



USER EXPERIENCE DESIGN FOR ENTERPRISE ANDROID™ APPS

THINK BEYOND THE DESKTOP



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INTRODUCTION

If you're thinking of creating a mobile application for your enterprise, you're not alone. According to a Market Pulse Survey, 70 percent of CIO respondents have already deployed at least one mobile enterprise app.¹ The key to increasing user adoption and productivity with any mobile app is to make the app useful, engaging, and mobile aware.

That's why considering the user experience throughout the app development process is paramount. If users can intuitively use the app with little or no training, you'll win them over. Even more, if you can engage and excite them, they'll become more productive, encourage others to use the app and impact your company's bottom line.

In order to create an engaging native Android app for smartphones or tablets that your employees love and that justifies your development investment, incorporate user experience design practices throughout your development process. To illustrate key design concepts, this paper walks through an example project from start to finish. We'll take an existing intranet web app that provides cafeteria information for a large, multicampus fictitious business named BigCorp and develop a mobile version of the app called Biz Bites.

The goal of the project is to create a mobile app with useful and engaging features. When employees are visually stimulated and highly engaged with on-campus dining, they'll stay at work longer, resulting in increased productivity and satisfaction. By creating a better dining experience overall, the app will also lead to more business for the food services division of BigCorp.



ASSESS THE EXISTING FUNCTIONALITY

BigCorp currently uses an intranet web application that is functional but very plain in look, feel and features. It displays daily menus and includes many links to webpages for various cafeteria locations around the many campuses.

Employees use this website to gain basic information about what the cafeterias near them are serving that day. However, no one is excited about the user experience. In fact, employees often complain that information on the site simply doesn't match what's actually available in the cafeteria, the site is difficult to navigate, and it takes too long to find and compare menus.

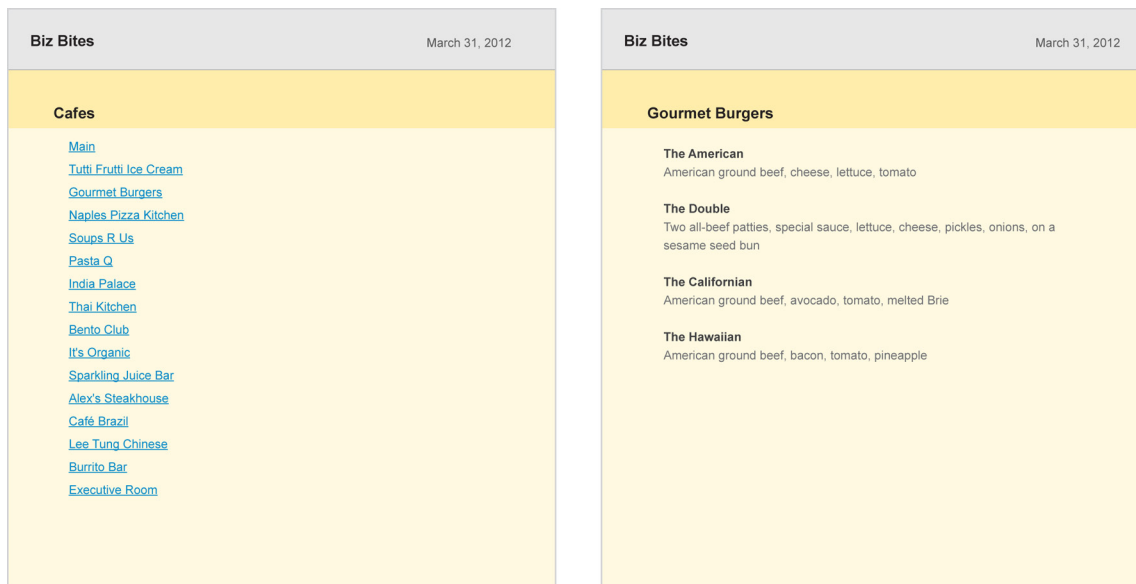


Figure 1

Some intranet websites have less visual appeal and more links, leading to back-and-forth navigation.

ESTABLISH A PROJECT GOAL

As part of BigCorp's new mobile strategy, the CIO has directed the development team to convert corporate intranet sites to mobile apps where possible. Because the developers understand the potential of native Android apps to offer a fun, engaging mobile experience, they embark on transitioning the cafeteria app from a desktop website to a native mobile app.

To begin, the team conducts initial user interviews to distill the core purpose of the Biz Bites project and define a single project goal:

Make it easy and enjoyable for employees to discover and share information about the great food available in the company cafeterias.



This simple but meaningful goal is used to communicate the core purpose of the project to key stakeholders. Having a clear goal that can be stated in one sentence, or illustrated on one page, keeps the entire team focused on the same vision. The goal statement can also be used to obtain internal funding.

You'll notice that the "share" aspect of the project goal references a recent trend in the mobile industry: mobile collaboration. Although following latest trends, or mobile collaboration per se, is not a direct goal of the Biz Bites project, mobile collaboration can greatly enhance the value of the Biz Bites experience for users, by offering deeper engagement through social interaction in a mobile context.

LEARN ABOUT YOUR USERS

To build a great app, you need to understand your target users - how they think, feel and act when using apps; what they love, hate, or want in an app such as yours. Based on the project goal, conduct a few simple user interviews. Ask users how they currently accomplish the tasks you're proposing for your app. Talk to them about their needs and the mobile apps they currently use. Be sure you understand what users want from your project, but don't invest too much time. Talking informally with 5 users is often as useful as conducting an expensive, in-depth research study with 5,000 users.



Appoint a user experience lead who is responsible for the user experience of the entire application. This person can be someone within your enterprise or an outside consultant. Remember that good design saves money. See [Ignore the Customer Experience, Lose a Billion Dollars](#)

In our example, the BigCorp development team is using an agile approach, where it forms small, cross-functional teams that iterate quickly and frequently. They invite two target users to become part of their team as user representatives:

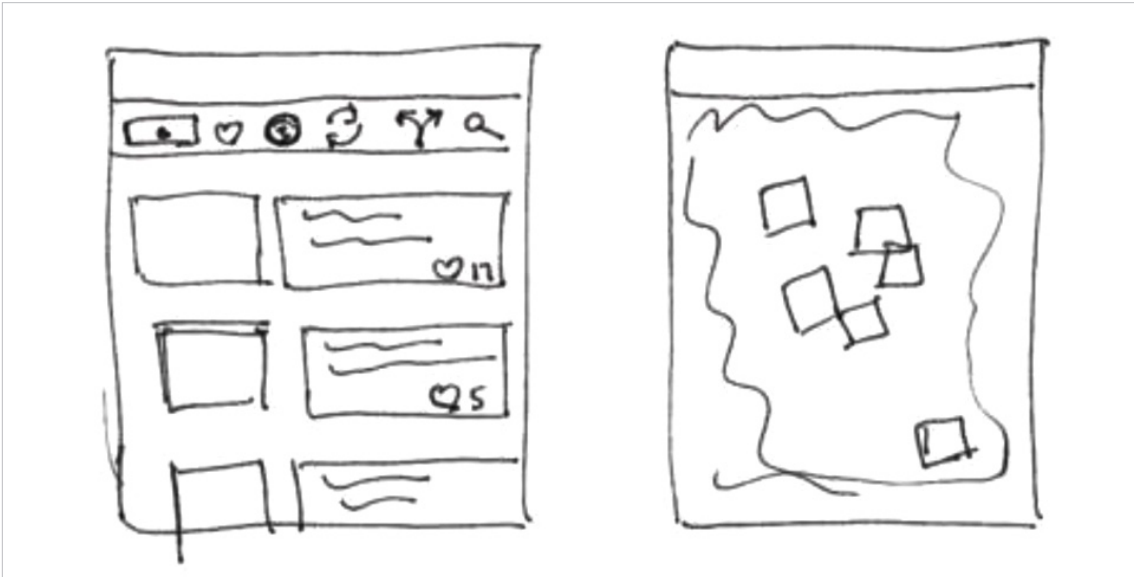
- *Jessica* is a vegetarian who wants nutritional information for all food options and the locations of cafeterias that serve vegetarian fare. She is serious about nutrition and often extols the benefits of eating vegetarian.
- *Javier* is in sales and travels 75 percent of the time, often to different campuses. He's typically in a hurry and unfamiliar with food offerings on other campuses. He has very little time between meetings to grab a quick bite to eat, so getting lost easily frustrates him.

CONCEPTING NEW FEATURES

Next, work with your users and business stakeholders to determine what features to build first in your app.

At this point, show people your initial app concept, again keeping the process lightweight. Talk with the same five users and show them some "napkin drawings"— simple, quick drawings of your app concept sketched out on paper.



**Figure 2**

Quick five-minute sketches are best to show users at this stage, because you can change them easily.

What this means for Biz Bites

The BigCorp team user experience lead sketched these concepts in five minutes. One screen shows a list of food photos and descriptions, with an action bar for navigating to more app features. The other displays a map that shows cafeteria locations. Because these kinds of drawings are quick and simple, you can easily change them in response to user feedback.

How do you come up with concepts for new app features? As you talk with your target users and research other mobile apps that engage them most, consider the following broad mobile design guidelines. They will help transform your thinking from the desktop context to the mobile context and inspire new ideas for user interaction.

1. THINK BEYOND THE DESKTOP

The mobile experience is different from the desktop experience in many ways. Smartphones and tablets offer new features and advantages over desktop computers, and you can leverage those differences in your mobile app to deepen user engagement.

Because users typically take their mobile devices with them everywhere, they can take action in the moment. For example, device cameras empower users to document anything they see along the way, and devices with GPS help users navigate to their destination while en route.

Consider the mobile context, or possible environments, where users will engage with your app. Will they be in motion, in a noisy public place, in a hurry? Consider what they need to accomplish in that particular context and find an elegant solution. The experience between a user and a mobile device should be graceful, natural and effortless.



What this means for Biz Bites

Jessica can use Biz Bites while in the cafeteria line to see if today's featured entrée is still available and whether it contains beef or veggie broth. Then she can post photos of vegetarian entrées to entice other workers into the cafeteria, which boosts sales of the salad bar and the veggie burrito.

2. USE THE DEVICE FEATURES

Most smartphone users are familiar with their phone's capabilities and love snapping pictures and pinching open maps. With native Android™ apps you can use intents to access features of the applications already installed on the device — such as the camera, camcorder and calendar apps — to make using your app feel familiar and fun for your users.

What this means for Biz Bites

Javier can open the Biz Bites map and pinpoint all food locations so that he can dash out to the nearest spot for a bite. Then, when navigating Javier to the nearest cafeteria, the app uses the map, GPS and step-by-step directions to correct his route when he turns right instead of left.

To allow Jessica to capture a photo of her veggie burrito, Biz Bites uses intents to open her device's camera app. Then, to write a user review of a tasty pastry, Jessica can use either a soft or a hard keyboard on her smartphone.

**What are Android intents?**

Android intents are messages in the code used by one mobile app that open features that another mobile app chooses to make available.

3. DESIGN FOR TOUCH

Interactivity using touch and multitouch is one of the reasons smartphones and tablets have become so popular. These gestures (including tap, pinch, zoom and swipe) are natural, intuitive and based on how humans interact with physical objects.

When designing a mobile app, keep in mind best practices for using touch gestures. Android user experience designers have already defined many simple, repeatable solutions for popular mobile tasks and have made them available for all developers to use. Leverage these solutions because users already know them. Some of these include horizontal and vertical swipes, multitouch on maps and ideal tap target sizes, as well as drag and drop.



The user interface pattern

Scrollable Layouts shows you when and how to use horizontal and vertical swipe gestures and how to combine them in an app.

What this means for Biz Bites

Jessica pinches out to expand the map and get details about nearby dining spots. She then taps the food images on the map to see cafeterias that serve vegetarian entrées. She swipes to scroll through photos of today's dishes. She taps again to get nutrition information about the veggie lasagna.



4. REMEMBER THAT USERS ARE MOBILE

The beauty of a smartphone is that users have powerful computing capabilities with them at all times — everywhere. For developers, this brings some unique challenges.

First, users multitask frequently with their devices, so developers must think of the different interruptions that may occur while using the app. Users might receive a phone call or text message (on some networks) while using a calendar app. On Android™ devices, these interruptions are displayed to users in various ways — often, by notifications. By keeping your interface simple and clean and by using standard Android interaction patterns, you reduce cognitive load on the user and make handling the interruption and returning to your app intuitive.

Another distinctive mobile device challenge is network connectivity, which can change or drop entirely while a user is immersed in applications.

What this means for Biz Bites

Javier calls his colleague to determine where to meet for lunch. After the call, Javier checks Biz Bites and uses the turn-by-turn walking directions to the designated cafeteria. En route, the device loses connectivity, but the app stores the information while offline. Directions remain on the screen, allowing Javier to easily find the cafeteria.

5. PUSH ENGAGING CONTENT FORWARD

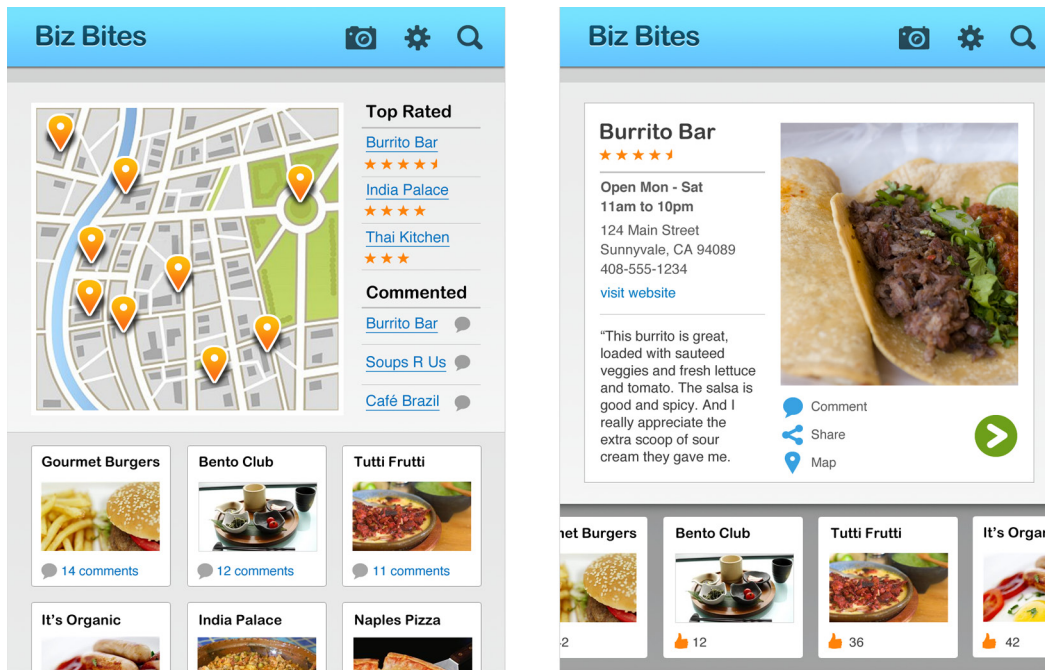
Because vision is the primary sense,² be sure to engage users immediately when they first open your app with visual content such as graphics, photos, videos and maps. Strongly engaging users' visual sense with colorful, eye-catching content that is easy to absorb and respond to leads them to explore your app further.

Conversely, it's best to avoid presenting long lists of links and trains of successive screens that feel dull or repetitive, especially on a small screen. Text links are generally associated with websites and don't always leverage the advantages that mobile apps offer.

What this means for Biz Bites

When Jessica and Javier open Biz Bites, they see images of the day's most popular entrées in various campus cafeterias. As they scroll through the app, they see more food photos ranked by other users. And once an entrée is sold out, a new image of another popular entrée appears.



**Figure 3**

The final screen images show how the app has changed based on user input.



The final screens use several key Android UI patterns, adding visual appeal with **Center Stage** and intuitive swiping with **Scrollable Layouts**.

6. GATHER USER INPUT OFTEN

Solicit input from your target users throughout each stage of design and development as you move from initial concept to simple drawings and software. Keep in mind that how users act is a better indicator than what they say. Also, be certain that new ideas resonate with and add value for most users, not just a select few. For example, if someone suggests a special dining room scheduling feature, test the idea with other users and consider the cost versus the benefit before implementing the feature.

What this means for Biz Bites

When drawings of the app are first shown to them, Javier and Jessica find Biz Bites usable but aren't enthusiastic. They don't have specific ideas for the app, but when asked again about their favorite mobile apps, they point out features and interactivity that offer a fun, surprising experience. The development team decides to change two key Biz Bites screens to make them more visual, and the team chooses to display both the map and food photos on the opening screen. They also add a new feature: food discount coupons that appear spontaneously and by surprise as the user interacts with the app.



ITERATE YOUR APP

Once your app is in the hands of your user base, don't ignore it. Continue to solicit user feedback and ideas for fixes and future updates. Not only will your app continue to evolve and become even more engaging, you'll learn even more about your users for your next mobile app project.

What this means for Biz Bites

The BigCorp development team incorporates mobile analytics in its app, which provides data about which features are used most often and where. A user feedback feature is also included so users can tap a button and send an email to the team.

But because the team worked closely with a UX design lead and user representatives, the first release of the app is popular. The analytics and user feedback demonstrate the success of the app to the CIO and encourage stakeholders to approve funding for another release. Most important, the team continues to work with Jessica, Javier and other user representatives as they explore new features for the next release.

" UX design is key to your business case. Design makes money. Design saves money. **"**

-Suzanne Alexandra,
Android UX Design Expert

LEARN MORE

The MOTODEV for Enterprise program is designed to make it easy for you to get started developing Android™ applications for your company and to support you throughout the development lifecycle. As you begin to design mobile apps for your enterprise, you'll find a wealth of technical documentation, training and support for all aspects of Android development, including user experience design. For more information, visit: developer.motorola.com/enterprise.

The [MOTODEV for Enterprise Technical Library](#) contains numerous resources on user experience design, including:

- › [UI pattern article: Hide-and-Show Fragments](#)
- › [UI pattern article: Scrollable Layouts](#)
- › [UI pattern article: Center Stage](#)
- › [Presentation: Beautifully Visible, Multiple Screens Too](#) (more UI patterns)
- › [Presentation: Getting the Magic on Android Tablets](#)
- › [Presentation: Working with Multiple Android Screens](#)
- › [Online webinar: Top Tips for Android Tablet UIs](#)

Other UX resources:

- › [Can UX Be Agile](#)
- › [Android UI Design Patterns](#)
- › [Ignore the Customer Experience, Lose a Billion Dollars](#)
- › [Android Design](#)



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1 "Market Pulse Survey: Mobile Enterprise Application Development," conducted on behalf of Motorola, presented by IDG Research Services, January 2012

2 "Vision Trumps All Other Senses": <http://www.brainrules.net/vision>

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