

Mobile Services Category Team (MSCT) Advanced Technology Academic Research Center (ATARC)

Customer Experience Working Group Document



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Introduction

Federal agencies are beginning to address and create long-term plans for mobility as mobile becomes a more central part of how agencies interact with other agencies and citizens. When creating these strategies, federal agencies run the risk of excluding the most important stakeholder in a mobile strategy---the customer. We maintain if agencies don't properly address the end user experience - what we will call the customer experience, all the planning and work will be for naught.

Some agencies and many private sector organizations have made the customer the center of their mobile focus. For the purposes of this document, we will define “*mobile customer experience*” as the sum total of a stakeholder’s views of their mobile experience from end-to-end. This includes, but is not limited to, dispositions toward application functionality, responsiveness, mobile device usability/suitability, implementable standards, etc. Customer experience is a journey, and should include every step along the path, from the first moments of awareness to the end of the task. While customer engagement is not the focus of this document, we would like to clarify that having a customer engagement strategy is necessary for any organization to practice effective Customer Relationship Management (CRM.)

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This playbook articulates how to begin embracing customer experience. The document lays out six principles of mobile customer experience that agencies should consider to achieve success. These are numbered one to six in no particular order. The principles were developed over a number of months and vetted with various mobile experts inside and outside of government. The principles cover everything from who to include in a mobile implementation, to leveraging real time analytics. This team believes that agencies that strategize using the best practices from other Mobile Services Category Teams¹ and also focus their efforts on making things easier for the customer will have a more successful approach for mobility.

¹ For more information see [Mobile Services Category Team Homepage](#)

Principle 1 - Mobile customer experience requires a village

By: Lizzie Berkovitz, DHS

Customer experience should be a part of an agency's digital strategy and requires input from multiple perspectives in the organization.

Often, executives or business owners in charge of mobile set the vision, design, and requirements for creating a new app, mobile website, or mobile experience. In many instances, this could lead to building and designing a solution without speaking to a single end user. However, it is important to solicit feedback, opinions, and perspectives from everyone in the organization that the service will touch. We also note effective stakeholder engagement is essential and is specifically included in the PMBOK, as detailed in the ITIL framework, and is at the heart of AGILE.²

This principle in practice:

In order to receive input from stakeholders, you must first understand who your stakeholders are. To begin with, determine **who** belongs in your influencer group--It is helpful to map the structure to outline everyone's roles and responsibilities. There are two groups of people to include: decision makers and users. **Decision makers** are the group who will be involved in making business decisions around your mobile opportunity. This group will consist of anyone who needs to approve, provide context/requirements, or view some part of your application, and should include accessibility, privacy, risk, and more. **Users** are the consumers of your application or web site, the ones who will be interacting with what you develop to accomplish a goal or objective. One effective way to map your influencers is to bring together the team gathering requirements and building the application. To determine **decision makers**, whiteboard each person you may need to interact with to deploy your app or mobile interactions. Then, chart a plan to engage each stakeholder. To determine **users**, take a similar approach. Consider the different groups of people who will use your mobile product. This may include more than just conventional users. Will there be admins, super users, or occasional users who will use the app for one specific function? Once you have listed, defined and established users and decision makers next obtain agreement.

- Consider the range of users for your particular solution. There most likely will be readily discernable categories of users: the customer or recipient of a service, the person serving the customer or delivering the service, system administrators, auditors, and potentially others. Each of these categories may also have subsets of users. For example, people with particular needs driven by their specific abilities; people with varying levels of familiarity with technology; those with headquarters-related responsibilities and those in the field; groups with different degrees of access to resources (i.e., knowledge, information, time and money).

² <https://partnership-playbook.18f.gov/4-agile/>

- Once you have identified who your users are, establish the relevant demographics, background (about), technology familiarity levels, their context to the project, concerns or goals in the project, their related needs, and any identifiable drivers or blockers for the project.
- Secondly, establish your constraints. What users are you allowed to talk to? How do you reach users if you cannot access them? By knowing and understanding your constraints, you can build creative methods of working around them.
- From here, think of a plan to best engage each user. This can be through targeted surveys, interviews, one on ones, academic research, focus groups, or any combination of the above. Note that in the context of the project some will be more applicable than others, and there will be constraints that limit which can be utilized.

Principle 2 - Mobile strategy should focus on the agency's digital big picture

By: Jacob Parcell, GSA

Building an application or a web site is not the only requirement for effectively managing customer experience. Consider the problem you are trying to solve and how it relates to the organization's Digital Strategy.

Mobile customer experience approaches have a tendency to focus on one app or mobile website and the user experience of that app. Sometimes, organizations venture away from their digital strategy and focus on functionality of a particular app, which can sometimes set the organization's mobile strategy. Other organizations have a popular product or section of a site and immediately set out to build a mobile application to feature this product/service without thinking about where the application fits in with the larger organizational strategy.

While it's vital to focus on the user experience of a single app, customer experience should always tie into the agency's larger digital strategy, with mobile approaches falling in line with organizational mission and outcomes. Mobile products should be a microcosm of a government organization's digital strategy, and should align with the mission and match desired outcomes of leadership. Mobile projects that are aligned well to the larger strategy generally bring legitimacy to their project and have an easier time gaining resources. In government, mobile program managers should strive to align with the larger digital strategy of the organization. In the team's experience, the digital office can exist numerous places in a government organization and the mobile program leads should work to identify where digital strategy decisions are made.

This principle in practice:

- Journey mapping: As defined by 18F³. Journey mapping is a visualization of the major interactions shaping a user's experience of a product or service. Embedding the tenants of the organization's digital goals, mission and outcomes in a journey mapping exercise that considers the complete customer experience, is a good way to identify mobile moments--areas where customers' may leverage mobile or other technology that can create a great customer experience. A well designed journey map should also help mobile program manager's articulate a clear view and approach to mobile that will help bring legitimacy to the approach.
- Goal setting: When designing your mobile moments⁴, clearly defined goals will help your mobile strategy align to the larger digital big picture. Consider the following: What are the goals of the specific mobile product/service? How do they fit into the overall organizational goals? The specific project goals? The team goals? Where applicable, program managers should ask these questions of both sub-agency and headquarters agency priorities.
- Stakeholder engagement: *How soon and when should users and decision makers be involved?* The best way to include these groups in building a mobile experience is to include them as soon as the decision is made to focus on mobile experience. The earlier you can involve users from all levels of the food chain, the better. Early and constant customer engagement is one of the tenants of AGILE methods and inclusive design. This could be before the business owner even decides what type of mobile experience to create (ex. an app or a website). However, if the idea has been generated, funds delegated, and dates set, you still can involve your users! If you're struggling to think of ensuring all users are included, try and brainstorm everyone who might use the service. Will you have an admin? Are there different profiles of users?
- Feedback loops can be small: A number of government organizations have limited resources, leading them to potentially de-prioritize customer experience. While it may be challenging to allocate the time up front, the purpose of early planning and designing is to focus on the core of the project, narrowing down to the essential. Feedback, iterations, and exploration are vital to a successful end-user experience and this process is simplest in execution early on in the process. You just have to keep in mind: The ultimate goal is to design a product your users love. If that product is designed in a corner office without any feedback, important perspectives might be missed. And when the user gets the product, no matter how much time, care, and effort might have been put into the design, it may not meet the needs of your user.

³ <https://methods.18f.gov/decide/journey-mapping/>

⁴ <https://www.digitalgov.gov/2015/06/01/finding-the-best-mobile-moment-is-the-first-stepping-stone-to-anytime-anywhere-government/>

Principle 3- Effective user experience requires honest engagement

By: Daniel Neal, Kajeet, and Kristia Hayes, DoT

You may think you know what your users want, but they probably know better. Human-centered design approaches are more successful than those that focus mainly on the technology.

Agencies serve a variety of stakeholders. Engage them in creative and innovative ways to ensure a focus on user experience. Developing holistic solutions and inclusive design to organizational and/or service problems using mobile technology (devices, wireless networks, applications, and platforms) is best achieved by first stepping into the shoes of those for whom you are solving the problem.

Think about your user base. Engage these different types of users in conversation. Ask and listen. Take notes. Build a picture you can share for feedback. Investing a modest amount of time in this activity will likely make the difference between the failure and success of your mobile solution. This will be how you approach persona research gathering.

Think of the goals of your project. Beyond having a clear picture of all the human actors in the system, have a view as to how you are seeking to change the behavior of these different types of users. This essential first step will better enable one to predict whether your mobile solution will simplify life for those affected or whether it will create new 'points of friction' or unintended outcomes.

By spending a modest amount of effort describing in writing the categories of users affected by your envisioned solution, their expected behavioral changes - or changes in their experience and consumption of the services you are providing - one will have a strong foundation on which to construct one's technology architecture.

This principle in practice:

Fostering an environment of trust between you and the customer is essential to effectively managing the customer experience. Often people look to avoid stress or pain where necessary. Therefore, you want your environment to promote positivity and collaboration. If a customer has expressed concerns in the past and the issue(s) was/were not resolved to their expectations, it might influence your interactions moving forward. Below we have outlined a few ways to navigate the often-murky path of customer engagement, which can significantly influence customer experience.

- Engage! Engage! Engage! - Do so early and often. When determining stakeholders, define their preferred methods of communication and adhere to those guidelines.
- Be upfront and honest – if you are experiencing issues with a particular application or having

There is a fine art in gaining your users' trust and making them a collaborator

problems implementing a new policy, say so. Most people respect honesty and openness when working toward a common goal. Oftentimes customers are as invested in the outcome as you and want/need the product/service to work well as much, if not, more.

- Be proactive – Don't wait and engage your customer at the last minute if there is a problem. Make it a practice of informing customers of what's in the pipeline. Do periodic checkups regardless of issues. Plan bi-annual or quarterly check-ins; by doing this, you'll establish a rapport.
- Create safe spaces – It can be stressful to have a customer that expresses displeasure in every upgrade or rollout. Instead of viewing this person as a problem, seek to add this user to your test-bed. Other customers may be having the same problem, but for whatever reason won't disclose. By giving a disgruntled user a constructive format for airing their grievances you'll have added a team-member that might become a successful change agent for whatever new plans you might have.
- Acknowledge – Acknowledge customer contributions. This can be done by email or through a certificate. Be it an end-user tester or a customer that recommends application changes that are later implemented; make sure it's recognized. By doing this, you let your user's know that you are not only listening to them, but that their feedback matters and it's changing their work experience for the better.
- Get personal – Never underestimate what the sound of a human voice on the end of the phone or eye-to-eye contact in a forum can do for your customer base. Though surveys, data calls and emails are helpful, they can't replace human interaction. A customer may be willing to disclose things in a one-on-one conversation that they may feel uncomfortable expressing through written communication.

Have the fresh eyes of a valued colleague who is independent of your project read what you've written about your proposed mobile solution. Ask them to especially hone in on your perceived positive effects (opportunities) and the impact on the lives of the various users as you've pictured them. Are these based in reality or idealistic? Use this feedback as you enter the *process* of developing, engineering, building and operating the mobile solution envisioned to better-serve stakeholders.

Finally, make sure to keep the feedback loop open. By providing structure to feedback mechanisms, you can ensure there is a good way to collect responses that you can later analyze to determine what users like/don't like. You can do this by providing your users with a mechanism or point of contact to provide additional feedback to after initial interviews have taken place.

Principle 4- Think outside of the technology box

By: Reena Vij, IBM

Don't let technology barriers confine your thinking. Start with your user's needs, and then consider technologies to support it.

The majority of users spend 50% of their time⁵ using five native apps, so it's challenging to find a native app that will engage users. In fact, they may never download or use an app from your organization. There could be a variety of reasons--lack of interest in apps, lack of space on their phone, or even previous bad experiences with native apps. Depending on your user's habits, it may make sense to build an API or a microsite for a popular app or organization to consume (i.e. build a partnership with X org to build a microsite). Mobile customer experiences are even advancing from the traditional smartphone and now include spoken word products like Alexa and Watson. Government communities are looking at building tools for these assistants which will require smart API's.

77% of users never use an app again 72 hours after downloading it

Over 50% of the C-suite is being challenged to make progress in digital business. Mobile program managers must think innovatively so users will want to adopt their tool, versus being forced to use it as part of the job role. Challenge the team to think not from the perspective of limitations of legacy systems, but from the functional job role of the work that needs to be performed. For example, rather than logging into five different silo systems to enter required data, a field employee might be able to access a single interface that can also guide the employee through the different activities that need to be done. Maybe the tool could even provide analytics or guidance on the next best actions.

Design thinking⁶ is one of best tools to help think outside the box. Understanding the customer experience by developing a customer journey map will help prioritize needs, determine what is achievable and evaluate what can be accomplished with the funding available to provide the best solution.

While this concept seems simple, it is a real shift from the way agencies have historically been doing business. It can be much easier to continue to invest in existing systems and focus on extending the life to meet the business need. There is a shift now to thinking from the perspective of the user and developing tools to support the users based on how the work gets done. The efficiencies through this process have been recognized by several agencies.

⁵ See ComScore 2017 U.S. Mobile App Report <http://www.comscore.com/Insights/Presentations-and-Whitepapers/2017/The-2017-US-Mobile-App-Report?>

⁶ <https://methods.18f.gov/>

Principle 5 - Think of mobility as consumers in motion

By: JC Byrne, Perfecto Mobile

Since users are on the go, you need to ensure a consistent experience across platforms, devices, geographic areas, by leveraging industry standards.

People use mobile devices on the go, so it's important to put yourself in the shoes of the modern user. Journey mapping and user interviews may not catch modern mobile habits—i.e. what your customers are using and how they are using it. How people use their phone is different from how they use traditional desktop computers. For example, people often prefer to swipe or use voice commands on their phone, which they generally can't do on desktops. If you design an app with a lot of typing, it will fail. To achieve excellent customer experience, tap into users' pre-existing habits to design the best experience for your users.

This principle in practice:

If you do decide an app or mobile website is the best approach to mobile for your organization, you should strive to have the same experience across all devices and platforms. Customer experience on mobile and web applications aren't just about good visual design and UI (layout); there are many other factors to take into account:

- How does your application run in different devices and device types? There are a large diversity of devices and operating systems. The fact is applications perform differently on:
 - Devices type: iPhone, Android, iPad, Surface Pro, etc.
 - Device version: i5, i6, i7, etc.
 - Operating System: iOS 10.2, iOS 10.3, iOS 11, etc.
 - Browser type: Internet Explorer, Firefox, Chrome, etc.
 - Network: AT&T, Sprint, Verizon, and so on.
- Beyond that, other real-world experiences need to be factored. Consider how does your application run with:
 - High/Low Wi-Fi bandwidth?
 - High/Low Battery Power?
 - Application collision... how does your app work with others running in the background?

Test coverage: One way to ensure a consistent user experience across the board is increasing the amount of test coverage. The ability to test on more end user personas that are equivalent, or near your consumer base, the less risk you take in regard to providing a great user experience.

User testing: Another way to ensure a good user experience is to test your app against how your users will rely on it. During your journey mapping, you may have discovered one of your

users is always on the go while a different user sits at his or her desk most of the day. By considering each of your users' unique habits and comparing these habits to what the app offers and adjusting accordingly, you can better ensure a great experience for all users.

Compatibility Testing⁷: Compatibility testing focuses on determining if the hardware and software display will allow the application to function properly. Mobile compatibility testing is checking or validating that your application behaves as expected across the combination of mobile devices and browsers that your customers will be using to access your application.

In the end, you need to determine what amount of “risk” you’re willing to take by the amount of coverage you take on and how you plan for the varied mobile landscape.

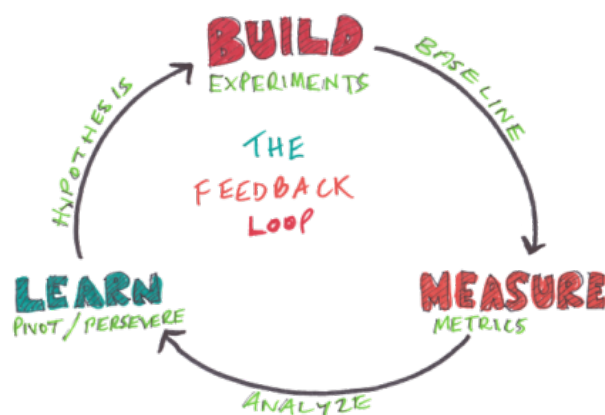
Principle 6 - Good mobile experience changes in real time

By: Brian Lacey and Joshua Lilly, Mobomo

Mobile analytics is a daily or hourly pursuit, not a monthly spreadsheet.

Since user experience is vital to the success of a Web/mobile system, it is critical to establish feedback loops to inform potential changes. There are multiple methods for effective feedback loops, both involved and automated, with users regarding their experience.

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Although user experience is somewhat subjective on the whole, metrics and analytics are one method that can provide objective feedback and insight into user experience effectiveness trends. Analytics have traditionally been most utilized for marketing purposes, informing strategy, implementations, and trends. However, more and more user-experience implementations are relying on this quantitative data source to aid in project research and design. Modern

system analytics are key to tracking the user experience and should be reviewed daily when available. Utilizing the data effectively and efficiently through a well-designed system can successfully change a user's experience (in some cases real-time) for the better.

⁷ <https://www.digitalgov.gov/2015/08/14/what-is-mobile-device-compatibility-testing/>

⁸ <https://365andrewssketches.files.wordpress.com/2013/01/bml-loop-2-1.png>

This principle in practice:

In order to analyze metrics and data effectively, success objectives must first be established. How do you define success? To begin, here are some example goals for establishing a project's user experience success:

1. 100 new registered users per month
2. 70% average user retention rate per month
3. Mobile experience consistent across all supported mobile devices

These are high-level objectives that are established and agreed upon by the project's organizational stakeholders as measures of success.

Initially, one effective strategy to measure success of a project's designed user experience is to select a few key metrics and focus on them over time. One of the most prominent issues with analytics is that without proper direction, they can become a distraction or data without any context or actionable interpretation. Mobile analytics is data, only becoming valuable information when utilized in some way that furthers an agency's goals. The question then comes down to: What set(s) of analytics data is relevant to the project context? Why is the project gathering and tracking metrics to begin with? These are perfectly understandable questions and key to establishing an effective user experience feedback loop with any project.

With established success measures, here are some example categorizations of relevant user experience analytics implementations:

- **Notifications** of blockers to the system's essential flows.
- **Identification** of root causes to blockers.

Notifiers provide continuously monitored information hourly, daily, or weekly. The analytics can be used to define specific issues or provide supporting information as insight to guide further investigations. Examples of potential notification analytics:

- Unique page views over a defined period of time
- Average time on page per session
- User actions (defined and tracked, - user clicks on a button, download of a PDF, filling out a form, etc.)

Identifiers are analytics implemented and used in conjunction with investigations of issues. These fall under several categories, listed here, but not limited to: traffic issues, technical issues, content related issues, navigation issues, and UI design issues. Here are some examples, with their equivalent Google Analytics (GA) implementations as a starting point:

- **Traffic:** to determine if there is one traffic source that is responsible for any changes in page views.
 - GA: *Pages* - Unique Resource Indicator with Source as secondary dimension

- **Technical:** determine if there are any UI elements that are broken or non-functional
 - GA: *Event Pages* - tracking of the pages with defined User actions (see above)
- **Content:** determine if taxonomies or other media is confusing users
 - GA: In-Page Analytics - percentages for links clicked by users
- **Navigation:** determine if specific buttons or menus are not being utilized correctly
 - GA: *Pages* - Unique Resource Indicator with Navigation Summary as secondary dimension
- **UI Design:** fonts, UI elements, buttons, view layout, or other media is confusing intended user-flows
 - GA: In-Page Analytics - percentages for links, or heat maps, clicked by users
- **What they're saying:** Don't forget that user comments and feedback can also tell you how users feel about your work
 - GA: Comments on app review pages, emails to help desk, etc.
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Once a targeted core set of analytics has been implemented and monitored, a basic feedback loop will have been established. These analytics and data can then be utilized by the project team to evaluate opportunities to improve user experience. Does the experience need to change? How should it change? Does the information available warrant additional user testing? Specifically, does it call for A/B testing?

Conclusion

In summation, customer experience is one of the most important considerations when addressing mobility. This playbook set out to give program managers and their leaders some tips on how to make sure organizations can serve their mobile audiences more effectively. Customer experience should always tie into the agency's larger digital strategy, with mobile approaches falling in line with organizational mission and outcomes. When creating mobile moments, ensure they align with larger organization goals. Remember that users can feel a personal connection to their device and they can be finicky about the apps they download and the public websites they visit, so their input is integral to a successful deployment. By defining and speaking to a large range of users, creators of mobile moments can better increase adoption by understanding users' needs.

Furthermore, the ease and frequency of use of the mobile device in our personal lives is a much easier and richer experience than the restricted use in our business environment. This generates higher expectations of our users. If a business mobile app can give us the similar ease of use experience, it will have a huge impact on adoption rate and a reduction in transition time. A small amount of investment upfront in considering the behavior of the user can save agencies a lot of money and result in the avoidance of failed implementations and hours of re-work.

To start adopting customer experience best practices, work with people who are passionate about learning from their users and make sure you work across traditional boundaries. Discuss best practices provided in this document and how they might apply in your organization. Mobile technology is ever-changing so be sure to check out the latest user trends. We realize that each organization's mobile journey will have twists and turns. We consider this is a living document so if you pick up something new from one of these approaches, let us know and we'll add it.

We wish you and your team much luck in your mobile journey!

Glossary of Terms

Term	Definition
Application (App)	A software program that's designed to perform a specific function directly for the user or, in some cases, for another application program. Includes, but is not limited to: Web browsers, e-mail programs, word processors, games, utilities, etc. The word "application" is used because each program has a specific application for the user.
ATARC	Advanced Technology Academic Research Center (ATARC) is a 501(c)(3) non-profit organization that provides a collaborative forum for Federal government, academia and industry to resolve emerging technology challenges
Customer Experience/Xperience	The sum total of a stakeholder's feelings towards their mobile experience from end-to-end. This includes but is not limited to dispositions toward application development, mobile device usability/suitability, implementable standards, etc
Customer Relationship Management (CRM)	A term that refers to practices, strategies and technologies that companies use to manage and analyze customer interactions and data throughout the customer lifecycle, with the goal of improving business relationships with customers, assisting in customer retention and driving sales growth.
Decision Maker	A person who decides things, especially at a high level in an organization. Decision makers are also considered "stakeholders."
Feedback Loops	A process where a provider seeks information from their customers and that information is then used to impact the performance of the provider.
ITIL	Information Technology Infrastructure Library is a set of practices for IT service management (ITSM) that focuses on aligning IT services with the needs of business.
Journey mapping	A visualization of the major interactions shaping a user's experience of a product or service. A customer journey may contain several diagrams that depict the stages that customers go through in interacting with a company, from buying products online to accessing customer services on the phone to airing grievances on social media.
Mobile	Generally refers to a hand held device that provides a connection to the Internet for web browsing and email and/ or allows for voice calls. Tablets, e-readers and smartphones are all mobile devices.

MSCT	Mobile Services Category Team (MSCT) works to support an agile and evolving federal workforce that seeks to meet their missions, and do their work, securely anywhere, anytime, and on any device in order to serve U.S. Citizens
Platforms	Any hardware or software used to host an application or service. An application platform, for example, consists of hardware, an operating system and coordinating programs that use the instruction set for a particular processor or microprocessor.
PMBOK	Project Management Body of Knowledge (PMBOK Guide) is a book which presents a set of standard terminology and guidelines (a body of knowledge) for project management.
PMI	The Project Management Institute is a US nonprofit professional organization for project management. The PMI provides services including the development of standards, research, education, publication, networking-opportunities in local chapters, hosting conferences and training seminars, and providing accreditation in project management.
Stakeholder	An individual, group, or organization, who may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of a project.
Testing	Software testing is an investigation conducted to provide stakeholders with information about the quality of the product or service under test. Software testing can also provide an objective, independent view of the software to allow the business to appreciate and understand the risks of software implementation.
User Interface (UI)	Visual part of computer application or operating system through which a user interacts with a computer or software. It determines how commands are given to the computer or the program and how information is displayed on the screen.
Users	The persons operating or using a mobile device or application to accomplish a goal.

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