she creates a new appointment, the phone automatically makes it an appointment with Frank, because it knows with whom she is talking. She quickly enters the address of the property into the appointment as she finishes her conversation.
4. After sending Alice off to school, Vivien heads into the real-estate office to gather some papers for another appointment. Her phone has already updated her Outlook appointments, so the rest of the office knows where she'll be in the afternoon.
5. The day goes by quickly, and she's running a bit late. As she heads towards the property she'll be showing Frank, the phone alerts her that her appointment is in

15 minutes. When she flips open the phone, it shows not only the appointment, but a list of all documents related to Frank, including e-mails, memos, phone messages, and call logs to Frank's number. Vivien presses the call button, and the phone automatically connects to Frank because it knows her appointment with him is soon. She lets him know she'll be there in 20 minutes.

6. Vivien knows the address of the property but is a bit unsure exactly where it is. She pulls over and taps the address she put into the appointment. The phone downloads directions along with a thumbnail map showing her location relative to the destination.
7. Vivien gets to the property on time and starts showing it to Frank. She hears the phone ring from her purse. Normally while she is in an appointment, the phone will automatically transfer directly to voicemail, but Alice has a code she can press to get through. The phone knows it's Alice calling, and uses a distinctive ring tone.
8. Vivien takes the call — Alice missed the bus and needs a pickup. Vivien calls her husband to see if he can do it. She gets his voicemail; he must be out of service range. She tells him she's with a client and asks if he can get Alice. Five minutes later the phone makes a brief tone Vivien recognizes as her husband's; she sees he's sent her an instant message: "I'll get Alice; good luck on the deal!"

How many scenarios should I write?

The number of scenarios you write depends on the number of personas and the complexity of the app. Utility apps may need only one or two scenarios,

whereas Productivity apps may benefit from a series of short scenarios that cover different goals.

Although scenarios are highly valuable, keep in mind that they are a tool for design. The scenarios should be simple and focused. Instead of trying to document every possible scenario at the beginning of your project, start out by focusing on what's most important. As you get into the design phase, you can expand with edge case scenarios as needed.

STEP 3. PREPARE TO COMMUNICATE YOUR SCENARIOS



Figure 12.3. An example storyboard for Anne's Personal Assistant scenario.

Step 4 Identifying requirements

After you are satisfied with an initial draft of your context scenario, you can analyze it to extract the personas' needs or requirements. These **requirements** can be thought of as consisting of *objects*, *actions*, and *contexts*.¹¹ And remember, as we discuss above, we prefer not to think of requirements as identical to features or tasks. Thus, a need from the scenario above might be:

Call (action) a person (object) directly from an appointment (context).

If you are comfortable extracting needs in this format, it works quite well; otherwise, you may find it helpful to separate them into data, functional, and contextual requirements, as described in the following sections.

Data requirements

Personas' data needs are the objects and information that must be represented in the system. Using the semantics described above, it is often useful to think of data requirements as the objects and adjectives related to those objects. Common examples include accounts, people, documents, messages, songs, images, as well as attributes of those such as status, dates, size, creator, subject, and so on.

Functional requirements

Functional needs are the operations or actions that need to be performed on the objects of the system and which are typically translated into interface controls. These can be thought of as the *actions* of the product. Functional needs also define places or containers where objects or information in the interface must be displayed. (These are clearly not actions in and of themselves but are usually suggested by actions.)

Other requirements

After you've gone through the exercise of pretending it's magic, it's important to get a firm idea of the realistic requirements of the business and technology you are designing for (although we hope that designers have some influence over technology choices when it directly affects user goals).

- ▶ **Business requirements** can include development timelines, regulations, pricing structures, and business models.
- ▶ **Brand and experience requirements** reflect attributes of the experience you would like users and customers to associate with your product, company, or organization.
- ▶ **Technical requirements** can include weight, size, form factor, display, power constraints, and software platform choices.
- ▶ **Customer and partner requirements** can include ease of installation, maintenance, configuration, support costs, and licensing agreements.

Table 12.3. Example requirements from a context scenario.

Scenario text	Requirements
<p>After a long meeting, Anne pulls out her Personal Assistant to note a couple of items she needs to follow up on, confirm the location of her next meeting, and see if anything important has come up in the last couple of hours.</p>	<ul style="list-style-type: none"> — Ability to enter text — Ability to track appointments — Ability to see a list of messages — Portable form factor
<p>When she turns on the screen, the PA shows her the subject and location of her next meeting, which is in 25 minutes.</p>	<ul style="list-style-type: none"> — Ability to turn off the screen without the turning off the device — Ability to count down to the next event
<p>There's also an indication that she has three messages marked urgent (including one from her boss), one message from a client whose messages she's told the PA are top priority, and a dozen others that can probably wait.</p>	<ul style="list-style-type: none"> — Ability to see both e-mail and voice messages in a single place, along with next event — Ability to auto-prioritize some messages based on simple criteria specified by users, as well as based on urgency indicated by the sender

Continued

Functional Requirements:

1. Search and Browse
 - 1.1 The system will allow customers to browse music choices by predefined categories.
 - 1.2 The system will allow customers to search for music choices by title, artist, and genre.
 - 1.3 The system will allow customers to listen to a short sample of a music selection.
 - 1.4 The system will enable the customer to add music selections to a "favorites" list.
2. Purchase
 - 2.1 The system will enable the customer to create a customer account (if desired) that will store customer data and payment information.
 - 2.2 The system will enable the customer to specify the music choice for download.
 - 2.3 The system will collect and verify payment information. Once payment is verified, the music selection download process will begin.
3. Promote
 - 3.1 The system will keep track of the customer's interests on the basis of samples selected for listening and will use this information to promote music selections during future visits to the Web site.
 - 3.2 Marketing department can create promotions and specials on the Web site.
 - 3.3 Based on customer's previous purchases, music choices can be targeted to the customer on future visits to the Web site. (Customers who like X will also like Y.)
 - 3.4 On the basis of customer interests, customers can be notified of special offers on CDs that can be purchased at the regular Tune Source Web site or in a Tune Source store.

Nonfunctional Requirements:

1. Operational
 - 1.1 The digital music database will be constructed to facilitate searches by title, artist, and genre.
 - 1.2 The system will run on any Web browser and on in-store kiosks.
 - 1.3 In the event of a failure during a download, the customer will be able to restart the download.
2. Performance
 - 2.1 Download speeds will be monitored and kept at an acceptable level.
3. Security
 - 3.1 Customer information will be secured.
 - 3.2 Payment information will be encrypted and secured.
4. Cultural and political

No special cultural and political requirements are expected.

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Table 12.4. Example team member schedules.

	Interaction designers	Visual designer	Industrial designer	Design team lead
Day 1 morning	Develop context scenario list, review with team lead	Begin experience attributes	Develop context scenario list, begin experience attributes	Review scenario list
Day 1 afternoon	Draft scenarios #1 and #2, collaborate with ID	Continue experience attributes	Continue experience attributes, collaborate with IxDs	
Day 2 morning	Team check-in on scenarios and attributes	Team check-in on scenarios and attributes	Team check-in on scenarios and attributes	Team check-in on scenarios and attributes
Day 2 afternoon	Draft scenarios #3 and #4, collaborate with ID	Refine attributes and begin assembling communication tools	Refine attributes, collaborate with IxDs	
Day 3 morning	Brief team check-in, refinement, prep for project owner check-in	Brief team check-in, refinement, prep for project owner check-in	Brief team check-in, refinement, prep for project owner check-in	Brief team check-in, refinement, prep for project owner check-in
Day 3 afternoon	Informal check-in with project owner	Informal check-in with project owner	Informal check-in with project owner	Informal check-in with project owner
Day 4 morning	Refine scenarios, draft requirements list	Refine attributes and communication tools, draft requirements list	Refine attributes and communication tools, draft requirements list	
Day 4 afternoon	Team check-in on requirements list, refine	Team check-in on requirements list, refine	Team check-in on requirements list, refine	Review requirements list



Figure 12.2. An overview of requirements definition.

Summary

- Getting requirements right is crucial
- There are different kinds of requirement, each is significant for interaction design
- The most commonly-used techniques for data gathering are: questionnaires, interviews, focus groups and workshops, naturalistic observation, studying documentation
- Scenarios, use cases and essential use cases can be used to articulate existing and envisioned work practices.
- Task analysis techniques such as HTA help to investigate existing systems and practices