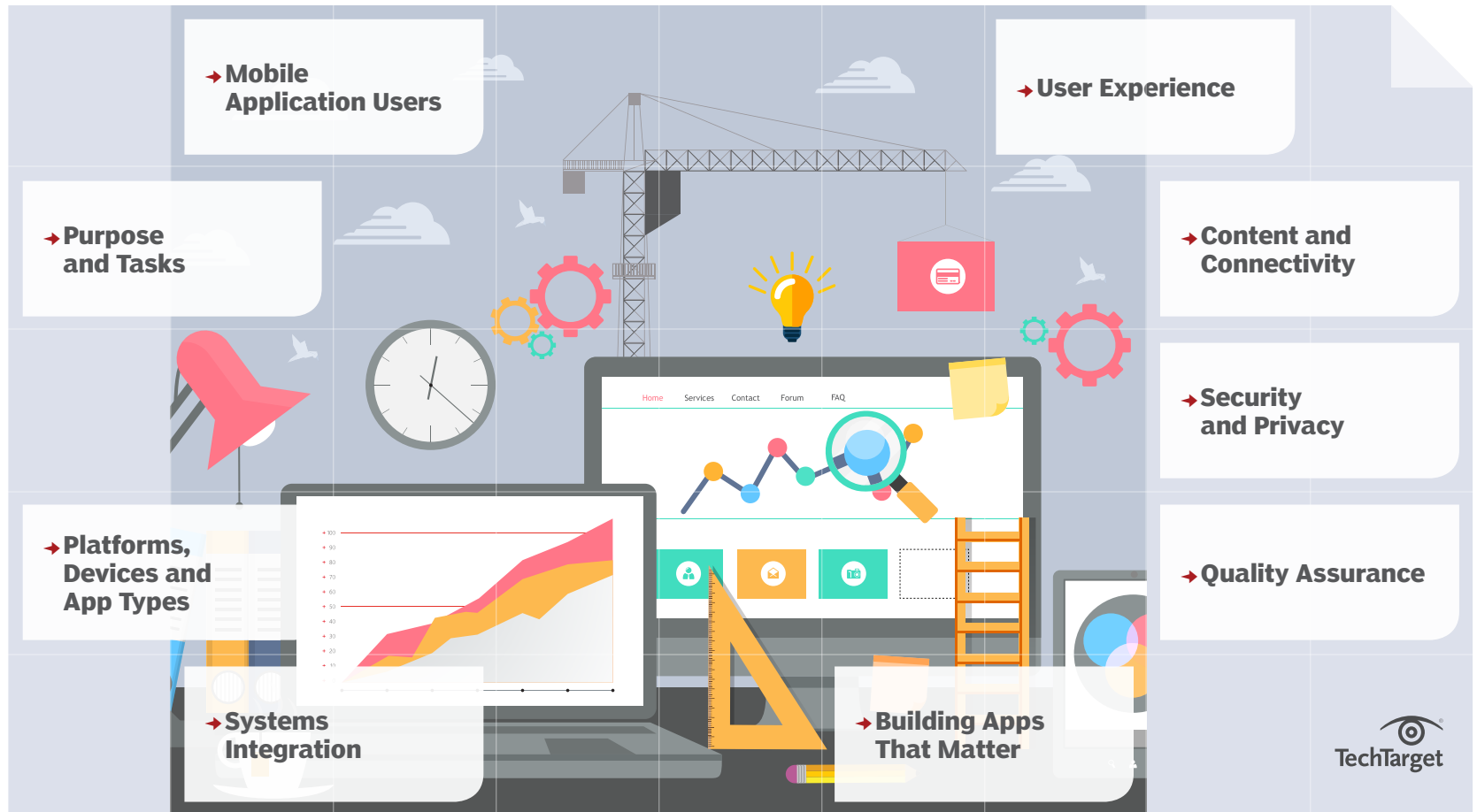


BUILDING APPS THAT MEET USERS' NEEDS

If you want workers to use the application you built for them instead of a third-party one, you have to know what problems to solve and what users want.

BY ROBERT SHELDON





- Home
- Mobile Application Users
- Purpose and Tasks
- Platforms, Devices and App Types
- Systems Integration
- User Experience
- Content and Connectivity
- Security and Privacy
- Quality Assurance
- Building Apps That Matter

BUILDING AN ENTERPRISE mobile app takes more than just assembling a collection of files. Developers must take into account a wide range of considerations to ensure they create an app that workers will actually use.

Even an internal app that serves only a small group of employees requires careful planning and attention to the many factors that go into application development. If an app doesn't make workers' jobs easier and enhance their productivity, chances are that app will fail.

There are eight important considerations developers should take into account when building mobile apps.

MOBILE APPLICATION USERS

Learning about users and the environments they work in

is essential to building a successful app. Users are the ones in the trenches, so they know where processes are complex and cumbersome, and where workflows get bogged down. They also have a good sense of what they need in an app to alleviate the problem areas. Yet development teams often ignore what their users want or need, failing to take into account their perspectives until it's too late.

Before building an app, developers must find out what users need and how they work without assuming anything about their business patterns, habits, workflows or environments. Surveys, interviews, focus groups or other types of outreach will help developers fully understand the culture the app will be implemented in. Developers must also take users' expectations and levels of technical expertise into account.

Developers should not build an app without a specific audience in mind. If they don't take the time to understand users, they are much more likely to develop an app that fails.



Home

Mobile Application
Users

Purpose and Tasks

Platforms, Devices
and App Types

Systems Integration

User Experience

Content and
Connectivity

Security and Privacy

Quality Assurance

Building Apps
That Matter

PURPOSE AND TASKS

Developers must also identify what tasks the app should allow users to perform and which features it will require. They should work with users to come up with an app that will simplify their workflows and benefit them overall.

To achieve this, developers must have a thorough understanding of the problems at hand and the features the app will need to solve those problems. This is why it's so important to learn what users want and need as well as what they don't. Also take into account the different roles users play and how those roles translate to the tasks they perform each day.

When the app is finally deployed, users should be able to easily understand its purpose, workflow and how it connects to existing systems. They should quickly grasp how the app will solve their business problems and make their lives easier. The only way to achieve this is to have a clear vision of the app's goals.

PLATFORMS, DEVICES AND APP TYPES

Early in the development process, determine which platforms and devices the app will run on and decide which type of app to deliver.

Google's Android platform is implemented in greater numbers to global audiences, but Apple's iOS is generally favored by the enterprise. Windows mobile devices are

making some headway in organizations, and BlackBerry-based devices have fallen out of favor. Determine which operating systems the app will run on and which OS versions. For example, the app might need to run on Apple iOS 8 and 9 but none of the earlier versions.

A company might support multiple OSes, but if the new application will only be used by the sales team on their iPad Minis, developers can narrow the app's scope considerably.

Also identify which kinds of devices the app is for. Should it run on both smartphones and tablets or just one or the other? Device types can play an important role when making decisions such as how to display features or manage data.

Remember that identifying operating systems and device types must be done in the context of the app. An organization might support iOS, Android, BlackBerry and Windows smartphones and tablets, but if the new application will be used only by the sales team on their iPad Minis, developers can narrow the app's scope considerably.

Deciding on the app type is a little trickier. There are three options: native, web-based or hybrid. A native app uses the same code as the host system. If the app must run on Android and iOS devices, developers must build two

APPLICATION DEVELOPMENT 101



Home

Mobile Application
Users

Purpose and Tasks

Platforms, Devices
and App Types

Systems Integration

User Experience

Content and
Connectivity

Security and Privacy

Quality Assurance

Building Apps
That Matter

different versions of the app, one for each platform.

A web-based app is delivered through the device's browser using technologies such as HTML5, Cascading Style Sheets and JavaScript. Just about any modern mobile device should be able to access this type of app. But web-based apps tend not to be as feature-rich as native apps and cannot take full advantage of a device's built-in capabilities. At the same time, the web-based app is faster, easier and cheaper to build and deploy.

Hybrid apps incorporate both native and web technologies. They provide a balance between the two approaches, and they offer some of the advantages and disadvantages of each.

There is much debate about which strategy is best, often with little consensus. Many web-based app proponents point out that internal enterprise applications cannot justify the time and resources required to build native apps. But even for internal apps, developers should keep users' needs at the forefront. Implementing applications that are ineffective or make tasks more cumbersome helps no one. Let the app's requirements and circumstances determine which type to build.

SYSTEMS INTEGRATION

The development phase should be integrated into a larger app lifecycle management infrastructure that also

incorporates build processes, source control, quality assurance (QA), deployment, change management and more.

Keep the big picture of how the app will be developed, tested, updated, deployed and maintained throughout its lifecycle in mind. That includes taking into account how it

An enterprise app that does not consider user experience is destined to fail. UX goes beyond interface layout, what features are available or how easy they are to access.

will scale across multiple data centers, and how it will integrate with enterprise and third-party services and tools, such as client management or mobile device management tools.

Also remember the big picture when choosing which tools to build and manage the apps. The number of mobile apps has continued to grow, and so has the variety of tools and services available for handling all phases of the application lifecycle. For example, companies might consider a mobile application development framework to build cross-platform apps, or a mobile application development platform to offload much of the work that goes into implementing and maintaining an in-house development infrastructure.



Home

Mobile Application
Users

Purpose and Tasks

Platforms, Devices
and App Types

Systems Integration

User Experience

Content and
Connectivity

Security and Privacy

Quality Assurance

Building Apps
That Matter

USER EXPERIENCE

An enterprise app that does not take user experience (UX) into account is destined to fail. UX is the overall experience users have when they engage with the app, regardless of the tasks they're trying to perform. It goes far beyond how the user interface (UI) is laid out, what features are available or how easy they are to access.

UX incorporates these things, but it is much broader in scope and takes into account many more factors. For example, UX can also refer to how useful the app is, how relevant the features are, the app's general usability or how well it performs. When it comes to how the user engages with the app, there is little that does not fall under the UX purview.

Part of the UX equation is to ensure that the app is as intuitive, responsive and user-friendly as possible. The UI should be clean and simple, without a lot of clutter. Developers should be particularly vigilant about cramming in features that are more about wowing the user than serving the app's primary purpose. Avoid over-engineering the app or making the tasks too complex to perform. If users spend too much time trying to figure out how features are supposed to work, there is a problem with the UX design.

The app should avoid unusual elements or unexpected gestures and instead stick with industry standards for tasks such as opening files, accessing menus or switching between screens. Where appropriate, the app should also take advantage of built-in features, such as the camera or GPS.

But be wary of introducing elements that could affect other systems and apps or be affected by their operations.

Above all, keep in mind that the application should not try to be a desktop. Break complex processes into discrete tasks and make it clear how each one relates to the larger workflow and supports the app's primary purpose. The app should be intuitive, predictable and familiar right out of the gate.

CONTENT AND CONNECTIVITY

When it comes to mobile applications, content is king. If it weren't for the data they present, few apps would have any benefit. At the most basic level, an app's content should be easy to view, find and access, without other design elements overshadowing or interfering with the process.

But it's more than just a matter of using the right fonts and colors. Users should be able to access exactly the information they need without weeding through useless data or processes. They should be able to digest the information without knowing where it originates, how many data sources are involved or how the information is assembled.

To make this work, the app must be able to connect to and ingrate with the necessary back-end services to ensure that users have exactly the data they need when they need it. The app should facilitate and simplify data access, and the content should be optimized, refreshed and error-free.



Home

Mobile Application
Users

Purpose and Tasks

Platforms, Devices
and App Types

Systems Integration

User Experience

Content and
Connectivity

Security and Privacy

Quality Assurance

Building Apps
That Matter

Developers must plan how data will be pushed to or pulled from the app as well as how data will sync across multiple devices and services, if applicable. Plan for offline operations and disruptions in services, too. In addition, determine what data will be stored on the device, what will be cached, where data will be stored, and what will be managed and accessed through external services.

Another consideration is how users connect to the network. Will they rely solely on their cellular services? Wi-Fi connections? Both? The type of network connection can affect the amount of data the app can efficiently transfer to and from a device as well as when those transfers can take place.

The app's content should reflect the business workflow and clearly relate to the tasks at hand. It should reveal and support the app's purpose and the issues it's trying to address. The reliability of the information is essential to the app's effectiveness and ability to persist over the long haul.

SECURITY AND PRIVACY

Security and privacy go hand-in-hand with how an app presents, manages and transfers data. No matter where the data resides or how it gets moved around, it's important to ensure that all sensitive information is protected. Implementing a mobile app without paying the strictest attention to security and privacy can open up an organization, its

employees and its customers to untold risks.

Address issues related to authenticating and authorizing users as well as safeguarding the data at rest and in motion. Technologies such as Secure Sockets Layer, Transport Layer Security and virtual private networks can safeguard

Developers are at cloud providers' mercy to ensure that sensitive information is protected from cybercrime and other mischief, whether in the form of outside attacks or inside duplicity.

the information. Developers must also ensure that whatever data protection mechanisms are put in place can integrate seamlessly with existing enterprise systems such as directory services or management tools.

Security can get particularly tricky when it comes to third-party cloud services that provide or store app content. In such situations, developers are at the provider's mercy to ensure that sensitive information is protected from cybercrime and other mischief, whether in the form of outside attacks or inside duplicity. Developers must be able to verify that the service provider is taking the steps necessary to protect sensitive data.

Most major service providers are aware of the

APPLICATION DEVELOPMENT 101



Home

Mobile Application
Users

Purpose and Tasks

Platforms, Devices
and App Types

Systems Integration

User Experience

Content and
Connectivity

Security and Privacy

Quality Assurance

Building Apps
That Matter

importance of safeguarding their customers' data and realize how much is at stake if security is breached. In fact, many services provide better protections than some organizations deliver in-house. The fact that an organization controls all its own data does not exempt it from implementing carefully planned security measures.

Regardless of where data resides and how it's protected, don't forget about compliance. Data can be subject to specific laws and regulations depending on the type and where it resides. Even mobile device features, such as GPS, can be subject to certain restrictions. Laws and regulations can vary substantially from country to country, so developers should understand what they're up against before they start messing with the data.

QUALITY ASSURANCE

QA is critical to implementing a successful application. Ideally, developers will incorporate automated testing into the build process and continuous integration environment, but they should try to get as many people as possible to actually try out the app so there is hands-on feedback early on.

QA doesn't stop with testing: Design an analytics component into the app to monitor and track user activity. This helps application builders learn how the app performs. From this information, it's possible to determine whether the app is operating as expected and identify areas where

issues might exist. This will give developers a better sense of how workers use the app and where they get bogged down so improvements can be targeted where they're most needed.

Users want apps that are intuitive, useful and will help them get their jobs done. Delivering apps that are simply adequate could cause them to turn to third-party alternatives.

Finally, be sure to offer a way for users to easily provide feedback about the app. In this way, developers can discover what users really think about it, what works and what doesn't work. The more feedback app builders can gather after the application has been implemented, the more they can improve the app in subsequent releases.

BUILDING APPS THAT MATTER

When building enterprise mobile apps, particularly for internal use, it can be tempting to go with the cheapest and easiest way to get the application out there. But users want apps that are intuitive, useful and will help them get their jobs done. Delivering apps that are simply adequate could cause users to turn to third-party alternatives, whether or

APPLICATION DEVELOPMENT 101



Home

Mobile Application
Users

Purpose and Tasks

Platforms, Devices
and App Types

Systems Integration

User Experience

Content and
Connectivity

Security and Privacy

Quality Assurance

Building Apps
That Matter

not they've been approved for business use.

Even the simplest mobile app requires attention to detail. An app should enhance users' productivity and make their jobs easier and more efficient. Before beginning any development, have a concrete definition of the app's purpose and its intended audience. ■

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