In accordance with OMB Memo M-16-20 dated August 4, 2016 entitled "*Category Management Policy 16-3: Improving the Acquisition and Management of Common Information Technology: Mobile Devices and Services",* the Mobile Services Category Team (MSCT) has drafted the Mobile Services Roadmap, created to define the next generation strategy for government-wide mobile acquisition and deployment.

The MSCT is seeking written comment to the Mobile Services Roadmap draft on or before **October 28, 2016.**

The objective of the MSCT is to scope the terms and technologies associated with the mobile environment. To date the mobility category is segmented into four main components—Voice and Data service plans, Mobile Devices and Wireless Infrastructure, Managed Mobility, and Specialized Mobile Services. However, the future of mobility promises dynamic change and rapid innovation as many new services and capabilities come to market. The challenge is understanding how new and emerging services can best fit into as integrated, comprehensive model that reflects a modern mobility-oriented enterprise. Below is a list of sub-components we have captured so far:

- APIs/Data Tools/Big Data/Open Data
- Application Vetting & Application Security
- BYOD/Virtualized Mobile Security
- Connected Endpoints
- IOT/Devices/Sensors
- Mobile Device & Application Management
- TEMS/Lifecycle Management/Mobile Brokerage
- Mobile Back-end-as-a-Service (MBaaS)
- PIV/CAC/Derived Credentials
- Emerging Technology

In addition to general comments, the MSCT is seeking specific feedback on the following topics:

1. Additional mobility sub-components: What sub-components of mobility, if any, are not included in the above list that are important to the strategic mobility roadmap and should be addressed in FY17?
2. Prioritization of mobility sub-components: How should the sub-components be prioritized for development and inclusion in the strategic roadmap? Please provide ranking and rationale for prioritization along with any additional comments.
3. Capability validation: What types of sample tasks or demonstrated projects are recommended to validate capabilities?

Dates: Submit written comments only on or before October 28, 2016.

Address: Comments may be mailed to wireless@gsa.gov.

MOBILE SERVICES CATEGORY TEAM (MSCT)

Mobile Services Roadmap
(MSCT Strategic Approach)

23 September 2016

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Purpose

The purpose of this document is to define the next generation strategy of government-wide mobile acquisition. This includes discussion of a strategy for increasing the efficiency of mobility acquisitions and management in the near future (3-5 years). This strategy document includes the guiding principles, notional milestones, and elements for future mobility acquisitions within the federal government as laid out in the OMB memo *Improving the Acquisition and Management of Common Information Technology: Mobile Devices and Services*.

This document represents a collaborative effort across the MSCT and is guided by the collective needs, concerns and interests of the cross-government Mobility Services Category Team.

Executive Summary

Our major operating principle is straightforward: *"**Standardization, Simplification, and Savings**"* When the government standardizes their requirements to the maximum extent practical, and when acquisition vehicle providers continue to simplify the ability to procure existing and emerging solutions, savings are created for federal agencies across government. These include solution costs and transaction costs.

Through these guiding principles we will fulfill the following goals, which are clear and consistent with Category Management principles:

A. Maximizing Business Volume
B. Receive and Manage Data
C. Advocating for a Strategically Sourced Approach
D. Providing Transparency
E. Government-wide Collaboration and Execution

Concerning data, one of the challenges the MSCT recognizes concerns available data, which is a primary tenant of Category Management. There is a recognized value in standardizing, securing, and sharing data across agencies as a way to properly manage a category. By sharing data, we strengthen our ability to make intelligent and informed decisions, and the MSCT proposes both a structure and a mechanism to facilitate data-share in a simple and streamlined way.

These goals will be addressed by:

1) Creation of a government-wide acquisition approach for carrier services. This approach will quantify the best practices allowing agencies to contain the costs associated with carrier services and transactions through sound sourcing practices.

2) Creating a data repository accessible by federal agency mobility personnel who are mobile leads and representatives of the MSCT.
3) Standardizing the way agencies collect data is and share information.
4) Addressing sub-components of mobility by defining the space, creating technical requirements, identification of potential sources capable of addressing these subcomponents, and identifying the available existing procurement pathways by which to procure these products or services, either directly or through partnerships.

By doing what is proposed we will be saving agencies time and money, contain costs associated with products and services, reduce the transaction costs associated with procuring mobile solutions, serve as proper stewards for the American taxpayers, and fulfill the spirit and objectives of Category Management in an achievable way that continues to facilitate the adoption of mobile solutions across government. This strategy also lays the foundation for agencies to begin outline their total cost of ownership for mobility in a more comprehensive way, ensuring that a total mobile environment improves agency enterprise and mission outcomes and enables CIO offices adherence to FITARA.

Introduction

The Mobile Services Category Team (MSCT) was established by charter in April 2016 by Anne Rung (Administrator of OFPP) and Tony Scott (USCIO) and charged with developing and implementing a government-wide strategic plan to increase efficiency and savings associated with the purchasing and management of mobile services in the government. Led by the Department of Defense, Department of Homeland Security, Department of State, General Services Administration, and the OMB IT Category Manager, the activities of the MSCT to date have been performing due diligence with both defining and scoping mobility in government, and has done so in collaboration with agencies and industry. The result of these early activities comprise this document as we provide a Notional Roadmap for Mobile Services.

This roadmap includes activities required as a result of the release of the Mobile Services Memo (M-16-20), however the content is not limited in scope to that memo. Although the memo's focus is primarily on wireless carrier services, the scope of mobility extends to security, management, and integration solutions. The purpose of this Notional Roadmap is to provide a strategy for government to continue to increase adoption of mobile technologies and solutions while driving down the associated costs (price, management, transactional) for the government at large.

This roadmap then becomes the playbook for the federal government to develop those tools and solutions that will conform with Category Management as an initiative, but more importantly to guide agencies in the acquisition and management of mobile devices and services. Mobile has yet to be defined in any agreed upon way that identifies the various components that constitute this continually emerging trend in government, and this document and the efforts of the MSCT clearly define that space while allowing for its continued evolution.

The ability to develop requirements, procure solutions, and constrain costs are essential for agency CIOs and Contracting Offices.

Our overarching theme, and guiding principle involves three components: Standardization, Simplification, and Savings. We believe that when the government standardizes their requirements to the maximum extent practical, and when acquisition vehicle providers continue to simplify the ability to procure existing and emerging solutions, savings are created for federal agencies across government. Standardization forces competition to be focused on quality and price because the technical requirements are equal, thereby reducing maintenance costs. Standardization also accelerates product maturation where price compression typically occurs. Through continued simplification, government-wide acquisition vehicles can facilitate the more rapid acquisition of products and services.

This combination drives down associated costs for agencies, creating savings. This has been proven out by the FSSI Wireless BPAs and other such vehicles that introduced pooling, simplified associated CLIN structures, and provided the flexibility needed for agencies to leverage while ultimately reducing their transaction and maintenance costs.

The mobile technology in this roadmap includes existing technology as well as emerging solutions. Some of this technology is commoditizable while some is more niche and specific to an agency's conditions. A one-size-fits-all approach may not be tenable for the entire scope of mobility, and a single acquisition vehicle or approach will depend on this commodity-niche dynamic. We believe that the existing vehicles in government can satisfy both the commodity and niche needs of government, and the MSCT role centers on the concept that standardization and simplification creates savings.

Background/Overview

Prior to 2010, mobility in the federal government was fairly simple and straightforward. Mobile devices primarily consisted of basic cell phones. Cell phone usage was subject to tight controls in that few people required a device in order to efficiently and effectively perform their job. Most were deployed for either emergency personnel or senior executives. Most devices were bought on a fragmented basis, and plans were widely varied based on anticipated needs. When RIM (Blackberry) developed and deployed a new device that integrated basic data capabilities, agencies were able to issue devices that did more than just make phone calls.

Digital data transport emerged and allowed for an expansion of device capabilities. As Blackberry use increased, agencies implemented controls to manage this new platform allowing for voice calls in addition to integrated remote access to calendars and email. This meant more devices were issued allowing employees to respond anytime and anywhere. Blackberry became the defacto business tool for mobile government, however their predominance in the federal marketplace was challenged by emerging technology. With the emergence of smartphones (iOS and Android OS - 2010) and the rapid rate of commercial adoption, there

soon began a call for these devices to be deployed more broadly.

Since the introduction of flip-phones and Blackberry devices in the federal workplace, Federal IT and Telecom Managers have struggled to keep their organizations up-to-speed with the fast-paced and dynamic mobility market. Compared to landline-based telecommunications where core infrastructure can remain unchanged for decades, the product life-cycle for mobility products and services averages 2-3 years or less. For example, the average mobile device market lifecycle is between 9-11 months. This makes quantifying continuously emerging technology a challenge, and requires flexibility in vehicles and approaches.

Government-wide, the proliferation of products and plans (without guiding policy) led to fragmented and decentralized procurements, and ultimately higher prices across the board. Typically, each agency component or bureau managed a separate budget and adopted a "set it and forget-it" policy similar to their landline infrastructure investment. Agencies did not track their inventory, pricing or costs, and could not effectively manage their mobile programs. Primarily concerned with overage charges, many agencies ordered unlimited plans writ large. By 2012, agencies were spending on average $55.70 per device per month on wireless service plans and devices and had at least 3-4X more capacity than they required. With continued calls for more diverse devices (by users) agencies required new ways to monitor and control the devices for security purposes, as well as integrate the devices into their back-end infrastructure. These emerging conditions were addressed with the Digital Government Strategy (DGS) when it was published in 2012.

Sensing that Government was lagging in the digital/mobile era, in 2012, the White House announced the *Digital Government Strategy*. The Digital Government Strategy required a number of activities associated with the deployment of mobile in government. From the enterprise mobility perspective, the DGS called for GSA to establish the FSSI Wireless BPAs as a way for government to standardize plans, for agencies to gain better controls over their inventory, to institute commercial best practices such as pooling aimed at reducing overbuying and to drive down prices / costs. This vehicle has been effective in simplifying and standardizing carrier offerings resulting in savings. Prices for carrier services have dropped at a contract line item number (CLIN) level, and agencies who used or replicated the FSSI BPAs were able to receive this benefit. The average monthly recurring charge for carrier services dropped from an estimated average of $57 per month per device down to $38. Some agencies were able to successfully consolidate their fragmented buying and funding structure to successfully leverage pooling, and others used it as a way to first consolidate their spend under a single vehicle.

Another DGS component dealt with development of security standards for tools now required to help ensure the integrity of the operating systems and control for applications. This involved the introduction of new technology into the federal marketplace, and the Mobile Technology Tiger Team lead the development of a security baseline by which mobile device and application management solutions could be judged considering federal security standards. Simultaneously GSA was responsible for developing a platform by which MDM could be procured.

At the time, it was assumed that a new acquisition vehicle would be developed for this emerging technology, however the conditions in both the Federal and commercial marketplaces made the development untenable. At the time there were over 130 solutions that claimed to be device managers, no provider had more than 8% market share, and thus the government's placement of procurement chips in a subset of the market introduced more risk than benefit. Further, agencies were fearful of limiting their options, essentially "picking winners" for evolving technologies.

To address these conditions a standards-based approach was developed that:

1) Defined the space so that people were speaking from the same basis of reference and standardized verbiage;
2) Defined the technical specifications (co-developed with the same team responsible for the security baseline);
3) Engaged industry (inviting them to have their solutions assessed);
4) Identified potential sources that met the government defined requirements; and
5) Mapped the ability to procure these resources through existing government-wide vehicles.

Since that time the mobile device and application management space has matured with large companies quickly acquiring emerging solutions while innovation solutions continue to be developed with new functionality based on the available features in operating systems. Security features in mobile operating systems provided more "hooks" to allow for greater monitoring and control over device features, and the associated prices have dropped precipitously (from the $9-$12 range/license to the $2-$4 range). Creating a static vehicle would have inhibited this evolution, and a fluid approach proved correct approach to take with non-commoditized emerging technology.

Non-standard definitions to mobility, niche requirements that vary across agencies, and non-commoditized emerging technology are indicative of the mobile sector today. It is commonly thought that the definition to mobility is "any device, anywhere, any time." This, however, is an overly simplistic definition when operationalized. The mobile services environment is more than devices and carrier services. It includes other aspects of mobility whereby the security features are developed and tied into an organization's back-end, and done so in a way that secures data moving to and from an agency infrastructure. The challenge for the MSCT is to develop an approach that continues to enable agencies to work towards creating a transactional environment between users, data, devices, and an agency's backend, while also driving savings for federal agencies.

Today's Approach

The federal government has embraced mobility as a means to improve the effectiveness of its workforce, mission, and responsiveness to the public. Nearly one in three federal employees

uses a government-issued mobile device in their daily work (does not include BYOD units). The federal workforce is more mobile than ever as one-third of federal employees reported working at ad-hoc locations and 23% telework. More than half (54%) of federal employees connect remotely to their agency's network at least once a day.[1]

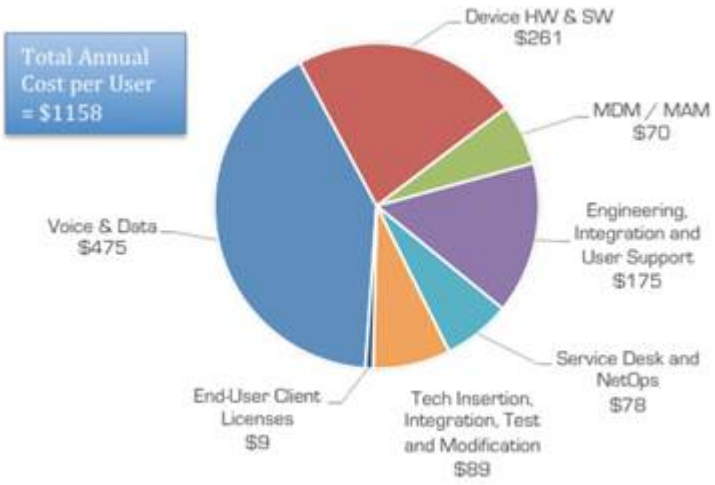
Market Size and Spending Wireless Services

The federal government spends approximately $1B annually on wireless carrier services and approximately 1.5M mobile devices. The largest agencies (24 CFO Act and Cabinet Level agencies) account for 85% of the total wireless spend. Small agencies (less than 100 employees), and medium sized agencies (999 employees to 100 employees), as defined by OPM), collectively, account for less than 9,000 units or 2% of total spend. The share of spend between large and small agencies is not dissimilar to other IT/Telecom expenditures.

Federal Government Agencies	Number	Est. Wireless Units	Est. Annual Spend
Very Large Agencies (CFO Act and Cabinet-Level)	24	1,298,180	$792,197,625
Large Agencies (> 1,000 Employees)	22	222,618	$129,555,242
Medium Agencies (100-999 Employees)	17	7,019	$4,505,325
Small Independent Agencies (< 100 Employees)	74	1,924	$1,358,685
Total	137	1,529,741	927,616,877

Other Mobility Components

Enterprise Mobility encompasses several categories. The DOD, through the MSCT, provided a helpful framework of how their total cost of ownership (TCO) for mobility products and services is defined and quantified.



[1] "Feds on the Go", Network Needs for Maximum Mobility, Meritalk, August 19, 2013.

However, the applicability of the DOD framework to general government has limitations, due to the specialized requirements, use cases, and accounting methods which are different from commercial business and general federal agency users.

To account for these differences, GSA reviewed TCO studies from Gartner, GSA, and DOD to develop a composite view of the enterprise mobility spend. The following table summarizes the findings.

	Mobilty Spend Across Categories (Multi-Study)		
	DOD	**Gartner**	**GSA EM**
Market Segment	DOD only	Commercial (Business)	Government-wide
Top Three Mobility Categories (% of Spend)	Voice & Data Plans 41%	Carrier Services (Voice & Data Plans) 50%	Wireless Services (V&D Plans w Devices) 58%
	Device HW & SW 23%	Device HW, SW, & Wi-Fi & Other Hdwre 15%	Devices & Wireless Infrastructure 5%
	MDM/MAM 6%	MDM/Security 6%	Managed Mobility 6%
Core Mobility	**Sum of Above 70%**	**Sum of Above 71%**	**Sum of Above 69%**
Other Mobility (Specialized Services)	30%	29%	31%
	End-User Client Licenses, Tech Insertion, Integration, Test and Modification, Service Desk and NetOps, Engineering, Integration and User Support	General IT/Admin, Help Desk Labor, IT Operations Labor, End-User Labor (Excluded)	Help Desk/Customer Supoprt, Mobile Security, Mobile Application Integration Services

In aggregate, **almost 70% of core spending on mobility services is on a combination of wireless service plans, devices/hardware, and some form of mobility management software (including some aspects of security).**

Determining the total cost of ownership for mobility is significantly harder than service plan costs, due to the differing definitions, limitations in cost accounting, and the enterprise nature of mobility that are combined with other IT components.

In addition, a GSA Enterprise Mobility analysis of OMB's 2015 Federal IT Budget on mobility-related keywords (e.g. "mobile," "wireless," "cellular,"), identified 91 separate projects in eleven agencies that totaled $900M in investments. Mobility and wireless expenditures were intermingled with IT project areas such as Network Management and IT Infrastructure and Support Services.

Capturing spend on other mobility categories will be challenging and may not yield sufficient data to be of use to IT and mobility

Industry's View - Government Mobility Contracts

Another important factor to consider is how industry markets mobility products and services to the federal government and which channels/vehicles industry will prioritize. Vendor's sales organizations are trained and often incented to shape business toward one vehicle or another. Knowing vendor's preferences and perceptions of the mobility contracts in-place today, helps to define future strategies and policies.

The following chart summarizes the general contract vehicle preferences from the industry respondents to our RFI survey. Vehicles identified in alphabetical order.

Wireless Services (Direct)	Wireless Services (Indirect)	Mobile Devices (Direct)	Mobile Devices (Indirect)	Support Services	Mobility Management (MDM/TEMS)	Mobile Security	New Technology Integration
FSSI Wireless	IT 70	NASA SEWP	FSSI Wireless	ALLIANT	ALLIANT	HSPD-12	ALLIANT
IT 70	NASA SEWP	NITAAC	IT 70	IT 70	IT 70	IT 70	IT 70
NETWORX	NITAAC	New Vehicle	NASA SEWP	NASA SEWP	NASA SEWP	NASA SEWP	NASA SEWP
			NITAAC	NITAAC	NITAAC	NITAAC	NITAAC
						New Vehicle	New Vehicle

Agency Usage Profiles

The adoption of mobile services varies widely by agency mission and operational focus. For example, as a percent of agency personnel, mobile service adoption is at or above 100% for agencies such as SBA, GSA, State, OPM, and USAID, whereas for the VA, SSA, and DOD, it is less than 25%. The mix of service plans and devices within an agency provides a high-level gauge of technical complexity.

Smartphones are the most commonly used device-type in the federal government today. The penetration of smartphones among top agencies is approximately sixty-two (62%), according to the IDC/Portfolio Stat report. Among the FSSI Wireless user population, smartphone penetration is estimated to be 77% of all units (July, 2016).

AT&T reports that in aggregate, the typical government user averages 177 minutes and 1.2 GB

of data monthly. Compared to the private sector (consumer and business), usage for unlimited voice is between 400 to 1200 minutes monthly.

Also, detailed billing and usage studies from 40+ agencies from 2013-2014 concluded the following profiles for the typical federal government user;

- Cellphone usage on voice only plans of 200 min per month
- Smartphone usage of 240 voice minutes and 950 MB.
- Data only usage of 1.1 GB per month; ranged from .7GB to 3.3 GB, for light to heavy data users, respectively.

Low Utilization (i.e., Buying Overcapacity) Remains a Substantial Issue

Many IT/Telecom managers set their budgets and monitor zealously for any overage charges. Overage that is left unmanaged, especially on international calls, can seriously impact the budget. For this reason, a common service ordering practice is to "oversubscribe" or purchasing more minutes or data than necessary to lower the risk of unexpected costs. Historically, it is not uncommon for many agencies to use less than 50% of purchased voice and data.

As a result, government agencies tend to be risk-averse when it comes to ordering voice service plans. This risk aversion is displayed on FSSI-W, with agency customers willing to overspend to minimize overage charges.

- Voice Plans: In a monthly sample of FSSI-W customers, a total of 16M voice minutes in pooled service plans were paid for, but less than 9M minutes were used—a 57% utilization rate.
- Data Plans: For the same sample of customers, utilization rates for data were even worse—less than 10 percent of the potential pool of data was consumed (3,173 GB used out of 34,000 GB total available).
- Unlimited data plans represent 78% of all data service plans on FSSI-W, yet the average data use per customer is 1.2 GB per month.
- Private sector customers are similarly overspending—according to AT&T, average usage for unlimited data plans is 2.5 GB per month.

Currently a key limitation in broad scale analysis is the low quality of the data collected using OMB PortfolioStat. Past quarterly submissions do not assess costs or require agencies to provide actual voice or data usage.

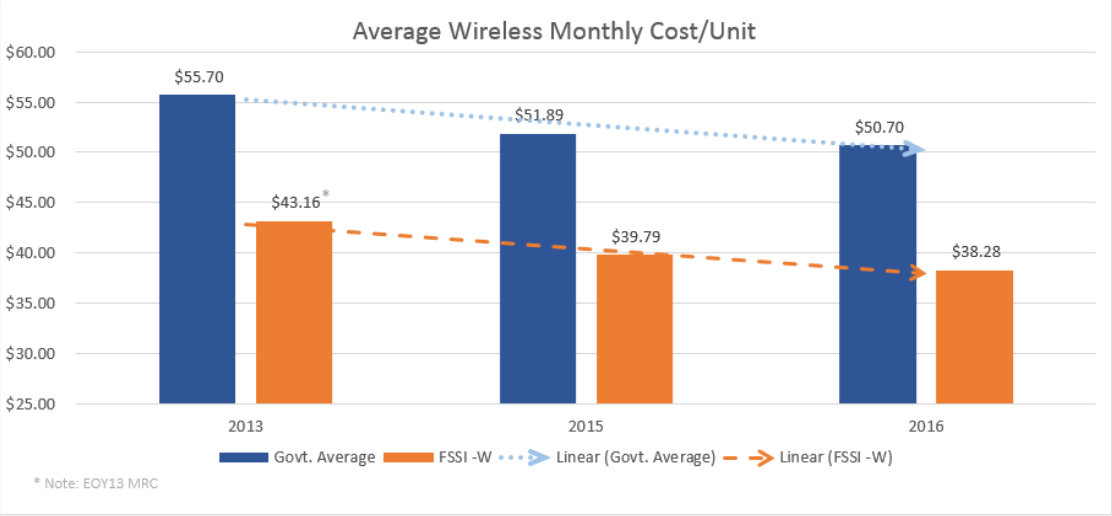
Cost/Pricing Trends

Policy changes in the federal government calling for better wireless/mobility management have begun to impact overall spend outcomes. Several GAO studies, the OMB OFPP's Category Management strategy, and tighter operational budgets have combined to influence mobile inventory management and cost savings. For example, the average spend per device in the Federal Government is approximately $52 per month ($51.89), down from $55.70 three years earlier.

Many variables affect an agency's overall cost, including the agency's overall IT environment, procurement practices, budgets and funding sources, geographic coverage, business mission, and degree of mobility management. However, the main driver for pricing pressure is increased competition for business among wireless carriers.

Fragmented procurements still lead to missed savings opportunities. But overall, GSA research shows that active management of the wireless spend (e.g., service plan optimization and inventory control) has at least **3X more impact on overall cost savings** compared to volume. Significant differences exist among agency's adoption of mobility, wireless usage, and management practices.

The GSA FSSI-W program advocates for the best practice of right-sizing service plans and encourages competition among its contractors. As a result, FSSI-W customers have benefitted from significant cost reductions since program inception. As shown by the chart below, average monthly costs have decreased on average 9% annually for FSSI-W customers, compared to 2.3% annually for the rest of government driven primarily by active management.



Successes and Dissatisfiers

Through the MSCT RFI, wireless carriers communicated the following requests:

- Simplified core product offerings help reduce the complexity and cost of maintaining multiple pricing plans, billing issues, and customer support calls.
- The ability to offer ancillary services and flexibility to use "open market" offerings when appropriate allows tailoring of solutions to better meet agency needs without further contracting actions.
- Clear Terms and Conditions (T&Cs) that are not changed or modified with task orders avoids customer confusion as well as time and effort for having to renegotiate
- Self-service ordering and service options; well-thought out templates for Agency use for PWS, SOWs, etc. improve the clarity, speed, and quality of fulfilling orders and responding to bids.
- Ability to add new services to contracts in a matter of days and weeks, not months is needed to keep the pace with speed mobile marketplace.

Tomorrow's Approach: The Evolving Landscape of Procuring Enterprise Mobility Products and Services

Overview

Today's approach to the Federal Government mobility acquisition and management has been successful in a number of ways such as driving lower costs among some agencies through large agency negotiating power and/or FSSI-W's adoption, which provides ease of use and cost benefits. As mentioned previously many agencies have obtained savings over time from $57 to $38 in monthly recurring fees. Additionally, FSSI-W has made it much easier for agencies with lower acquisition and management resources to obtain and manage mobile services and devices.

However, as the mobile market continues to grow and evolve, the existing contract vehicles do not comprehensively address the changing market needs or the government's objectives of continued cost reduction and acquisition simplification. This is especially evident within the federal government as greater divergence occurs between general use of mobile services and mobile services and devices configured for vertical applications (e.g. Field Military use) and specialized, complex usage profiles (e.g. high security)

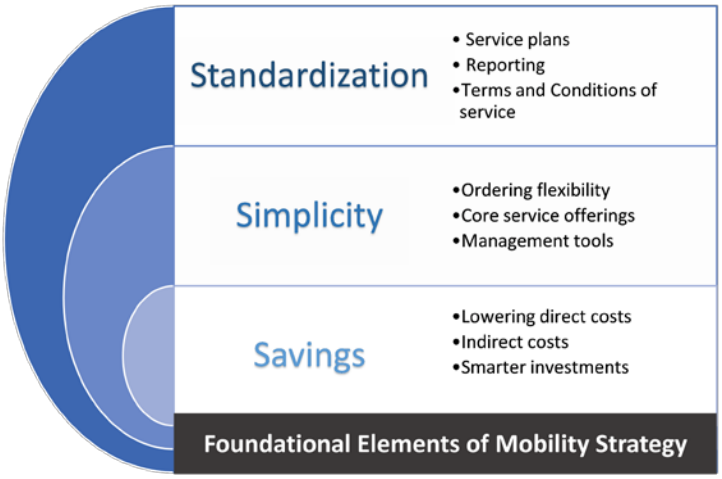
Mobility Framework Strategy

The strategy in addressing future mobility acquisition and procurement is to clearly define and align the greatest opportunities for *standardization, simplification and savings* within federal government agencies to a new mobility acquisition approach. This strategic requirement best aligns with an approach targeting the general use or core segment.

A review of existing contract vehicles demonstrates that there are currently contract vehicles available to sufficiently and adequately address the mobile vertical applications and complex products and services segment. These contract vehicles include IT Schedule 70 (particularly SIN 132-53), Networx, Enterprise Infrastructure Solutions (EIS), NASA SEWP, NITACC, Army / Air Force BPAs, Navy SP2, Alliant, Connections II, as well as HSPD-12 for credential management, and other independent solutions. What appears to be lacking are templates, guidance, market info to help buyers choose not only contract vehicle but also know what they are buying and how best to buy depending on their conditions.

MSCT Goals and Objectives

The goal is of the MSCT is to develop the vehicles, tools or materials needed to help define and manage the mobility space in government in a way that achieves efficiencies and measurable savings across government.



The three primary objectives to be achieved through a new or extended vehicle are:

1) *Standardization* - Define a common set of plans, devices, terms, conditions, and other mobility attributes that apply across contractors and agencies such that competition is drive based on quality and price
2) *Simplification* - Make it easier for agencies to purchase and manage mobility services and devices.
3) *Savings* - Further reduce costs for wireless carrier services and other mobility category services

Standardization

Standardization is a powerful driver for improving efficiency across industry. In the public sector it forces contractors to compete on price and quality rather than functional attributes whose differences may not be critical to meeting the needs of the federal government.
In the mobility marketplace, standardization reduces duplication of services, eliminates non-differentiated products, and roots out unnecessary processes, effort, and costs that add marginal value to agencies and suppliers.

Three primary areas are identified to improve standardization of wireless carrier services in the federal marketplace. They are: how those services are delivered (CLIN level standardization); how these services are tracked (standardizing data requirements and developing consistent reporting methods); and how these services are contracted for (standardized terms and conditions).

The primary areas beyond carrier services can also benefit from standardization. This may not necessarily be standardization of technology when that is not possible, but rather a standardization of language used to describe that technical niche while allowing the technology to continue developing. When government looks at mobile technology through a standard lens, it benefits both industry and government. This lens can evolve over time, but a standard lens allows government to share information between agencies more easily, allows government to view solutions through a common basis, and allows industry to more easily differentiate itself.

Simplification

Simplicity relates to aspects that increase the overall *ease of use* of the contract vehicle. The goal is to reduce complexity, while permitting flexibility for agencies to tailor their mobility procurements to specific needs. It appears that existing vehicles can cover the general breadth of the government's mobile acquisition needs, but how vehicle owners respond to an evolving technical environment must make acquisition easy on industry sellers and government buyers alike.

Savings

In the past, Savings related to factors that lowered the per unit **price** of services. Going forward, a more effective measure of savings includes direct and indirect **costs** for services. Direct costs (or spend per unit) includes usage, taxes, fees and the overall blended cost for mix of service plans. Indirect costs include additional costs such as inventory management, reporting, additional software for policy-compliance, etc. Indirect costs also include the time and resource savings for contract development or acquisition operations costs which may be significant when creating a new contract vehicle.

For the wireless telecommunication portion of the mobile category the government is capable of making comparisons. Pricing, inventory, and usage data can be used to make comparisons and draw conclusions. This data can be captured and shared via the IDC and via the Acquisition Gateway (See Appendix B). That being said, the MSCT would rather see a process whereby agencies simply input their billing records for a 3-6 month period of time. Those billing records contain all information needed to assess whether agencies are overpaying or under-utilizing. OMB and GSA need to find a way to capture, store, protect, and provide appropriate access of this information to the MSCT.

What is more of a challenge is developing savings metrics associated with the broader scope of mobility. Savings in certain sectors of mobility (such as software of hardware) reflect a market mechanism whereby price reductions are built into the evolution of the technology. We see this particularly with devices as well as mobile device and application management solutions. Because price in these assets are a moving target (downward), any data capture with ancillary product aspects need to be fast and dynamic to keep up with the marketplace.

What will be helpful, however, is viewing this strategy through the lens of transaction cost savings. Pricing may fluctuate, but the internal agency costs of acquisitions is substantial. Between market research, technical requirement development, acquisition strategy development, and acquisition execution, the MSCT encourages transaction cost savings as the primary savings metric for non-core services (see **Proposed New Mobility Framework** below). In this framework the MSCT serves as an information broker, and transaction costs can and should be captured and credit for transaction cost savings should be the primary measure.

*Note: The following metric is a mock up but is indicative of the approach necessary to capture Transactional costs. The MSCT will work with agencies and vehicle owners to determine the transactions costs associated with procurement and the costs savings associated with the development of materials in the proposed framework.

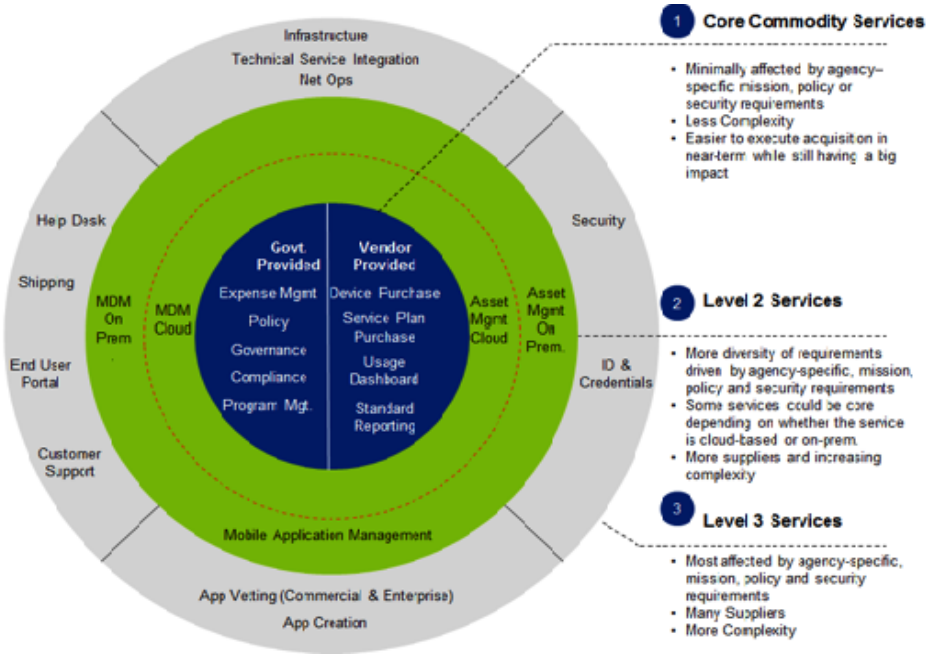
Transactional Cost Savings Metric

Acquisition Costs when starting new: $5,000,000
Acquisition Costs when using developed materials: $500,000
Transaction Cost Savings: $4,500,000 per action

The three core elements of our Mobility Strategy work synergistically with each other—Standardization simplifies many aspects of the program, which in turn, drives increased savings. Savings is not just about lowering total cost. It is spending the right dollars for the right capability. In other words, smarter mobility investments at the same level of spend.

Proposed Mobility Framework

A comprehensive mobility framework is necessary to effectively address shortfalls of current agency mobility acquisition and management processes and to close gaps identified in the current structure resulting in inefficiencies and over-spending. (See also Appendix A)



Rationale and Alternative Solutions Considered

The in-depth market research, industry and agency feedback, and market analysis has lead clearly to a conclusive framework addressing the components of mobility as outlined above, and described below.

Market Segmentation

The future mobility landscape can be divided into two distinct segments among usage characteristics. One is general use or core services inclusive of wireless carrier services - mobile voice and data communications described as voice transmission and mobile data access and connectivity. This includes access across many types of mass produced mobile devices and screen sizes such as smartphones and tablets, as well as other expected form factors such as 'dumb' devices where the operating system and stored content resides in the Cloud or even basic Internet connected devices that may be produced for mass audiences and common usage. Data use in this segment includes Internet, hotspot, and Wi-Fi connectivity. Additionally, this general use segment may include minimally accepted levels of security and enterprise device management as well as commercially available mobile applications. These general use services are expected to continue into the foreseeable future with some evolution perhaps in distribution models and pricing structure.

The second primary segment is that of vertical applications and complex mobile solutions. This segment may also include some general use services as described above but goes beyond that with additional functionality, customization, enterprise manageability, and specialized targeted or vertical applications. This segment is frequently aligned with highly defined use cases and user populations such as field military operations. These vertical or complex solutions perform specific functionality is integrated into existing or custom device form factors. This segments tends to require much higher levels of mobile security and encryption, credentialing, customized operating systems, containerization, and access to backend systems.

Characteristics

To accomplish these objectives, the following characteristics were evaluated and considered in the distinction of the two mobility segments:

- Mobility solution requirements
- Device features, functionality, and customization
- Device management sophistication and complexity
- Procurement, ordering, and management approach to mobility services
- Centralized control over procurement and distribution
- Security posture
- Mobile management resources within the agency
- Customized technical or infrastructure needs
- Amount of mobility spending across all mobile service categories
- Price sensitivity of mobility services

Strategic Recommendation

The past ten years have proven the mobility marketplace to be dynamic and fast changing, where innovation and competition have been both relentless and persistent. In a few short years, once dominant device manufacturers have dropped out of the market almost altogether. Entire new categories of mobility vendors (such as application vetting software providers) have come onto the scene offering advanced technology and services unimagined a few years earlier.

The “Mobile Services Roadmap” connotes helping agencies navigate the changing landscape of mobility services. As the steward of Category Management across the federal government, we clearly understand the need for change in procurement policies, but must also allow agencies the flexibility to engage with the marketplace.

Not all categories of mobility have the same potential for standardization. Defining standards for short-lived, specialized mobility requirements is a futile effort. Specialized categories of mobility services are better served by existing GWAC vehicles that are well-positioned to

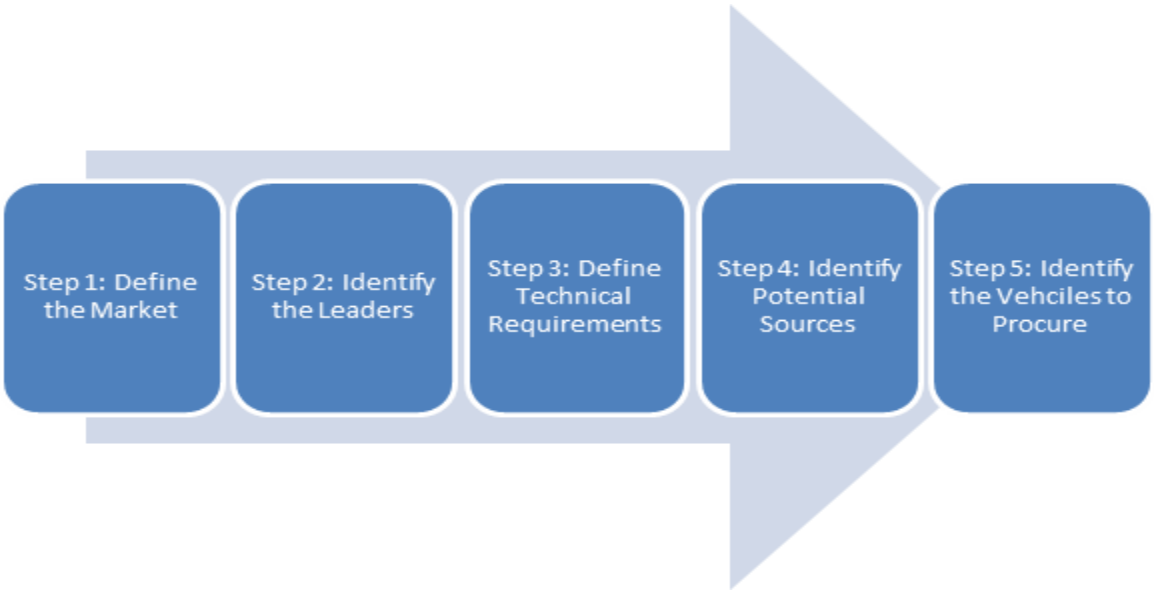
respond to the dynamics of the industry than creating an entirely new contract vehicle. Mobility vendors have told us that there are a sufficient number of GWAC/contracts in place (although there is room for improvement) to handle the diverse needs of agencies. Establishing an entirely new contract vehicle is a significant commitment of resources and time. GSA estimates creating a moderately complex vehicle would require at least two years at a cost of $2.5-$3M, not including new investments in systems

Fortunately mobility services that include core (or common use) services account for 70% of wireless expenditures across government. In this area of more standardized services, the government has more leverage. We recommend that the next acquisition solution focus on core mobility service which have the greatest impact on improved management and cost reductions. It is assumed that this will be the purview of the follow-on acquisition to the FSSI Wireless Program, (Associated Milestones and Timeline are outlined in Appendix C)

Simultaneously, we will be working towards developing the future shape, scope, and structure of federal mobility to drive down transaction costs for agencies. The MSCT will do so with the following proposed sub-components of mobility:

- APIs/Data Tools/Big Data/Open Data
- Application Vetting & Application Security
- BYOD/Virtualized Mobile Security
- Connected Endpoints
- IOT/Devices/Sensors
- Mobile Device & Application Management
- TEMS/Lifecycle Management/Mobile Brokerage
- Mobile Back-end-as-a-Service (MBaaS)
- PIV/CAC/Derived Credentials
- Emerging Technology

Each of the above structures will be addressed via the same formula:



- **Step 1:** Define the Market Segment - Develop language that scopes, structures and defines the particular sub-component
- **Step 2:** Identify the Lead Providers - Identify the lead providers and work with them to help define the space
- **Step 3:** Define the Associated Technical Requirement - Working with industry, define requirements that are general to the technology or service and that agencies can leverage to expedite buying
- **Step 4:** Identify the Potential Sources - Either through comprehensive market research or via an RFI assess the complete marketplace against the requirements developed
- **Step 5:** Identify the Appropriate Acquisition Vehicles to Buy - Map the ability to procure these products or services via existing acquisition vehicles

This strategy will be executed by members of the MSCT. Some of what we are proposing has already been developed and requires only a re-visitation. For example, GSA's OSCIT had developed some API and Open Data standards and guidelines, therefore the MSCT will engage with that group to execute. Same can be said for mobile device & application management, whereby a re-visitation of the GSA Enterprise Mobility Program documents and materials can serve as a foundation for taking a second look at how this has evolved over time, and will do so in collaboration with industry.

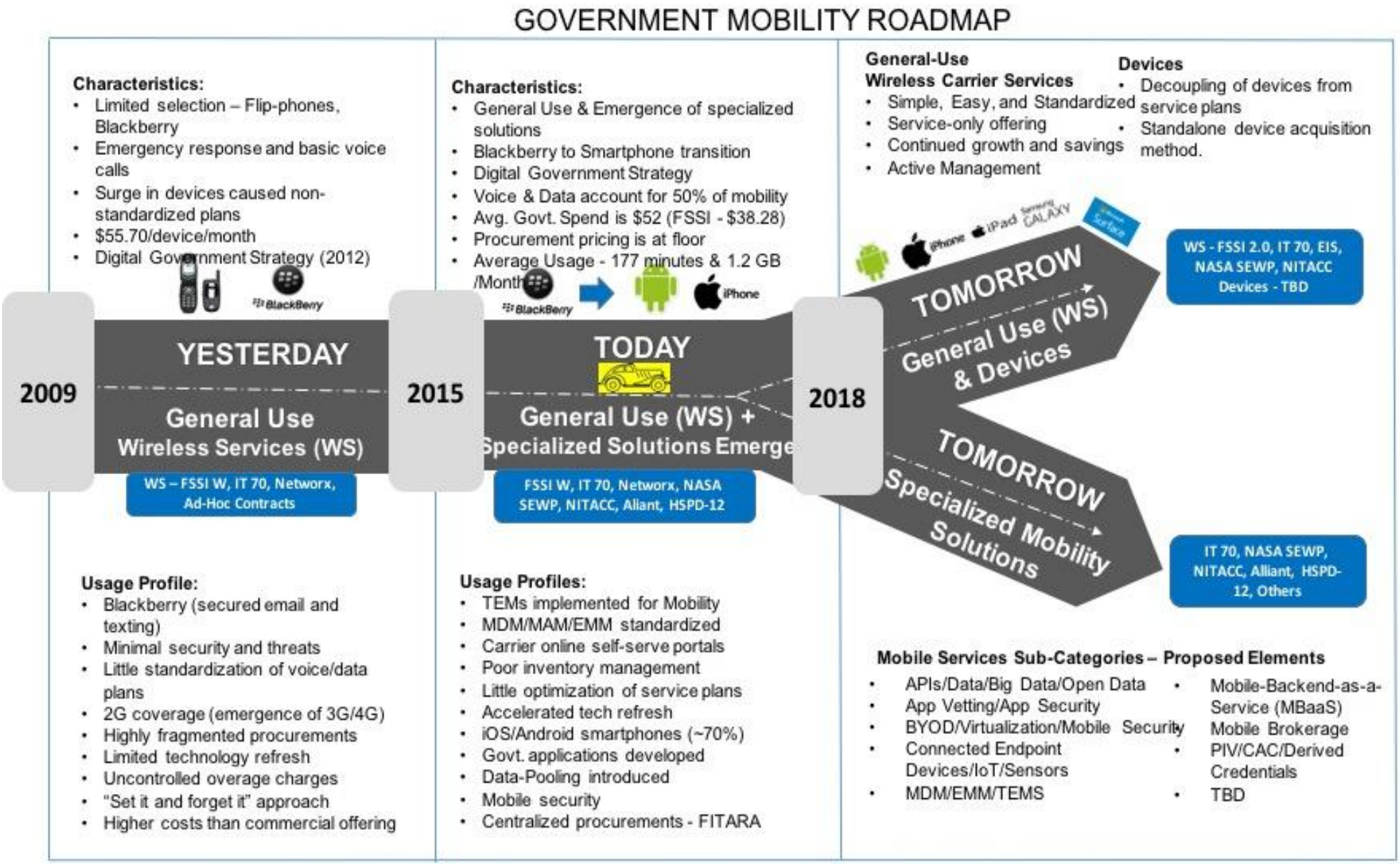
Each component will have a sub-component agency lead, and the process and milestones are laid out in Appendix D.

The MSCT has laid out milestones and timelines associated with this strategic development, and we are convinces that this strategic approach advances the objectives associated with a

category management approach to assets associated with the mobile environment while continuing to drive efficiencies and savings. We realize that there are other elements of Category Management that this group will be involved in, such as identifying best in class requirements and solutions for each component, conducting a feasibility study on a government-wide brokerage for small agencies, and for issuing guidance associated with management practices. Many of those activities are already underway, and will be completed in accordance with the timeline issued by OMB.

This Mobile Services Roadmap is also moving the discussion away from carrier services alone, and addressing the larger scope of mobility as a category within government that is unique and evolving. Only by working together can we put a structure around this category, while being mindful of not fixing it in a way that detracts from its continued evolution. This is a stated need on behalf of agencies and industry alike, and it is a role that this group is best equipped to manage.

Appendix A - Government Mobility Roadmap



Devices

Carriers continue to express the desire to separate the devices from the carrier services; however the government needs to be very cautious of this claim. If Carriers remove subsidized devices from their pricing plans an alternative purchasing path may be required for device acquisition. Government needs to be wary, however, because this signals a shift from device subsidization to device amortization, which could increase total costs. The devices may continue to be purchased through Carriers separately from service plans, through integrators, or directly from the device manufacturers if TAA requirements can be met or altered.

- Types of devices within scope
- RFI Response evaluation on devices

Managed Mobility Services (Category Management)

Select Managed Mobility Services are within scope of the proposed approach. Only Wireless Carrier Services, Mobile Devices, and Minimum levels of MDM and Mobile Security are within scope to meet the Standardization, Simplification, and Savings criteria.

Mobility Category	Description /Requirements
Wireless Carrier Services	Data / Open Data / APIs
Mobile Device / Wireless Infrastructure	BYOD/Workforce Management/Policy; Connected endpoints;
Support Services / Help Desk	Telecom Expense Management (TEMS); Analytics
Mobility Management	Device management / Enterprise mobility management
Mobile Security	File Sharing/Access/Collaboration/Security/ Credentialing; Trusted Execution Environment/Identity Management/PIV/CAC/Derived Credentials
Mobile Integration Services	App Vetting/Reciprocity; Continuous Integration / Development / Dev Ops.; Mobile backend as a service (MBaaS).

As noted in Appendix A, Government Mobility Roadmap, there are two distinct, high-level usage patterns that are emerging as mobility continues to evolve and become more segmented from a user profile perspective. The two distinct segments are General Use and Specialized Solutions. These two segments are identified within the government as well as within the mobile industry selling to the government.

Although, one of the primary purposes of the strategic approach is to identify opportunities for standardization, simplification, and savings; it is not the only purpose. As has been stated earlier in this document, this Mobile Services Roadmap is tasked with moving beyond Wireless Carrier Services and addressing larger areas of mobility required within the Federal Government to include security, service and device management, and integrated solutions. As such, areas such as mobile security and device management are of particular importance across government in varying degrees depending upon the end-user's usage profile. Wireless Carrier Service management will be addressed through optimization and potentially in enterprise level pricing structure. Comprehensive device management strategies should be addressed by the MSCT in the larger context of changing mobile industry business models.

Mobile Security

Increasingly, the Federal Government is required to evaluate security risks posed by mobile computing devices, which includes both government-issued and personal devices (i.e., BYOD). As smartphones and other mobile computing devices increase functionality and increase external software and applications loaded onto the devices, they become more vulnerable to security threats and data is at risk of being breached.

- *No Minimum or Uniform Standards*: No specific set standards have been adopted broadly by the Federal Government that support a particular type or level of security based upon a user profile or type of data being accessed. Efforts are being made by the Mobile Technology Tiger Team (DHS/DoD/Agencies) to address mobiles and application security, and develop a minimum set of standards for government-wide use.
- *All Users Have Common Risk*: Accessing even the basic communications platforms for email and calendars can represent a significant risk because it can allow an opening into systems or data.
- *Roadmap Inclusion*: Mobile security and device management will be included as part of future MSCT strategic plans.

Opportunity: The National Institute of Standards and Technology (NIST) is the leading government resource for defining and recommending methods for improved mobile device security. The MSCT may consider working with NIST and other organizations to evaluate and recommend policies across the Federal Government to ensure secure devices and communications by all Federal Government mobile users.

Key mobile security issues and guidelines to be addressed by the MSCT include but are not limited to the following:

- Recommending security standards for mobile devices used within and by the Federal Government
- Recommending procedures for both compliance to and enforcement of a mobile security standard
- Ensure cost containment, simplified guidelines and policies, and standardization for the General Use segment.
- Recommending procedural guidelines for more complex security solutions.
- Provisioning and de-provisioning of mobile devices for access to government data.
- Separation of government organization data from personal user data on a device
- Securing data when a device is lost or stolen
- Identification of security requirements aligned with the type of government data being accessed through mobile devices
- Outlining specific solutions to include containerization, authentication, credentialing, identity management, and the enablement of BYOD for select agencies.
- Leveraging the use of low cost commercially available security solutions that meet federal guidelines

Appendix B - Data Requirements

The **Office of Management and Budget** (OMB) conducts quarterly data collection from agencies to track agency progress and metrics across a number of IT management areas. OMB's **Integrated Data Collection** (IDC) includes a quarterly data call to populate and update a government-wide inventory of commercial mobile devices and wireless service contracts. This inventory serves as an authoritative data source for the planning, development, and shaping of the next-generation mobile acquisition strategies and vehicles.

The OMB, via its draft memo, has identified that the federal government spends approximately $1 billion annually on mobile services and devices.. Almost all the spending is with the four major carriers (Verizon, AT&T, T-Mobile and Sprint) via over 1200 separate agreements, and buys over 200 unique service plans for voice, data, and text capability. For clarity, a contract is an agreement between the government and carriers that has a Procurement Instrument Identifier (PIID) in Portfolio Stat. This includes Task Orders (TO), IDIQs, multi-agency agreements, BPA's, multi-award schedules, GWACs, and P-Card acquisitions of mobile services.

A recent GAO report revealed that agencies; (1) continue to buy more services than needed, (2) often fail to share minutes and data or optimize their calling plans, and (3) struggle to manage their own inventories across the agreements. From the report, it is clear that the government must do more to reduce the level of fragmentation and duplication of contracts for mobile services. The currently reported data is very limited in accuracy, quality, usage, expenditure, and supplier performance. Moving forward, the quality and accuracy of data needs to be significantly improved to ensure that the IT Category delivers effective strategies in order maximize value and savings for the government.

Below is an updated/revised set of IDC data elements being requested from agencies, about the government's portfolio of mobile devices and contractual agreements with commercial wireless carriers, and the overall spend on devices and wireless services plans. All of the data elements are required fields. To adequately analyze device usage, future data collections will be tracked on an individual device basis.

Data Element	Description
Carrier	Carrier Name
Procurement Instrument Identifier (PIID)	Procurement Instrument Identifier (PIID) - as required by the Federal Acquisition Regulation (FAR 4.605). *Agencies should report each call under a BPA as a separate contract with its own PIID. Do not group together contracts by BPA or mobile carrier.52*
Voice Plan (minutes)	Total number of *purchased* voice plan minutes
Voice Usage (minutes)	Total number of *used* voice plans minutes
# of Flat Rate Plans	Total number of lines on a "flat-rate" voice plan
Data Plan (GB)	Total amount of *purchased* cellular data
Data Usage (GB)	Total amount of *used* cellular data
# of Voice-only/Feature phones	Devices for voice only service that come unaccompanied with a data plan. (ie. flip phones)
# of Smartphones	The total number of smartphones including Apple iOS, Android, Windows, Blackberry, etc... .
# of Tablets	The total number of tablets (operating system agnostic) that have an accompanying data-only plan.
# of Other Devices	Total number of devices that don't fit into above categories but are carrier enabled (hot spots, air cards, pagers, etc...)
Monthly Device Costs ($)	Sum of all deferred or amortized device payments
Monthly Invoice Costs ($)	Sum of all invoiced fees and surcharges (a la carte services, taxes, carrier fees, usage charges, international fees)
Total Monthly Invoice Cost ($)	The total invoiced cost for all accounts and lines associated with a single PIID (#2)

Changes to the Current IDC Data Elements

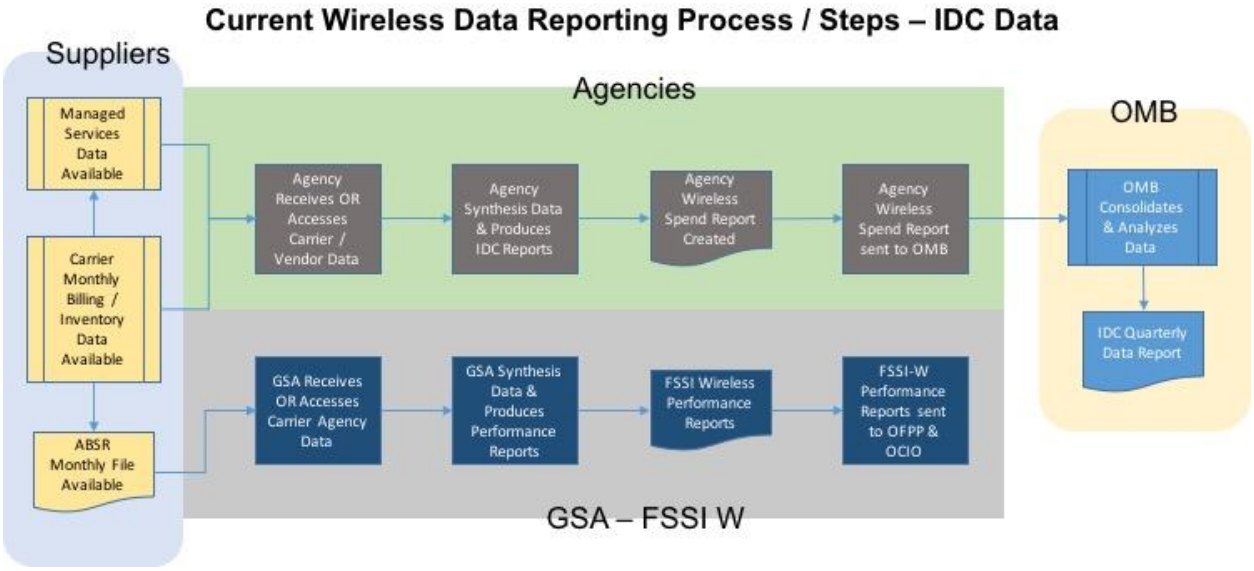
The following is a list of suggested changes to the existing data elements collected via IDC:

- Drop tracking of text messaging plan, usage
- One record per device
- Summary fields (e.g., # of Android, # of iOS, # of RIM, etc.) imply that record includes rolled-up data
- Usage data cannot be averaged or summed
- Track device-specific information (mobile OS, form factor) to facilitate analysis of device distribution patterns and data usage by device type
- Collect voice and data usage from most recent monthly bill
- No need to track overage – billed usage will reveal over-use
- Collect the monthly service cost being paid – not the posted CLIN price

Data Collection and Processing Steps - Current, Interim, & Future Steps

Listed below is the current data collection/processing format, and the proposed interim and future data collection and process method.

Current Wireless Data Reporting/Processing Steps



The above figure depicts a high-level, operational model of the current methods of data collection and reporting for wireless services and expenditures today. This “As-Is” state requires agencies to gather (on a quarterly basis) wireless inventory and spend information across many

different contracts and carriers and consolidate and report their data into the OMB report format.
Data access is accomplished one of two ways depending on whether they have decentralized or centralized wireless management operations. Agencies with decentralized or distributed wireless operations, have authorized personnel for each agency component that access, retrieve, and forward the data to a central office group (or PMO). The central group then reviews, consolidates, and synthesizes the data into the required OMB report format and forwards the file to OMB. In some cases, an individual component area may provide their data in the required OMB format prior to sending to the central group.

In more centralized management operations, a common group (PMO) accesses all enterprise wireless inventory and spend information from its various wireless carriers and contracts. The level automation for gathering and processing the reports varies greatly among agencies. Overall, this process is mostly manual and entirely self-reporting by nature-- meaning agencies have full control and discretion in interpreting and reporting their numbers. For agencies who use a Managed Services provider, this process is more automated, as the OMB report format should be standardized.

In comparison, the GSA FSSI Wireless program receives and consolidates account-level summary level transactional billing information (Agency Billing Summary Report) from each carrier every month. The FSSI-W PMO tracks wireless spend only from agencies using its BPAs. FSSI-W has a detailed, but only partial view of spend across government. FSSI-W does not collect usage or device-level information. In instances where most or all of an agency's spend is with the FSSI-W program, the FSSI-W data supplements and validates the reporting level data provided by the Agency central group.

Proposed Interim State

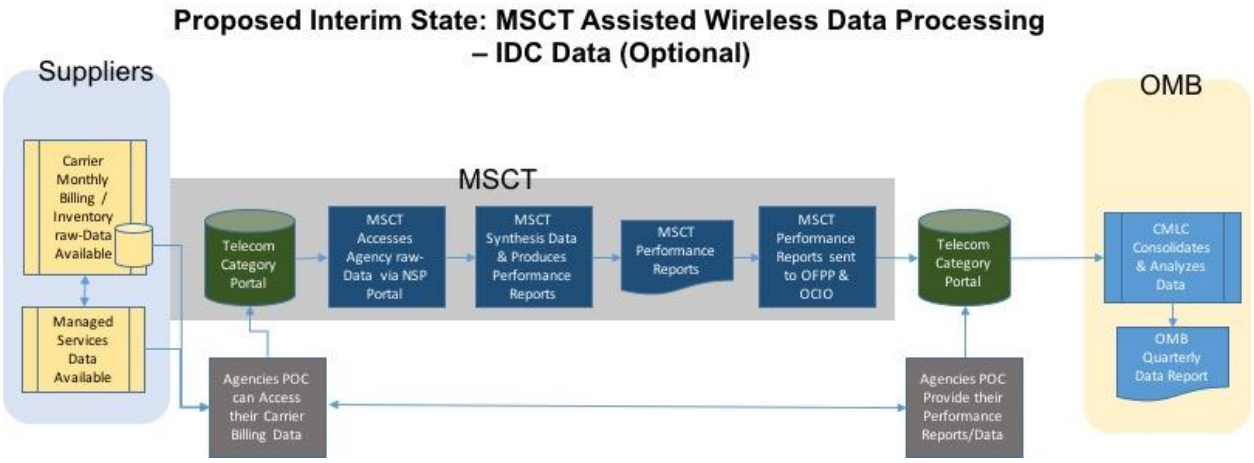
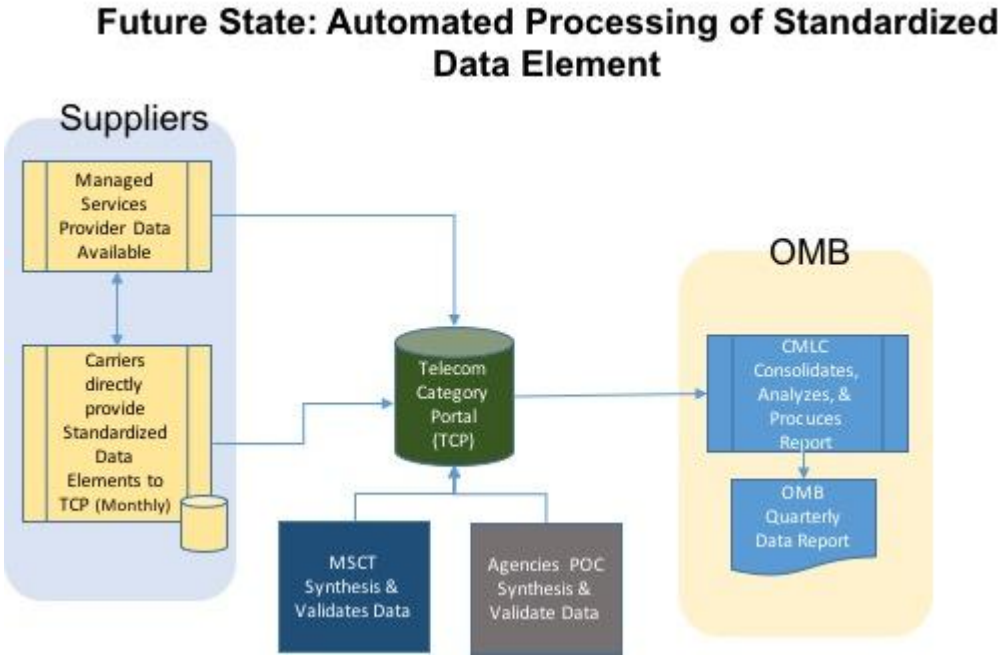


Figure above depicts the interim, "To Be" operational state for the data collection and reporting process. The process is streamlined in several areas. By now, common reporting data structures

will have been identified by the MSCT and implemented by the wireless carriers for agency access. Data extracts retrieved by the authorized agency personnel (POC) will be in a more consistent format, and ideally, pre-formatted to capture data that is relevant to the IDC Quarterly report. It is important to note that the Carrier Billing data files are not call detail level records (e.g., listing of all call logs), but cell-telephone number (CTN) summary data. Agency data POC will upload their data to the Telecom Category Portal and only have permission to view their agency's data. Agencies using Managed Services providers will submit their data in the common OMB format for easier integration with Carrier level data.

Designated MSCT personnel will be alerted to data uploads and only authorized MSCT personnel will retrieve the agency file(s). Next, a quality assurance review ensures the data is acceptable for processing. If any questions or issues appear, the agency POC is alerted and requested to resubmit the file or clarify the issue(s). Data files from each reporting agencies will be synthesized and standardized via a series of reporting scripts that produce the Agency Wireless Performance Reports for the MSCT. Designated MSCT personnel perform a quality assurance check, and if passes, load the Agency Performance reports to the Telecom Category Portal (TCP). The appropriate OMB personnel are alerted to the MSCT uploads to the TCP. Only authorized OMB personnel gain access to the MSCT reports and consolidated reporting across government agencies to develop the OMB Quarterly Report. OMB analyses the data, and if there are any reporting anomalies or inconsistencies, contacts the MSCT reporting personnel to clarify the issues. Any changes to agency-data are documented by OMB. OMB then distributes of the Quarterly Report to its stakeholders.

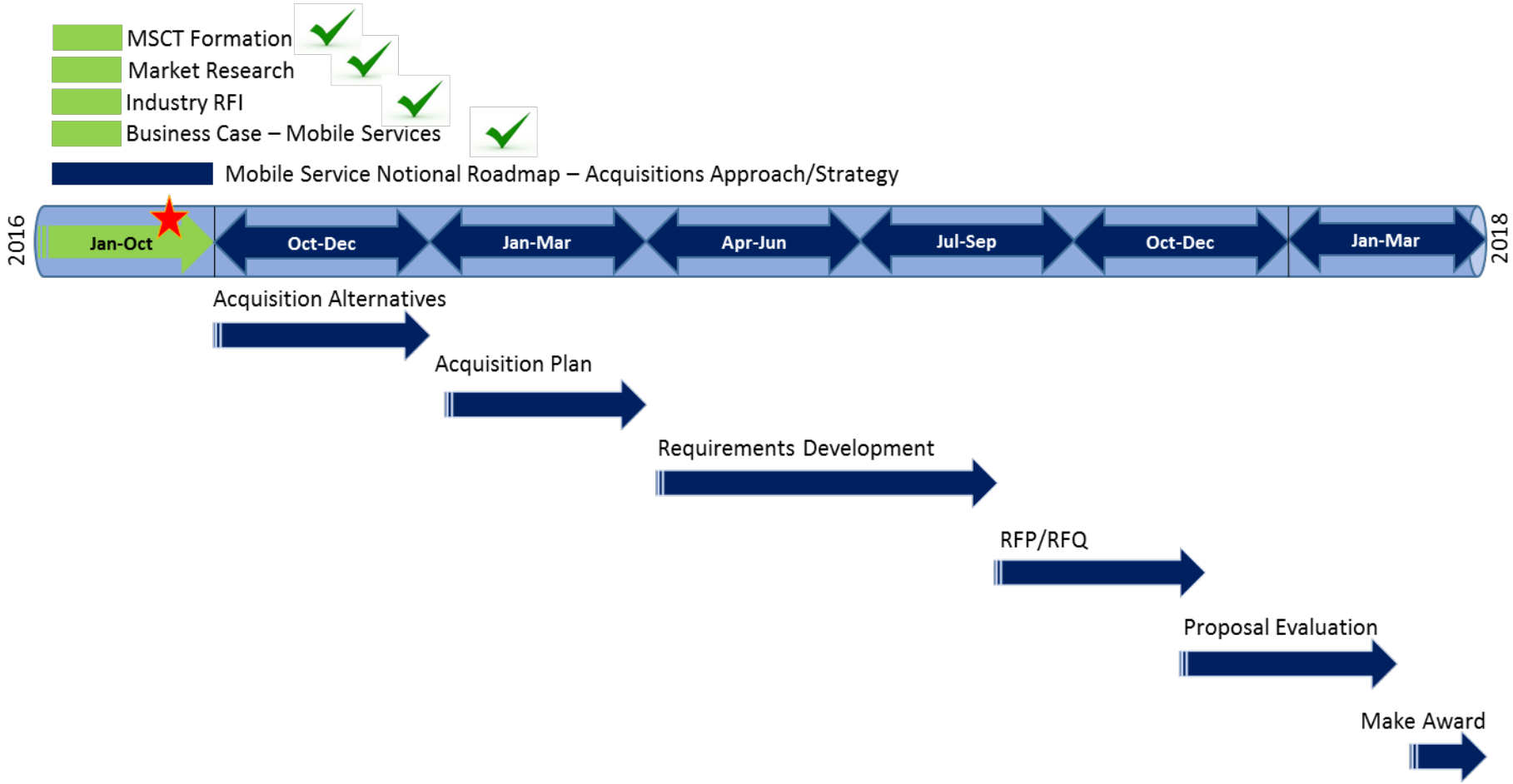
Future State – Automated Processing of Data



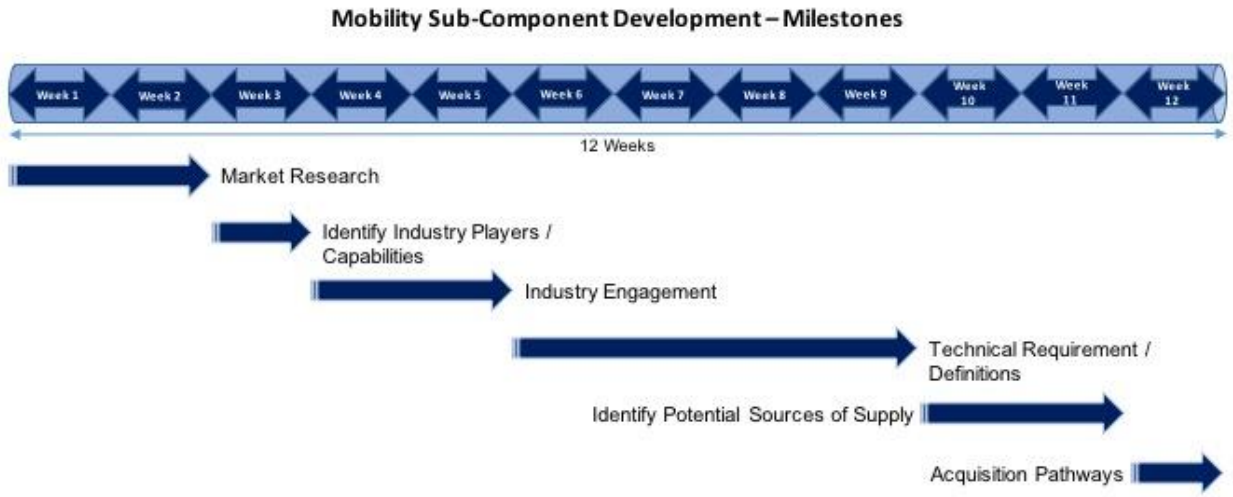
In the latter, “To Be” state of the data collection and reporting process, carrier-level wireless inventory, spend, and usage data for each agency is further standardized to the level of a common report and directly loaded by them into the TCP. This process is a nearly fully automated and has no direct or indirect agency involvement with the data or reporting. Agencies with Managed Service Providers upload their reports as well into the TCP. To review and verify their data, designated agency representatives may access their reports, as well as MSCT members for their agencies. MSCT support personnel (with data reporting privileges) may access files from other agencies to conduct quality assurance review and consistency check of the data. When all agency reports are ready, the MSCT alerts OMB and designated OMB personnel access the agency reports and consolidate the information across the government. OMB analyzes and makes appropriate adjustments as needed, coordinating with the MSCT or Carriers if there are any issues or questions. Once clear, OMB distributes the Quarterly Reports to its stakeholders.

Appendix C - Government-Wide Acquisition Vehicle - Milestones & Timeline

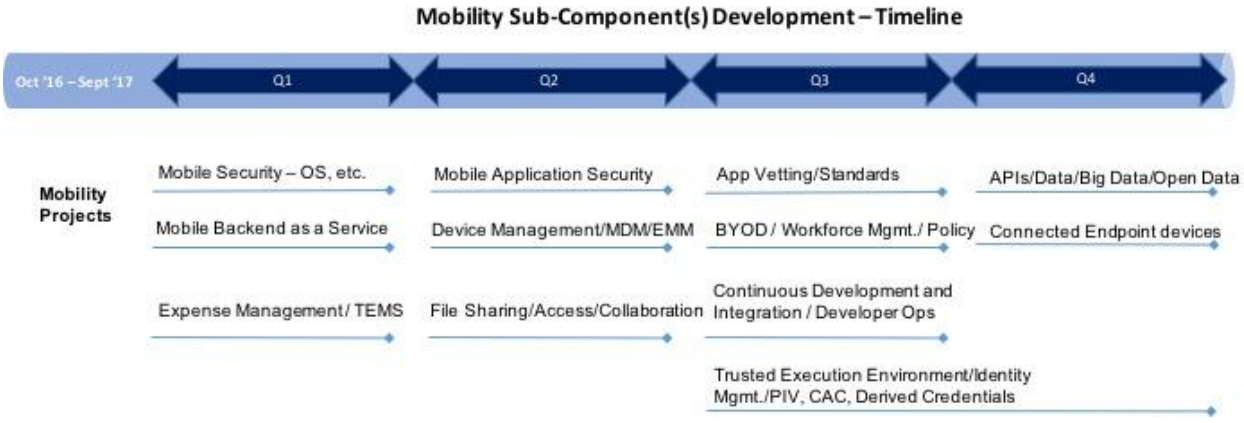
Government-Wide Acquisition Vehicle – Milestones & Timeline



Appendix D - Mobility Sub-Component Development - Process/Milestones

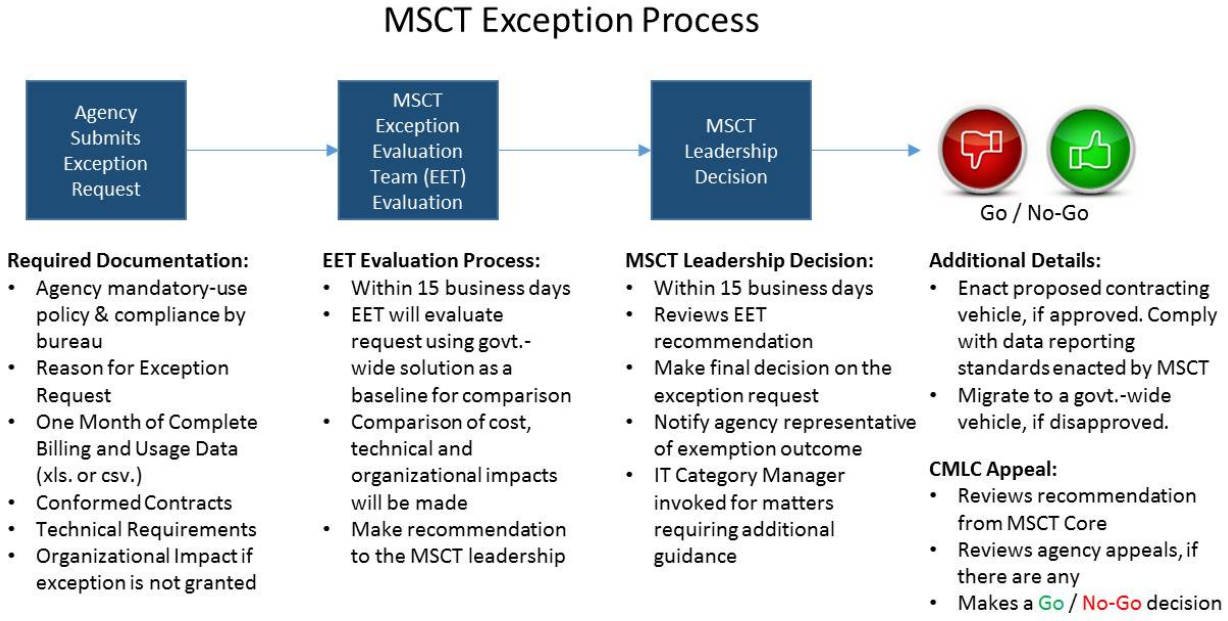


Mobility Sub-Component Development - Rollout & Timeline



Appendix E - MSCT Exception Process

Pursuant to the OMB Memorandum M-16-20[2], "agencies are required to use an available Government-wide solution. In the event that covered agencies believe that any specific provision of this policy, such as contract re-negotiation and ramifications thereof, is counter to agency mission or not in the best interest of the Government under the particular circumstances, the agency may elect not to use the Government-wide solution, but must present a justification of an alternative procurement."



Step 1) No less than 6 months before exercising an option or issuance of task orders agency submits an exemption request, to the MSCT for approval via their POC, to include:

- Agency mandatory-use policy and rates of compliance by bureau,
- Reason for exception request, including technical requirements that are not met via the government-wide solution,
- Most recent month of complete billing and usage data (Format - xls or csv),
- Conformed contract files, and
- Organizational impact if exception is not granted

[2] https://www.whitehouse.gov/sites/default/files/omb/memoranda/2016/m_16_20.pdf

Step 2) MSCT Exception Evaluation Team Process

Within 15 business days of receipt of the agency exception request, the MSCT Exception Evaluation Team will analyze the request using the approved government-wide solutions as a baseline for comparison, and make a recommendation to MSCT Leadership. The Exception Evaluation Team will make a recommendation to MSCT Leadership based on cost comparisons, technical fit, and organizational impact.

Step 3) MSCT Leadership Decision

Within 15 business days of receiving the analysis and recommendation from the MSCT Exception Evaluation Team, MSCT Leadership (or designees) will make a final decision on the exception request and report back to the agency. Any need for mitigation will be facilitated by the IT Category Manager.

Additional Details:

1. If the requesting Agency receives an approved exception, they may enact their proposed contracting method. The agency is still required to report mobility data to OMB via the Integrated Data Collection process and to implement any additional conditions outlined in their waiver request.
2. If the agency's request is not approved, agencies are required to transition to a government-wide solution, as soon as contractually possible and in accordance with M-16-20.
3. Should the agency's circumstances change, the agency must consult with the MSCT Leadership Team to assess the impact to their existing impact.

Appeal Process - CMLC Engagement

In cases where the agency appeals the decision of the MSCT, the CMLC Principals will make the final decision.[3]

[3] Category Management Guidance, May 2015, page 16.

Appendix F - MSCT Roadmap - Milestones & Timeline