GOING MOBILE

Considerations for Federal Mobile Application Development
Part 1 of 3: Business

November 2013

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Introduction

In a world where business is no longer limited to the office and government decision-making transcends congressional walls, the need to communicate, collaborate, and accomplish tasks from "anywhere, anytime, on any device" is steadily rising. With the 2012 release of the Digital Government Strategy under Executive Order 13571 (Streamlining Service Delivery and Improving Customer Service), the federal government has made it clear that keeping pace with mobile technological advancements is not only a priority, but also a critical element to the success of government initiatives. People are now accustomed to using mobile technology to simplify their daily lives. To give employees and citizens better access to the government activities most relevant to them, the federal government must adopt mobile technology. When deciding to go mobile, government decision makers should be equipped with answers to key questions:

- Does a mobile solution make sense for my business case?

- What costs and returns on investments (ROI) will I get from my mobile solution?

- How do I approach Governance, Risks, and Compliance (GRC)?

This white paper will identify business cases within the federal sector best suited for mobility solutions, review ROI and budget considerations, and guide the development of a GRC framework for government IT decision makers.

Business Cases for Mobile Solutions in the Federal Sector

The federal government understands the growing influence of mobile technology on the lives of citizens and how it both fuels innovation and maximizes productivity. With mobile web adoption growing 8 times faster than web adoption grew in the 1990's and 2000's, and over 1.2 billion people accessing the web through mobile devices, government agencies must offer a mobile means to access information.

Advancements in mobility have opened up innovative channels through which government agencies can serve citizens in more efficient ways. As a result of the explosive demand for increasingly complex mobile technologies, agencies struggle to determine when going mobile makes sense. The best business cases for mobile application development in the federal sector fall into three distinct categories:

- The workforce is distributed.
- Accelerated and simplified decision-making is required.
- Common information must be disseminated to a desired audience.

Business Case Category 1: The Distributed Workforce

A distributed workforce is geographically disbursed and is not constrained by a physical office location. Within the government, this distributed workforce

> **With mobile web adoption growing 8X faster than web adoption grew in the 1990's and 2000's and over 1.2 billion people accessing the web through mobile devices, government agencies require a mobile strategy to keep pace with the way people get information.**

could include personnel who travel, telework, or perform field work (e.g. census workers, field agents, federal law enforcement professionals, and food inspectors). An Office of Personnel Management (OPM) survey of over 250,000 federal workers highlights that 22% of the federal workforce are currently teleworking. The distributed workforce builds a strong business case for mobile application development in the federal sector because employees require anywhere access to relevant agency resources, data, software, and email. A study by Brocade shows that 81% of federal employees surveyed connect to work remotely at least once a week, 45% connect to work several times a day, and that federal workers gain an average of seven hours of additional productivity per week

by having seamless connectivity and mobile access to their agency. Agencies that realize the benefits of a mobile federal workforce, and provide technologies that support it, will create more productive employees, reduced absenteeism, consolidated workspace, increased flexibility, greater retention, and higher worker morale.

Business Case Category 2: Faster and Simpler Decision-Making

Anywhere, anytime access through a mobile application means that those business cases that require some action or decision on the part of the user can happen faster, with no physical constraints, resulting in increased workflow efficiencies. Consider a scenario where a citizen takes a picture of a pothole on a busy roadway using a smartphone and sends it with location information to the responsible agency. The agency decision-maker can receive the information in real-time through a mobile device, access revelant regulations and budget information, and make an immediate decision to dispatch maintenance crews. The application would be built with appropriate business rules and role-based permissions to authenticate the decision-maker and ensure access to the information relevant to the decision. Providing mobile workflow management capabilities provides easy, on-the-go access to actionable items.

Business Case Category 3: Easy Information Dissemination

Government agencies that need to disburse information to employees and constituents have a strong business case for mobility.

> Gartner, Inc. reports that local and regional government agencies reveal mobile technologies as their top spending priority for 2013, while interest continues to grow in professional services and big data.

The Federal Emergency Management Agency (FEMA) and the National Telecommunications and Information Administration (NTIA) are engaged in initiatives that take advantage of mobility to deliver essential services in response to crisis and disasters. Government information dissemination is not limited to urgent communications, but can include any necessary transfer of mass information to groups. Opportunities to create valuable mobile applications for information dissemination are present in almost every government agency. For example, open government websites like Data.gov and ITDashboard can provide citizens with greater access to government activities through mobile applications.

Returns on Investments (ROI)

Mobile applications improve accessibility to information and offer both productivity gains and cost savings. Essentially, the ROI for a mobile application can be measured using an easy formula:

$$\frac{\left(\text{Gain from Investment} - \text{Cost of Investment}\right)}{\text{Cost of Investment}} = \text{ROI}$$

Gains and costs for government decision-makers vary across three domains: **financial, social, and political.**

Financial ROI

The financial benefits the government reaps from a well-designed mobile application can pay for the cost of its development and operations and introduce new ways of saving money. By making relevant information more accessible to users, mobile applications can contribute to business process efficiency. For example, action requests could be viewed and fulfilled anywhere, resulting in reduced transaction costs through productivity gains and process efficiency. In addition, citizens and government workers can access information conveniently with less training and/or access to a help desk. As more users are able to perform actions on their own, less investment is necessary for helpdesk staff, training, and infrastructure.

Social ROI

Government ROI must be measured in terms of more than financial gains. Investments that prove to better serve citizens must also be factored in ROI calculations. For example, the ability to access emergency information, report service outages, or request benefits using a handheld device bears a signficant impact on citizens' quality of life and thus becomes a significant ROI factor for government.

Political ROI

Public investments must align to political policies and support the ability for government programs to reach intended audiences. For example, the Open Government Initiative requires government activities to be open and available to citizens. Mobile applications support Open Government by making information available in formats and devices that increase ease of use. As a result, less Freedom of Information Act (FOIA) inquiry is necessary, releasing scarce government resources for mission-critical activities.

Budget Considerations

Every day government decision-makers must determine how to maximize their budgets and make investments that bring cascading benefits to employees and constituents. Determining how much a mobile app will cost depends on the complexity of its interface, integration requirements, and development labor. Pricing a mobile app is impossible unless actual requirements are known. The following table helps agency leaders get on the right track.

Key Budget Considerations *can make mobile application development a financial success.*

Key Budget Considerations	Relevance to Decision-Makers
Apps vary by complexity	Costs will vary significantly for a simple app vs. an enterprise app. Agencies may have business processes that require special programming and legacy IT investments that make integration complex.
Remember all budget elements	The budget allocation should not only include the application development and integration with backend system, but also the continuous operations and maintenance of the application.
More supported platforms mean higher costs	Budgets depend on how many platforms need to be supported, and how many native apps need to be built for specific platforms. E.g. Apple, Microsoft, Android
Be highly selective of your mobile app development company	Government leaders must evaluate a company's end products and ensure a track record of staying on budget and on schedule. Schedule slippage is an often unexpected, but surefire way to drive costs up.
Prepare your user community	If the intended audience does not use the mobile app, costs to the agency are significant. Costs for user adoption initiatives and training must be built-in.

Governance, Risk, and Compliance (GRC) Framework

Mobile technology is a major opportunity for the government to efficiently deliver important information to constituents, but presents unique challenges. GRC is defined as: **Governance**, an oversight role, is the process by which organizations define and manage the mobility paradigm. **Risk Management** is the process by which an organization evaluates business and regulatory risks and controls and monitors mitigation actions from the mobility paradigm. **Compliance** ensures that an organization has the processes and internal controls to meet the requirements imposed by governmental bodies, regulators, industry mandates, or internal policies. Mobile applications must adhere to applicable government regulations, policies, and controls, while still providing business value. The government requires a broad, integrated mobile GRC framework that is integrated with the organizational GRC. The following table facilitates the development and implementation of a robust and scalable mobile GRC framework.

Key GRC Purposes and Considerations. *When developing a GRC framework, decision-makers must align considerations with the purpose of each domain.*

	Governance	Risk Management	Compliance
Purpose:	• Facilitate evaluation and prioritization of ideas • Define criteria for supporting platforms/operating systems and devices based on application types • Define the mobile Application Development Life Cycle and its deployment to the government app-store • Define the process for monitoring and responding to user feedback collected via the app store • Develop policies for data on personal or government-furnished mobile devices • Develop broader BYOD policies and guidance	• Protect against potential transfer of classified or sensitive information to unaccredited or unauthorized apps/devices (data spills) • Manage lost or stolen devices • Manage app upgrades and wiping old apps and their data • Combat mobile malware, software vulnerabilities, and advanced threats to your app • Prevent fraudulent apps and their access to device hardware (camera, location, sensitive data) • Protect against user errors that may result in broken processes or lost or leaked data	Ensures Compliance with: • Regulations that control the collection and dissemination of Personally Identifiable Information (PII) • Health Insurance Portability and Accountability Act (HIPPA) • Accessibility (Section 508) compliance is encouraged, even though it is not currently mandated and specs are not mobile friendly • Industry regulations like ISO or general laws, e.g. national and local law enforcement rules • Compliance to National Security Administration (NSA) sanitization and recovery guidance, in case of a data-spill
Key Considerations and Approaches:	• Incorporate your mobile GRC with your organizational GRC • Initially focus apps on government furnished equipment (GFE) and expand to personal devices • Make policy updates ensuring application monitoring does not infringe on user privacy • Clearly define policies on separation of personal and organizational data, types of data stored, and length of storage time • Agile development suits mobile development; short cycles and multiple iterations allow quick adaptation to business changes • Expect more built-in hardware features e.g. finger-print scanners to body temperature to voice commands in the future	• Ensure the business process is mobile app-friendly • Meshing third party services to business processes (e.g. Google maps) can introduce security issues or inadvertently leak information • Develop user interface (UI) specifically for mobile, not like a desktop application • Adhere to NIST Risk Management Framework • When developing off-line (or occasional connectivity) capabilities in an application, issue related to record concurrence, amount of record storage, and accidental loss of records, need to be resolved.	• Comply with HTML5 development standards case web/hybrid applications • Strictly control defense or national security related data or apps and deploy on GFEs with MDM • Define organizational standards for icons/action buttons and use them consistently across the departments to improve user compliance • Consider wireless network bandwidth consumption by certain types of application and resulting cost variations for budget compliance

GRC Recommendations

To successfully manage the mobile application within an enterprise, organizations must create policies and processes on the type of mobile applications required, the business process or collaboration aspect requiring mobilization, and access, permissions, and security. An effective GRC structure requires the collaboration between IT departments and the multiple affected business units including operations, legal, human resources, finance, accounting, and regulatory bodies. While governing rules and regulations and controls may introduce unexpected hurdles for decision makers, finding the right balance is key to the success of a government mobile app strategy. The following tips aid the development of a robust GRC framework:

Develop a simple mobile apps framework at the organization level. Your framework should include the following minimum steps: discover, review, build/procure, secure, deploy, and manage.

Consider adopting commercial mobile applications first. After validating security and compliance, the government can leverage the advanced technology offered by the commercial marketplace.

Develop suitable procurement/contract vehicles. Developing mobile applications for the government requires specialized skills and capabilities. Creating contract vehicles that allow vendors to compete for federal business in this specific domian will help achieve cost and process efficiency and enourage innovation. This vehicle can map to an agency wide centralized app store.

Containerize and categorize applications. Containerization and categorization helps protect sensitive enterprise data on Bring Your Own Device (BYOD) programs that integrate work/personal devices. Such cateogries could include:

- Functional
  - Foundational (email, chat, calendar)
  - Productivity (file sharing, reports)
  - Enterprise Connected (Travel, Expense)
  - Mission Specific (Case management)
- Technical
  - Commercial (from multiple app-stores)
  - Custom Built (from Scratch)
  - Hybrid apps (mash-up)

Build core competencies in mobile app security and integration. Mobile apps should have enterprise-grade security capabilities and organizations should employ best practices in mobile application

integration to avoid developing siloed applications and duplicate data.

Make security a priority. Third party tools can be used for integration and security on a periodic basis. Consultation with security experts is recommended. "What if" scenarios and clear risk mitigation and operating procedures can be developed for all identified risks, from lost equipment to data-spills.

Initiate government or agency-wide cloud storage services (storage as a service). Mobile apps can consume and produce a huge amount of data, and its security, ownership, and archival is critical. Aligning mobile app strategy to cloud strategy and hosting and managing apps on the cloud can alleviate storage concerns. Develop relationships with storage service vendors that are FedRamp/NIST certified to ensure security policy compliance.

Expand mobile awareness. Invest in educating and training employees to use apps in the government mobile space.

Summary

The task of developing mobile applications for the federal sector presents challenges that require decision-makers to make tough choices. While they must keep pace with the trajectory of mobile technological advances, they also bear the burden of integrating rigorous security and managing stringent compliance standards. As a result, federal decision makers must determine which business cases are "mobile-critical," how their development impacts their budgets and delivers value, and what steps to take when developing a GRC framework to keep mobile application development in check. This white paper scratches the surface of those concerns and arms federal IT decision-makers with the knowledge required when beginning the mobile IT journey. For more information on federal mobile strategy and mobile application development, please email the REI Solution Architecture Team (RSAT) at solutions@reisystems.com.

About the Authors

Mr. Shiva Bhat is a PMI certified Project Management Professional (PMP) with 18 years of experience in strategy and solution development, project management, enterprise analysis, software development, and systems integration. Mr. Bhat holds an M.B.A. in Finance and Management Information Systems from the University of Bangalore (India).

Mr. Jim Chundavalel is a program manager with over 18 years of experience architecting, developing, and implementing web based enterprise systems. He received his Bachelor of Engineering in Computer Engineering from R.V.S College of Engineering, Madurai Kamaraj University (India).

Dr. Shanthy Edward is a business development and content strategy expert with over 10 years of experience developing communications plans, organizational development strategies, training curricula, marketing materials, and proposals. Dr. Edward received her B.A. in English and Sociology from the University of Western Ontario (Canada), her M.A. and Psy.D. in Clinical Psychology from the Illinois School of Professional Psychology, and is ITIL v3 certified.

Mr. Amit Yadav is the chairman of REI's Solution Architecture Team (RSAT) and has over 15 years of experience in software development and data analytic solutions. He has led REI's delivery of innovative Drupal website services to support open government initiatives for the Office of Management and Budget (OMB), General Services Administration (GSA), and New York City. Mr. Yadav received his Bachelor of Science (B.S.) in Computer Science and Engineering from Institute of Engineering and Technology (India).

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REI is a leading provider of web-enabled business solutions for the Federal Government and the commercial sector. Drawing on our mission to deliver reliable, effective, and innovative solutions, the company works daily to solve complex homeland security, defense, health resources, criminal justice, and performance support issues. REI is strengthened by its commitment to exceeding customer expectations. REI has been serving government at all levels and major corporations since 1989. For more information, visit www.reisystems.com

About REI Solution Architecture Team (RSAT)

RSAT is a group of skilled technical and business professionals who focus on generating new technologies, developing innovative solution approaches, and proactively addressing unmet customer needs in relation to high-priority government IT challenges. Contact RSAT at solutions@reisystems.com

References

Arcaris, Christine and Rishi Sood. (2013, January 25th) User Survey Analysis: IT Spending Priorities in Government, Worldwide. *Gartner.* Retrieved October 2013, from http://www.gartner.com/id=2317416

Calloway, Mike. (N.D.) Mobile on the Rise [Infographic]. *Trinity Digital Marketing.* Retrieved October, 2013, from http://www.trinitydigitalmarketing.com/mobile-on-the-rise-infographic

Corrin, Amber. (2013, August 8th). The future of government mobility. *FCW The Business of Federal Technology.* Retrieved October 2013, from http://fcw.com/Articles/2013/08/08/future-of-government-mobility.aspx?Page=2

Sterling, Greg. (2008, November 25th). UK Mobile Web Growing "8x Faster" Than PC Internet. *Nielson*. Retrieved October 2013 from http://searchengineland.com/nielsen-uk-mobile-web-growing-8x-faster-than-pc-internet-15604

Author Unknown. (N.D.). Mobility could make each U.S. federal worker $14,000 more productive every year- study. *The African World.* Retrieved October, 2013, from http://www.theafricanworld.tv/2013/08/19/mobility-could-make-each-u-s-federal-worker-14000-more-productive-every-year-study/