

SEPS STRATEGIC PLAN

100% Submittal

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Table of Contents

- Executive Summary 5
 - Background 5
 - Introduction 5
 - Current Challenges 7
 - SEPS Strategic Plan 8
- Goals and Objectives of the Strategic Plan 10
 - Introduction 10
 - Current Challenges 11
 - Building a 21st Century Digital Government 21
 - DoD Information Technology Enterprise Strategy, Executive Orders and other Legislation 32
 - Full Life Cycle Management (FLCM) 40
- SEPS Releases Beyond 3.0 43
 - Introduction 43
 - SEPS 3.1 - Webservices 46
 - SEPS 3.2 - Platform 48
 - SEPS 3.9 - Transition 51
 - SEPS 4.0 - Industry 53
 - Return on Investment (ROI) 56
- Governance and Organizational Collaboration 61
 - Introduction 61
 - SEPS Phases 3.1 Service and 3.2 Platform 63
 - SEPS Phase 3.9 Transition and Apps 63
 - SEPS Phase 4.0 Industry 65
 - SEPS Governance Roles and Responsibilities Matrix 67
- Appendix 68
 - Appendix A: SEPS Background and History 68
 - Appendix B: Legislation, Executive Orders, and DoD Guidance 69
 - Appendix C: SEPS Data Reconfiguration for Web Services 75



Appendix D: Industry Outreach Effort..... 86

Appendix E: Government and Industry (private sector) Collaboration Models 91

Appendix F: SEPS Case Study—Balfour Beatty Project Experiences 106

Appendix G: SEPS Platform Diagrams 114

Appendix H: SEPS Proof of Concepts Demonstrations 115

Appendix I: Balfour Beatty Resource Group Question Responses 116

Appendix J - Software to Support Facilities Lifecycle 118

Appendix M – SEPS and DMLSS-FM - Industry interest for Integrating Data and Workflows 123

References 126

Glossary 130

List of Figures

Figure 1: SEPS produces a Program for Design and Project Room Contents lists 5

Figure 2: "Fragmented" Data Exchanges in Traditional Software Configuration 6

Figure 3: Full Life Cycle Management (FLCM) relationship diagram 7

Figure 4: Examples of different services using the same mapping data 10

Figure 5: Samples of VA Space Standards PDF 14

Figure 6: DOD MHS BIM "Object" based templates of room standards 14

Figure 7: DOD MHS BIM "Object" based templates of room standards 15

Figure 8: Military Standard 1691 (MIL STD 1691) Typical Page of 1462 page PDF 16

Figure 9: Screenshot of 2014 Item long Excel file of Mil Std 1691 Items 17

Figure 10: UFC 4-510-01 Appendix B 18

Figure 11: The Layers of Digital Services 21

Figure 12: Align SEPS Strategic Plan with White House, DOD, VA and MHS 28

Figure 13: Government Initiatives towards Better Data Management and Effective Web-Based Implementation 31

Figure 14: Government Initiatives towards Open Data 31

Figure 15: DoD Data Center "End State" 33

Figure 16: DoD Data Center "End State" diagram definitions 34

Figure 17: DoD Enterprise Cloud Environment 35

Figure 18: DoD 8500 Risk Management Framework timeline 36

Figure 19: DoD Cloud Computing Strategy 2012 37

Figure 20: Existing SEPS Configuration 38

Figure 21: SEPS Conceptual Model within Real Property System 39

Figure 22: Facility Life Cycle and the Military Medical Construction Timeline 40

Figure 23: Challenges of maintaining data integrity to support FLCM 41

Figure 24: Using SOA as a means to bridge data across phases 42

Figure 25: Agile vs. Waterfall Model 43

Figure 26: SEPS Strategic Plan Timeline 44

Figure 27: SEPS Development Phases and Features 45

Figure 28: Decouple Data in the Information Layer 46

Figure 29: Traditional vs. Web-based Distribution of Data as a Service 48

Figure 30: Develop the SEPS Platform 48

Figure 31: Explore making data more accessible using Webservices 49

Figure 32: Support Templates and Criteria Management 50

Figure 33: SEPS 3.9 Prepares for Commercialization towards other Healthcare Organizations 51

Figure 34: Templates and Criteria Management 52

Figure 35: SEPS Ecosystem ready for private and public sectors 53

Figure 36: Standards ensure 4.0 the most flexibility 54

Figure 37: SEPS for Private Healthcare 55

Figure 38: Return on Investment Summary 56

Figure 39: Cost Reduction per Year for Templates Updates 57

Figure 40: Cost Reduction per Year for Maintenance 58

Figure 41: Efficiencies Gained + Licensing Revenue Generated 59

Figure 42: Estimated Development Costs..... 60

Figure 43: Governance | Business Models for SEPS 3.0 Baseline 62

Figure 44: Governance | Business Models for SEPS 3.9 Transition and Apps 64

Figure 45: Governance | Business Models for SEPS 4.0 Industry 66

Figure 46: SEPS Governance Roles and Responsibilities Matrix 67

Figure 47: ProjNet 91

Figure 48: The FUSION Platform follows very closely the Layers of Digital Service outlined in the May 23, 2012 document from President Barack Obama titled “Building a 21st Century Platform to Better Serve The American People” 99

Figure 49: Rough Calculation of Max.Gov Hosting and Licensing (800 Users) 104

Figure 50: Rough Calculation of Max.Gov Hosting and licensing (2000 and 5000 users)..... 105

Executive Summary

Background

The Space and Equipment Planning System (SEPS) is a standalone Government Off-the-Shelf (GOTS) application that was developed by TRICARE Management Activity (TMA) and written by SSC-LANT. The purpose of SEPS is to create baseline Programs for Design (PFD) and Project Room Contents (PRC). The user community consists of approximately 655 government employees and 200 consultants. Users process a series of input data questions relative to Mission, Workload and Staffing. From those series of inputs, a project program is generated by SEPS in the form of required spaces and equipment. This list of Spaces and Equipment defines the preliminary basis for a project. Data in SEPS may also be utilized in a system such as PACES (Parametric Cost Engineering System) to study cost implications at a high level. With this preliminary program and budget in place, the project can be contracted out to an A/E for design and ultimately construction.

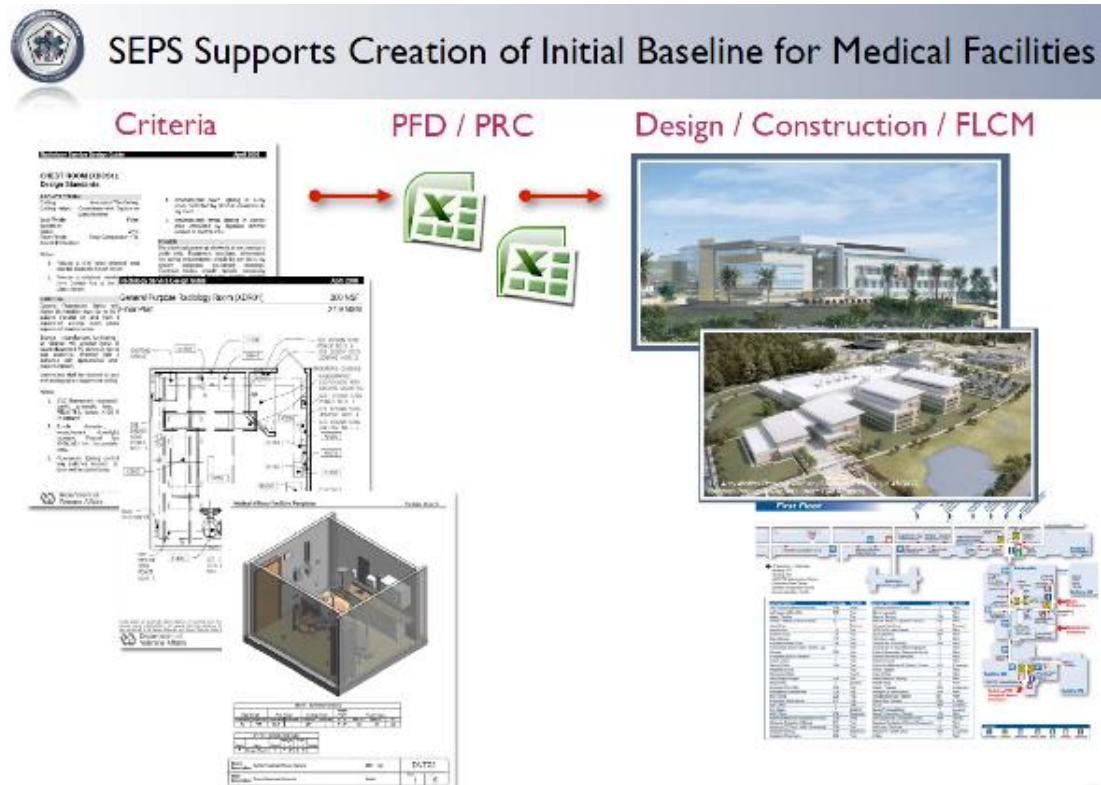


Figure 1: SEPS produces a Program for Design and Project Room Contents lists

Introduction

The change from the current SEPS 2.0 to SEPS 3.0 signifies a considerable transformation for this application. **SEPS 3.0 will be built entirely as a web-based application.** This change in the application’s configuration will

immediately enable much needed capabilities such as multi-user collaborations on a project and the sharing of criteria and project data in real-time between criteria managers and facility planners. It also eliminates the time-consuming challenges of administering

and managing the installation of SEPS for each user on each computer. With proper credentials, users will simply log into the application and have access to the latest version of the tool, standards and criteria as well as provide access to the latest project data. **Much of the strategies and recommendations in this report arise from moving SEPS towards a web-based application.**

This shift towards a web-based platform introduces an entirely new level of opportunities for future version of SEPS. In addition to the immediate benefits stated above, this allows SEPS to implement Service Oriented Architecture (SOA). This is a significant improvement to the basic system's configuration and architecture. This will enable a future-proof, flexible foundation for new developments and features while supporting a nimble development cycle.

For simplicity, we will describe SOA here as an approach to software development that develops modules of functionality that work interoperably under a web-based ecosystem. Its advantages are it is much more conducive to add or edit a module without having to rework the entire source code of the application. It allows for enterprise agility, by enabling

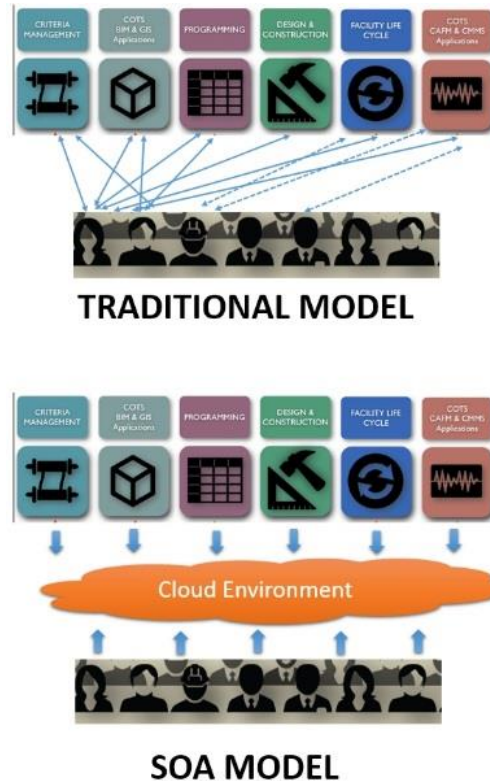


Figure 2: "Fragmented" Data Exchanges in Traditional Software Configuration

rapid development and modification of the software that supports the business processes. Its other main advantage is it allows for the data to become much more accessible to other applications and consumers of data.

In traditional software design, all needed data exchanges would be defined and *each* type of transaction would be programmed into the application. If new types of data exchanges we needed in the future, each one would be programmed into the application. The blue arrows in the conceptual diagram below represents the data exchanges that would need to be developed on a case by case basis.

SOA provides a much more flexible, scalable method of addressing these data exchanges. Once a particular set of data is made accessible, that programming effort can be "reused" for any other requirement to exchange that data. This scalable model

also extends to other apps that would like to leverage that data.

Current Challenges

The September 2012 GAO Report entitled [“Department-Level Actions Needed to Assess Collaboration Performance, Address Barriers, and Identify Opportunities”](#) cited several areas where fragmented efforts between MHS and VA hindered collaboration and mission performance, including three areas directly related to SEPS:

1. Information Technology Systems
2. Business and Administrative Processes
3. Medical Facility Construction

A Strategic Plan for SEPS needs to address the added complexity of better coordinating outside service providers such as architects, space and facility planners, and consultants that need access the information in SEPS in a timely, efficient manner.

The SEPS 3.0 System Design Document (to web enable the current SEPS 2.0 application) cites three application features/characteristics that hinder collaboration:

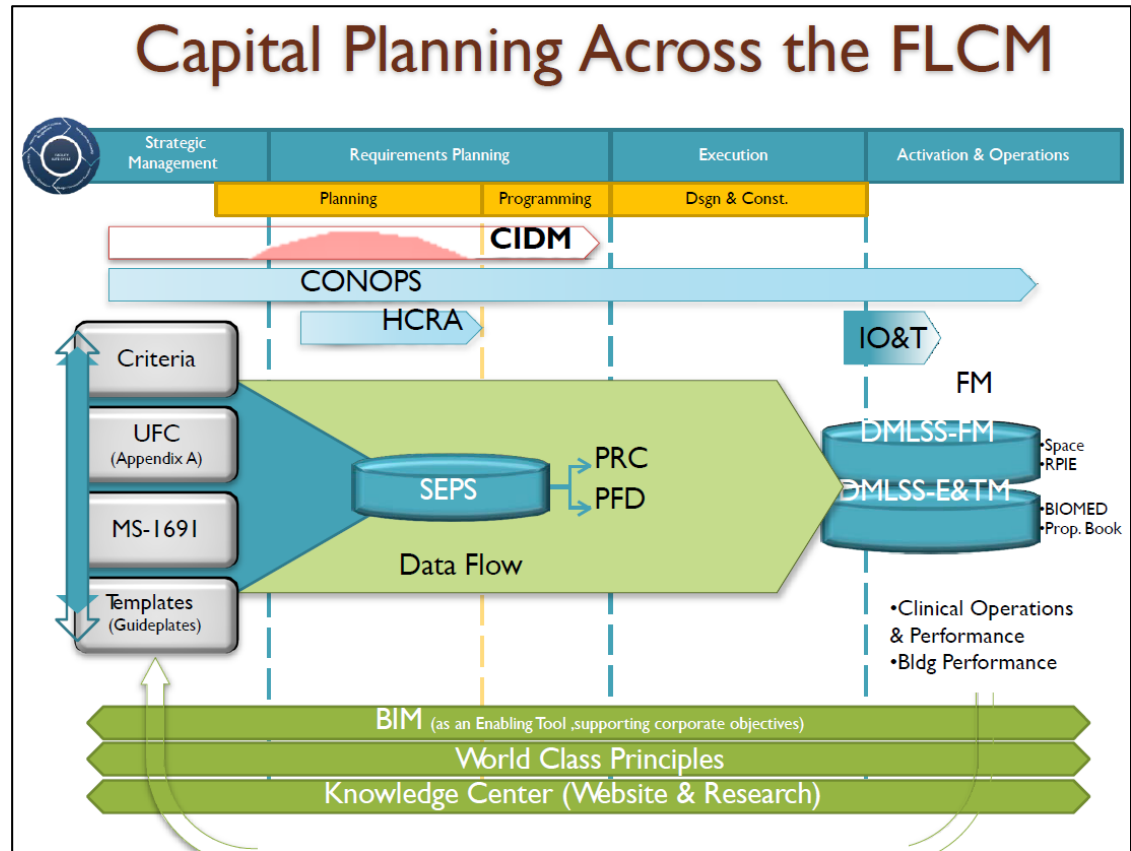


Figure 3: Full Life Cycle Management (FLCM) relationship diagram

1. Inability to update criteria data concurrently slows down updating and makes a lot of the SEPS data out of date sometimes by years. If data output from SEPS cannot be trusted as accurate the perceived value of

SEPS is vastly diminished. If one of the key reasons for SEPS is to accurately communicate requirements to designers, not being accurate is a key weakness.

2. Inability for healthcare facility planners to interactively develop a project.
3. Client/Server-based software that requires new features/updates installed on local computers with a local install to pass through a multitude of redundant--but required--security assessments relating to Information Assurance. In the case of SEPS, each department (VA and DOD) needs to approve, plus each service within the DoD (TMA, Army, Navy, Air Force) just to allow these new features.

This marks another opportunity to address a major, related objective that has been identified by MHS. There has been a desire to support [Facility Life Cycle Management \(FLCM\)](#) for some time. This requires a carefully planned, coordinated effort orchestrating business processes, workflows and technologies to support an efficient flow of facility data in all aspects of facilities planning, design, construction, and operations.

The move towards making SEPS a web-based solution, provides an optimal platform for taking the data generated at an early requirements planning phase, and have it continued to be leveraged throughout the Design & Construction as well as Operations. As this new standard of data management is implemented, this also supports the work that would be performed during the Corporate Strategic Facilities Management phase.

SEPS Strategic Plan

The overarching goals and objectives of this SEPS Strategic Plan can be grouped in the following main categories.

- **Support the vision of Full Life Cycle Management (FLCM) as applicable for the data generated at the planning phase in SEPS.**
- **Support DoD IT Enterprise Strategy, Executive Orders and other Legislation promoting better government data management.**
- **Support the Presidential Memorandum for “Building a**

21st Century Digital Government”

There was a deliberate intention to start with these broad, comprehensive objectives as key drivers to shape the strategies in this plan. The nature of technology is it rapidly changes and having too myopic a view towards “SEPS-only” issues would produce a report that would quickly become obsolete. The idea was to produce a Strategic Plan that would create a solid framework for the next five years based on the overarching principles desired across the entire federal government. Within that framework, there are very specific, tactical information that takes a step-by-step look at WHAT to implement on a year-by-year basis. These steps are organized by specific future new “releases” of SEPS. These future releases of SEPS are as follows:

- **3.1 -- SEPS Service**
- **3.2 -- SEPS Platform**
- **3.9 -- SEPS Transition + Applications**
- **4.0 -- SEPS Industry**



Main Drivers

- More Accessible
- Ease of Use
- Manage, Update, and Share Data
- Improved Quality
- Governance

Support
Facility Life
Cycle
Management

- Reduced Latency
- Support Entire Lifecycle
- Stimulate Innovation
- Sustainable Funding
- Commercialization

Support
DoD and VA
IT Legislation

Support
OMB 21st
Century
Digital Government

Goals and Objectives of the Strategic Plan

Introduction

Federal agencies have a continual need to identify ways to operate more efficiently and securely. The Department of Defense (DoD) Military Health System (MHS) and the Department of Veterans Affairs (DVA) are pursuing an aggressive integrated strategy for facility planning, design, construction, operation, and retirement/modernization to reduce the total life-cycle cost and create world-class facilities. One of the key building blocks of such a strategy is planning the facility space and equipment requirements, and related costs.

This Strategic Plan identifies strategies and recommendations to enhance and sustain the Space and Equipment Planning System (SEPS). SEPS supports medical facilities planning at the Portfolio Planning and Management Division (PPMD) and offices in the Air Force, Army, Navy, and Department of Veterans Affairs as they conduct facility lifecycle management (FLCM) planning and programming around the world. As these offices gather input by interviewing medical facility personnel, they estimate project scope and the estimated cost of initial outfitting

(equipment and furnishings) using the SEPS application. SEPS forecasts space and equipment needs by executing a complex series of business rules. Information related to mission, workload, and staffing or input to the application and the results, in the form of projected space, equipment, and their costs, are calculated.

Within the last five years, there have been vast interest and continuous adoption of web-based technologies within the government and private sectors. This has started from a “cloud first” stance and is maturing towards a “mobile first” vision. This is not to say desktop computers are going away. It however does emphasize

fully implementing and capitalizing on a web-based paradigm.

Web-based maps are a good example of a technology that used to mean just viewing location information on a desktop computer in a very static manner. Outputting data such as directions would consist of printing the map on paper showing location A to location B. Today, people utilize the *data* within these maps in a wide variety of services and devices. The same map data can be sent to a smartphone that will output the data via “speaking” the directions to the user in real-time while driving. Users can create their own maps and share with a select



Figure 4: Examples of different services using the same mapping data

the need for stakeholders developing any application, to understand if their software architecture is also capable of

group of collaborators with read or read/write access. API's are made available so other developers can build their applications and services on top of

the secure, core map data. This not only enables crowd-sourced services like [Yelp](#) or [Foursquare](#), but is also supports organizations such as [Los Angeles Metro](#) that layer their transit services on top of the secure, base map data. A city's [crime data](#) can be published as well by the police department to inform the public. In each of these examples, the core geospatial data is kept secure and editable by approved stakeholders, but the information that can be made public and accessible is made available through the map services' API's and web-enabled embedding.

A web page or view can include both secure and public data in the same view. This occurs often on e-commerce sites such as airlines or Amazon, where public product data is displayed alongside of your personal account or credit card information.

There are several key circumstances where SEPS may leverage similar growth and opportunities when sharing data that will be covered in this strategic plan. The plan will seek to capitalize in the emerging trend to go from a locally installed and served architecture, to an architecture that serves from the cloud to a variety of different end-clients. This flexibility of

interacting with the same data across multiple users and devices is a fundamental architecture that should be considered in any effort to future-proof an application's development. This plan will also explore more rapid development cycles to employ new functionality and faster responses to new criteria. This will result in less time and effort needed to maintain SEPS while remaining agile and responsive to the ever changing planning criteria.

Current Challenges

The main challenges identified in other reports and as part of this strategic plan include a wide variety of technological, business and cultural factors that typically come into play in the development of an ecosystem such as SEPS which touches numerous stakeholders, existing systems and processes and the rapidly changing technology landscape.

The origin of SEPS is a desktop single user environment. Various workarounds have been created to address this limitation but there are still obstacles to working collaboratively if the basic workflow is centered on single users managing criteria

and projects. Much of this management of data is handled with manual imports and exports of data. The planned updates to SEPS 3.0 address some of these challenges. There are other opportunities to make the updates support multiple users and systems.

The following are the main categories of challenges identified in the current and planned versions of SEPS.

1. Single User Limitations

The current version of SEPS 2.0 and the origin of SEPS are based on a single user managing data. This limitation creates constraints at many levels all the way from how criteria and standards are updated to how teams work on projects. Due to the single user limitations workarounds have been created to import and export SEPS projects and criteria, but the merging of data becomes problematic and falls back to a manual process. This is time consuming and prone to errors.

2. Updates to SEPS

Criteria Managers log into SEPS to update criteria and standards and then this updated criteria gets populated into SEPS updates for Project Managers to use. The updating of criteria and standards is a multi-step process that includes review time and acceptance by the various

stakeholders that define criteria. Some criteria and standards in SEPS may be several years old. The latencies caused by multi-step processes that are in some cases cumbersome cause the system user to:

- (1) Be aware of the published criteria standards deviations and
- (2) Manually override the output produced by outdated elements of SEPS.

The latency of update process between the time a change is needed to the time it becomes available in SEPS varies. Updates to SEPS also need to be distributed and installed which causes further delays in having the latest and greatest data. Since individual users can decide when to install these updates it results in different users working with different version of SEPS and the underlying criteria.

The speed and process of how updates are implemented does cause problems, but many end users are generally aware of this latency and it is reported to cause major problems in their project workflow in terms of time spent and accuracy. Many users have come to expect this inefficiency as a result of SEPS output.

As SEPS moves toward a web based environment opportunities for reducing or eliminating latency will be identified.

3. Online and Offline and Versioning

The primary purpose and objective of SEPS is to create Programs for Design (PFD) and Project Room Contents (PRC) for projects. The creation of PFDs is required to be supported offline in remote locations. The original design of SEPS allowed it to function offline in a standalone laptop. The resulting PFD can then be exported as a SEPS (.zip) file that can then be imported back into SEPS on a different computer. Merging of SEPS PFDs is not possible. The resulting import creates a new project in SEPS and the SEPS user then manages this as a newer version of their project. This requires SEPS users to keep track of versioning of their project especially as the file gets shared among multiple users. The versioning of data in SEPS is also a consideration in the Criteria Manager's creation of new criteria in SEPS. Project s need to be able to track versioning of the project, but versions of criteria. Contracts get locked to certain criteria at certain stages of the project regardless of whether the criteria are updated or not for newer projects. SEPS has to support that and does in some tables now, but not

all. SEP NG should incorporate opportunities to manage SEPS projects and versioning as well as support offline and online mode.

Synchronization of online and offline data and how to track and manage this data as it goes in and out is a critical as SEPS moves forward.

4. Connections to Other Tools

The current process of getting data in and out of SEPS uses SEPS (.zip) format, Excel / XML / and PDF files. The import and export of data is a manual process that the user has to manage on a case by case basis.

There are some export processes such as export to BIM using REVIT, use Excel XML format, which is then imported to REVIT to create spaces and equipment.

Getting consistent output exported from SEPS is a challenge

Moving data beyond SEPS into the lifecycle and to DMLLS FM and DMLSS EM and other facility management systems is an area that could be enabled with improved connections out of SEPS. Sharing information across multiple tools and across the Facility Life Cycle must become

a reality if we want flexibility and scalability.

5. Importing “as built” data to support modernization projects

SEPS data is structured around functional requirements that then are used to layout the physical healthcare facility. Many projects involve upgrading or modernizing existing health care facilities. Importing data from existing healthcare facilities to SEPS is not possible, therefore significant time is spent upfront to begin programming for a modernization project. Typically the data output from SEPS that is used to design healthcare facilities is a one way street. It is not used within SEPS to compare completed designs to the original program for design, and the completed or “as built” data is not imported back into SEPS. In the renovation of existing healthcare facilities the as-built data of spaces and equipment would have to be recreated to match the existing facility and recreated in SEPS. This inability is limiting in that it does not allow the institutional knowledge about facilities within DVA and MHS to be used for future planning of facilities or to connect to operational data in DMLSS and other tools. It is even more problematic in being able to share knowledge between VA and MHS. This is an opportunity to help address some of

the GAO directives relating to planning. (See beginning page 23 of GAO-12-992).

6. Platform and User Interface Limitations

The current system runs on desktop or laptops running Windows. The proposed SEPS 3.0 development focuses on web based systems. There does not seem to be a reference to mobile or smartphone applications and the increasing use of tablets as an interface to access and interact with data. The technology and tools are rapidly changing and many users will start to expect choices in how to access and interact with SEPS.

The user interface is limited to what is available within SEPS. In SEPS 2.0 it is not possible to create new interfaces within SEPS or connect directly with other applications to the SEPS data as the Criteria or Program for Design is created.

7. Data Consistency between SEPS and Published Documents

Since there currently is no live link between SEPS Criteria and published documents, the criteria in SEPS does not always match the criteria in static PDFs and Excel files.

SEPS standards do not match published standards on DVA or DoD Web Sites

Currently DVA and DoD-MHS maintain space standard in static PDF files on a public web site. These are extremely difficult to use if one is not very familiar with what standards are up to date and which ones are current. The static files are not linked to SEPS. Design contracts often incorporate “order of precedents” clauses to allow users to understand what criteria source has priority, but that approach is not without tendencies to create confusion and manual effort to resolve conflicts.

Architects using DVA standards cannot match what is on the DVA web site to SEPS output. Cannot get a list of standard spaces from VA web site, need to view PDF files and manually type in the numbers. For both DoD MHS and DVA, criteria are out of date (SPC criteria is out of date) that there is a lot of fixing that needs to be done just to get everything updated (static files and SEPS criteria).

<http://www.cfm.va.gov/til/space.asp>

DOD MHS has also started to create BIM “Object” based templates of room standards.

http://www.wbdg.org/ccb/browse_cat.php?c=260

Although this approach moves data into the BIM world, it is not scalable or

maintainable. Each space seems to be created manually. This as a good conceptual prototype but does not seem to have a path for updating detailed data related to SEPS other than a manual update.

Typical VA Space Standards Available as PDFs on Public Web Site

q. **mammography Quality Assurance Work Area (OFDR1)**..... 120 NSF (11.2 NSM)
Provide one per Mammography Processing Room.

r. **Mammography Biopsy Examination Room (EXRG3)** 120 NSF (11.2 NSM)
Provide one only when Stereotactic Mammography Room is authorized.

s. **Ultrasound Sub-waiting (WRC01)**45 NSF (4.2 NSM)
Minimum NSF. Provide an additional 15 NSF per each diagnostic room greater than one.

t. **Ultrasound Room (XDUS1)** 180 NSF (16.8 NSM)
Divide the projected number of annual procedures by 1,920; provide one room for each whole increment, and remainder of 580 or greater. Minimum annual workload to provide the first room is 1,500.

Data Embedded in a Narrative and Wrapped in hundreds of pages of PDFs

Figure 5: Samples of VA Space Standards PDF

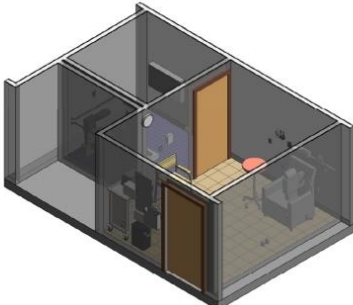
8. Reliance on the Format of other Published Standards

Standards such as MIL STD 1691 developed and managed by other organizations are used in SEPS. These standards are published as documents or distributed as digital files which then have to be imported into SEPS. This is a cumbersome process. As standards evolve and data is updated, the Administrator needs to manually import the latest data into SEPS and the Criteria Manager manually updates the data in SEPS to match the new standard.

Equipment Standards

Military Standard 1691 (MIL STD 1691) is used for equipment naming, numbering and attributes in SEPS.

Medical Military Facilities Templates Pub Date: 26-Apr-12



LDATE1 - INTERIOR DESIGN									
Floor Finish		Wall Finish		Ceiling Finish		Room Height		Room Noise	
Preferred	Alternate	Preferred	Alternate	Preferred	Alternate	ft - in	Min NC	Max NC	SC
VT		GPT		AT1	-	9' - 0"	35	40	50

TLTU1 - INTERIOR DESIGN									
Floor Finish		Wall Finish		Ceiling Finish		Room Height		Room Noise	
Preferred	Alternate	Preferred	Alternate	Preferred	Alternate	ft - in	Min NC	Max NC	SC
CT	VT	GPT	CT	GPT	AT1	8' - 0"	35	40	40

LDATE1/TLTU1 - DOOR SCHEDULE					
Mark	Type	Count	Height		Notes
			ft - in	ft - in	
A	Single-Flush	1	7' - 0"	3' - 0"	
B	Single-Flush	1	7' - 0"	3' - 6"	

Room Description: Antepartum Testing (TLTU1)	NSF: 120 60	LDATE1/TLTU1
Plate Description: Room/Equipment Isometric	Scale:	Sheet 1 of 6

Figure 6: DOD MHS BIM “Object” based templates of room standards

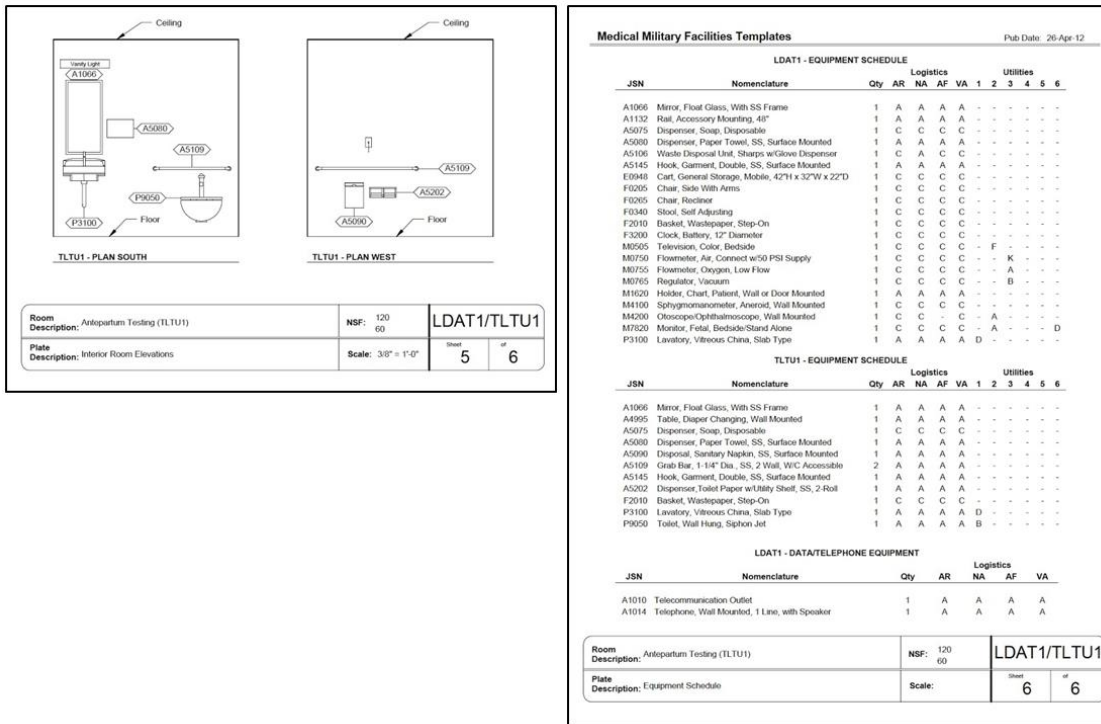


Figure 7: DOD MHS BIM "Object" based templates of room standards

Construction and Material Schedule for Military Medical, Dental, Veterinary and Medical Research Laboratories are available on a public web site:

<http://www.wbdg.org/ccb/M1691/1691.pdf>

Data is available in PDF format and in an Excel file.

The following tables are some that are listed in the MIL STD 1691

- JSN Join Schedule Number - Page 6
- LOGCAT Logistical Category Responsibility - Page 7
- Logistical Responsibility of Building Casework and Building Systems - Page 10-13
- Logistical Responsibility for

Medical/Dental Equipment - Page 14-16

- Appendix A - Medical / Dental / Laboratory Equipment Catalog - Page 17-1461
- 1462 Page Long PDF file of JSN number and attributes
- Excel file with 2014 Items with JSN Numbers and attributes attached to the above file.

There are attributes for each equipment such as size, electrical load etc. but do not vary by equipment type so there is not a lot of depth to the detailed info. This simplification allows for having "similar" attributes for equipment type regardless of if it is a cabinet or an MRI.

MIL STD 1691 is updated quarterly and distributed on a DVD. The data in MIL STD 1691 include the basic attributes about equipment type. It appears that this is a manual process of collecting generic product data and translating it into the format collected in the MIL STD 1691. This seems like an opportunity to collect data directly from manufacturers, but would require an agreement to the standard attributes needed per equipment that does not currently exist in industry.

JSN D9051 Name		Trimmer, Model, Dental, Dual Wheel	
Logistical Category (LOGCAT)	Fund Source	Weights and Measures (Typical Only)	
Army	A Contractor Furnished, Contractor Installed	Weight (lbs)	78 Weight (kgs) 36
Navy	C Government Furnished, Government Installed	Height (in)	20 Height (cen) 51
USAF	C Government Furnished, Government Installed	Width (in)	24 Width (cen) 61
VA	C Government Furnished, Government Installed	Depth (in)	23 Depth (cen) 58
IHS	C Government Furnished, Government Installed	NSN 6520	
Utilities <small>NOTE: Values shown are based on standard typicals used for programming purposes. The contractor remains responsible to develop and coordinate the design / construction in accordance with actual equipment selection.</small>			
Utility1: Plumbing	B Cold water and drain	Volts1	110
Utility2: Electrical	A 120 volt, conventional outlet	Volts2	0
Utility3: Med Gas	-	Hertz	60
Utility4: Misc Gas	-	Hertz Dep	-1
Utility5: Non-Med Gas	-	Hertz Switch	0
Utility6: Misc	-	BTU / Hour	0
	Phase1 1	Amps1 12	Watts1 1320
	Phase2 0	Amps2 0	Watts2
Description		Unit of Issue EA	Group Dental Equipment and Dental Casework
Dual wheel dental model trimmer including drain tray for use in dental laboratories for trimming models.			
JSN D9055 Name		Valve, Control, Water	
Logistical Category (LOGCAT)	Fund Source	Weights and Measures (Typical Only)	
Army	A Contractor Furnished, Contractor Installed	Weight (lbs)	1 Weight (kgs) 1
Navy	A Contractor Furnished, Contractor Installed	Height (in)	4 Height (cen) 10
USAF	A Contractor Furnished, Contractor Installed	Width (in)	3 Width (cen) 8
VA	A Contractor Furnished, Contractor Installed	Depth (in)	3 Depth (cen) 8
IHS	A Contractor Furnished, Contractor Installed	NSN 6520	
Utilities <small>NOTE: Values shown are based on standard typicals used for programming purposes. The contractor remains responsible to develop and coordinate the design / construction in accordance with actual equipment selection.</small>			
Utility1: Plumbing	J Cold water only	Volts1	0
Utility2: Electrical	-	Volts2	0
Utility3: Med Gas	-	Hertz	0
Utility4: Misc Gas	-	Hertz Dep	0
Utility5: Non-Med Gas	-	Hertz Switch	0
Utility6: Misc	-	BTU / Hour	0
	Phase1 0	Amps1 0	Watts1 0
	Phase2 0	Amps2 0	Watts2 0
Description		Unit of Issue EA	Group Dental Equipment and Dental Casework
Water control valve used to provide a water connection to model trimmers and other equipment. The valve generally has a wheel control, has an outlet at 90 degrees to the inlet, stops flow by compression against a seat and has a flange for surface mounting. The valve is commonly called an angle stop.			

Figure 8: Military Standard 1691 (MIL STD 1691) Typical Page of 1462 page PDF



JSN	NSI	NOMENCLAT	HEIGHT	HEIGHT_CE	WIDTH	WIDTH_CE	DEPTH	DEPTH_CE	WEIGHT	WEIGHT_ME	VOLTS1	VOLTS2	HERTZ	HERTZ_D	HERTZ_S	PHASE1	PHASE2	AMPS1	
A1112		Column, Service, Overhead, Horizontal, L...	8	20	60	152	24	61	0	0	0	0	0	FALSE	FALSE	0	0	0	
A1115	652	Console, Service, Infant, Prefabricated	76	193	96	244	31	79	0	0	120	0	60	TRUE	FALSE	1	0	20	
A1120	653	Column, Service, Prefab, Surgical, Ceiling	0	0	0	0	0	0	0	0	120	0	60	TRUE	FALSE	1	0	20	
A1019	580	Telephone, Wall Mounted, Multi-Line, Corc...	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE	0	0	0	
A1030	712	Locker, 2 Person, Over/Under	72	183	12	30	18	46	63	29	0	0	0	FALSE	FALSE	0	0	0	
A1032	712	Locker, Box, Personal Effects	72	183	12	30	12	30	60	27	0	0	0	FALSE	FALSE	0	0	0	
A1035	712	Locker, Single Tier	72	183	12	30	18	46	68	31	0	0	0	FALSE	FALSE	0	0	0	
A1122	653	Column, Equipment Arm, Ceiling Mounted				95	241	95	241	340	155	120	0	60	TRUE	FALSE	1	0	20
A1125	653	Headwall, Suspended System							1275	579	120	0	60	TRUE	FALSE	1	0	20	
A1130	653	Cabinet, Control, Nitrogen	12	30	16	41	6	15	10	5	0	0	0	FALSE	FALSE	0	0	0	
A1132	653	Rail, Accessory Mounting, Length As Requ...	2	5	48	122	2	5	5	3	0	0	0	FALSE	FALSE	0	0	0	
A1145	710	Shelving, Storage, Movable Aisle, Manual	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE	0	0	0	
A1150	710	Shelving, File, Open, Patient Records	76	193	36	91	15	38	145	66	0	0	0	FALSE	FALSE	0	0	0	
A1155	710	Shelving, Storage, Movable Aisle, Powerec...	0	0	0	0	0	0	0	0	120	0	60	FALSE	FALSE	1	0	20	
A1160	653	Track, IV, Oval, Ceiling Mounted, 4' x 7'	21	53	48	122	84	213	0	0	0	0	0	FALSE	FALSE	0	0	0	
A1165	653	Track, IV, Ceiling Mounted, 7 Foot	54	137	2	5	84	213	12	6	0	0	0	FALSE	FALSE	0	0	0	
A1170	653	Track, IV, Ceiling Mounted, 4 Foot	1	3	2	5	48	122	8	4	0	0	0	FALSE	FALSE	0	0	0	
A1175	711	Vault, With Day Gate, Built In	86	218	55	140	12	30	1550	704	0	0	0	FALSE	FALSE	0	0	0	
A1180	653	Scale, Roll On, Built In, 2000 Pound Capac...	48	122	48	122	3	8	250	114	120	0	60	FALSE	FALSE	1	0	1	
A1195	653	Counter, Cleanup, With 2 or 3 Sinks	44	112	96	244	30	76	250	114	0	0	0	FALSE	FALSE	0	0	0	
A1200	653	Lift System, Overhead, Patient Room									120	0	0	FALSE	TRUE	1	0	0	
A1205		Lift System, Overhead, Patient Room w/B...									120	0	0	FALSE	TRUE	1	0	5	
A4005	583	Public Address System	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE	0	0	0	
A4015	664	Clock, Elapsed Time, Electric	7	18	12	30	4	10	3	2	120	0	60	TRUE	FALSE	1	0	1	
A4995	710	Table, Diaper Changing, Wall Mounted	21	53	36	91	5	13	26	12	0	0	0	FALSE	FALSE	0	0	0	
A5020	710	Bench, Locker Room, Floor Mounted	18	46	108	274	10	25	64	29	0	0	0	FALSE	FALSE	0	0	0	
A5025	710	Bench, Locker Room, Portable	17	43	108	274	10	25	52	24	0	0	0	FALSE	FALSE	0	0	0	
A5030	451	Bench, Stall, Shower, Built In	12	30	35	89	22	56	26	12	0	0	0	FALSE	FALSE	0	0	0	
A5047	711	Cabinet, Medicine	31	79	18	46	5	13	32	15	0	0	0	FALSE	FALSE	0	0	0	
A5065	711	Cabinet, Narcotic, U/C or Ctr, With Safe	34	86	23	58	26	66	925	420	0	0	0	FALSE	FALSE	0	0	0	
A5070	451	Dispenser, Liquid Soap, SS, Surface Mount...	9	23	7	18	6	15	2	1	0	0	0	FALSE	FALSE	0	0	0	
A5075	451	Dispenser, Soap, Disposable	11	28	5	13	4	10	3	2	0	0	0	FALSE	FALSE	0	0	0	
A5080	451	Dispenser, Paper Towel, SS, Surface Mount...	9	23	13	33	7	18	4	2	0	0	0	FALSE	FALSE	0	0	0	
A5082	451	Dispenser, Paper Towel, Sensor, Hands Fri...	18	46	15	38	11	28	8	4	0	0	0	FALSE	FALSE	0	0	0	
A5084	451	Dryer, Hands Free, Forced Air, Automatic	14	36	14	36	7	18	17	8	120	0	60	FALSE	FALSE	1	0	15	
A5085	451	Dispenser, Paper Cup, SS, Surface Mounte...	18	46	4	10	4	10	3	2	0	0	0	FALSE	FALSE	0	0	0	
A5090	724	Disposal, Sanitary Napkin, SS, Surface Mo...	12	30	9	23	5	13	4	2	0	0	0	FALSE	FALSE	0	0	0	
A5106	653	Waste Disposal Unit, Sharps w/Glove Disp...	25	64	13	33	5	13	5	3	0	0	0	FALSE	FALSE	0	0	0	
A5107	451	Dispenser, Glove, Surgical/Examination, V...	6	15	11	28	4	10	2	1	0	0	0	FALSE	FALSE	0	0	0	
A5108	653	Waste Disposal Unit, Sharps	18	46	16	41	12	30	2	1	0	0	0	FALSE	FALSE	0	0	0	
A5109	653	Grab Bar, 1-1/4" Dia., SS, 2 Wall, W/C Ac...	3	8	57	145	3	8	7	4	0	0	0	FALSE	FALSE	0	0	0	
A5110	653	Grab Bar, 1-1/4" Dia., SS, 2 Wall, Shower	3	8	30	76	3	8	3	2	0	0	0	FALSE	FALSE	0	0	0	
A5120	653	Window, Observation, One Way	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE	0	0	0	
A5125	653	Back, Catch, Wall Mounted	0	0	0	0	0	0	0	0	0	0	0	FALSE	FALSE	0	0	0	

Figure 9: Screenshot of 2014 Item long Excel file of Mil Std 1691 Items



9. Limited User Base

The current users that interact directly with SEPS are limited to Criteria Managers and Project Managers who then output the results of projects to other users of the data such as architects. There is often no direct contact by architects to SEPS to be able to view assumptions on the criteria or the basis for the program for design. Since SEPS touches many types of business processes and stakeholders there is a potential for allowing other users to use data or provide data into SEPS. The current architecture of the system limits this potential to scale. More users of SEPS would drive the quality, use and value of the tool up.

10. Accuracy of SEPS Output

Users of SEPS area are aware that the automated output of SEPS generated Program for Design often requires manual editing of the data. As with any tool users need to be experienced enough to be able to spot potential errors in the output based on their own experience and knowledge. An advanced user of SEPS estimated that the output from SEPS is typically between 80-90% accurate and across the board all projects need to be manually adjusted to get the final 10-20%.

New users of SEPS need to be made aware of this accuracy level so as not to rely on the output from SEPS out of the box.

The accuracy factor is influenced by numerous elements of SEPS some of them outlined in this section of the report. Some are technical in nature while others are the constantly changing requirements of healthcare and the latency of the updates to the Criteria in SEPS that drive the algorithms to develop the Program for Design. There may also be complexities of the Criteria driven algorithms that automatically generate the Program for Design spaces and equipment. Some Criteria and Algorithms may be linear and do not need much interpretation while others may be influenced by other factors in healthcare planning that cannot be automated and require evaluation by a designer to establish the correct output, and therefore need manual adjusting.

There are also some users who may not be using SEPS correctly. Rather than starting with SEPS to create the baseline requirement and then adjusting the assumptions to match their project specific requirements, they may be starting from outside SEPS in spreadsheets, creating a Program For Design and then putting the result back

into SEPS. Although this may yield similar results it also defeats the purpose of SEPS to guide project standards and processes across a wide range of users, and provide a standardized auditable trail required within a corporate entity the size of the DoD-MHS and DVA. There may be numerous reasons why SEPS may not be always used correctly, including user training, and usability of SEPS in general. Making SEPS more user-friendly to decrease the learning curve should be a goal of future development.

11. SEPS Tables are bundled into the Same Tool

The challenge with the current and proposed structure of SEPS is that the Master Table and Project Tables are embedded into the same system with the same level of access and controls. This limits the possibility of users outside of SEPS that rely on SEPS data such as architects and designers working with DVA and DoD-MHS to view the current Master Tables. SEPS is currently accessed only by authorized users and the output from SEPS is delivered to the end users of the Program for Design and Project Room Contents as PDFs and Excel files. It is difficult if not impossible for the end user

to track back to the original assumptions that created the project specific output. In other words the current structure of SEPS has limited access to all stakeholders.

12. Monolithic Architecture of SEPS and Lack of an API (Application Program Interface)

SEPS is designed as a single tool with all the functionality built into the application. Although there is some granularity on the type of user who accesses the system, overall it is not possible for example to give limited access to users outside of the predefined types of users of SEPS. This limits the potential of having outside users such as architects, equipment suppliers or other stakeholders a limited view only access to SEPS criteria or projects. This also limits the potential to scale to support other business processes as more stakeholders and systems that may want to provide data or use data from SEPS are developed. For example, even other GOTS systems such as DMLSS could not currently query SEPS to get any type of data that would be useful to DMLSS. The lack of an open API into SEPS is partially due to the monolithic nature of the program and complexities of allowing

interaction with the data in SEPS to outside applications.

13. Security and Access

SEPS tools are only accessible to a limited number of users who have been cleared to use SEPS and received SEPS training. It typically takes quite a bit of time to gain access and then a receive training. The monolithic structure of SEPS which has bundled the Master Tables for criteria and the Project Tables into one tool causes the entire SEPS tool to be considered secure. The current SEPS architecture locks the data standards for rooms and equipment into a “secure” box with project specific data. It makes sense for the Project Tables to be secure, but bundling the Master Tables that have data about criteria and standards limits the potential of providing a more open access to this data that is already public and not project related. Even the Project Tables being secured limits potential access from other GOTS systems such as DMLSS.

Currently everything in SEPS is behind a log in and accessible only to authorized users. Even the publicly accessible data is not accessible by the public in SEPS. Project specific data in SEPS should not be accessible to the public and it is not. On

the other hand the way that Program For Designs that are specific to a healthcare facility and output from SEPS are typically shared with project teams is by attaching Excel or PDF files to an email, one of the least secure ways of sharing data.

14. SEPS 3.0 System Design Document Identified Challenges

Current Challenges Identified in the document:

On page 13 section 2.3.1 the following deficiencies have been noted regarding the current SEPS2.0 desktop application:

1. Inability to update Criteria data concurrently
2. Inability for healthcare facility planners to interactively develop a project
3. Inevitable problems with installing and maintaining a desktop-based Windows application
4. Slow performance, primarily due to desktop hardware limitations

Building a 21st Century Digital Government

The Presidential Memorandum on Building a 21st Century Digital Government, dated May 23, 2012, will enable more efficient and coordinated digital service delivery by:

- requiring agencies to establish specific, measurable goals for delivering better digital services;
- encouraging agencies to deliver information in new ways that fully utilize the power and potential of mobile and web-based technologies;
- ensuring the safe and secure delivery and use of digital services to protect information and privacy;
- requiring agencies to establish central online resources for outside developers and to adopt new standards for making applicable Government information open and machine-readable by default;
- aggregating agencies' online resource pages for developers in a centralized catalogue on www.Data.gov; and
- Requiring agencies to use web performance analytics and customer satisfaction measurement tools on

all ".gov" websites.

Complementary to this Strategy is IT Reform, which encourages continued and sustained progress in

- foundational execution areas such as adopting “light technologies” (e.g. cloud computing),
- shared services (e.g. commodity IT),
- modular approaches for IT development and acquisition, and
- Improved IT program management.

The strategy leverages this progress while focusing on the next key priority area that requires government-wide action: innovating with less to deliver better digital services. It specifically draws upon the overall approach to:

- increase return on IT investments,
- reduce waste and duplication, and
- Improve the effectiveness of IT solutions defined in the Federal Shared Services Strategy.

The Digital Strategy emphasizes a first step to:

- Establish a conceptual model that

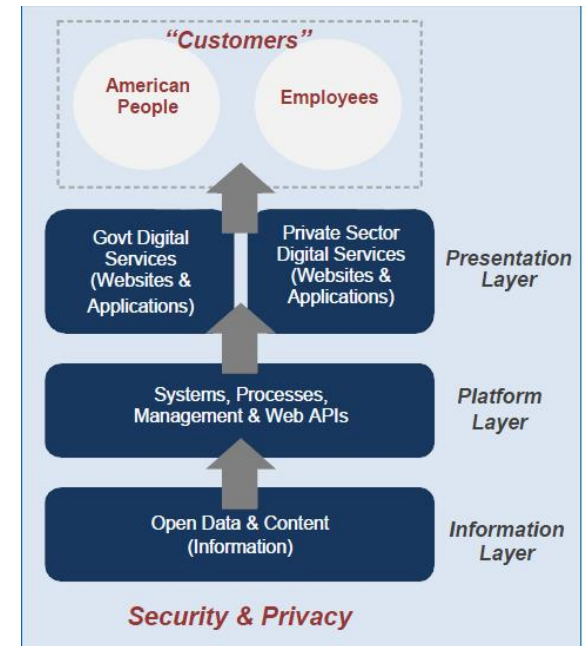


Figure 11: The Layers of Digital Services

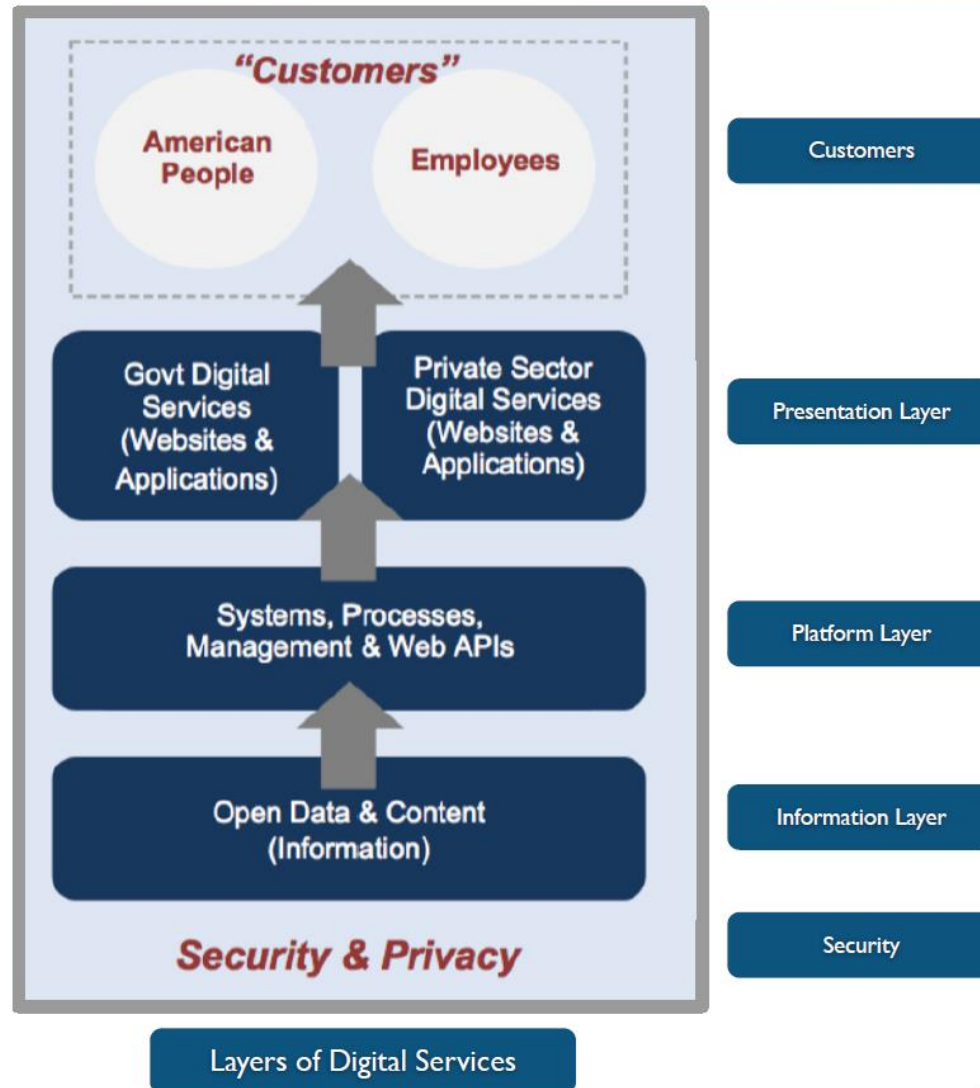
acknowledges the three “layers” of digital services.

- The information layer contains digital information. It includes structured information (e.g., the most common concept of “data”) such as census and employment data, plus unstructured information (e.g., content), such as fact sheets, press releases, and compliance guidance.

- The platform layer includes all the systems and processes used to manage this information. Examples include systems for content management, processes such as web API (Application Programming Interface) and application development, services that support mission critical IT functions such as human resources or financial management, as well as the hardware used to access information (e.g. mobile devices).
- The presentation layer defines the manner in which information is organized and provided to customers. It represents the way the government and private sector deliver government information (e.g., data or content) digitally, whether through websites, mobile applications, or other modes of delivery.
- These three layers separate information creation from information presentation—allowing us to create content and data once, and then use it in different ways. In effect, this model represents a fundamental shift from the way our government provides digital services today.

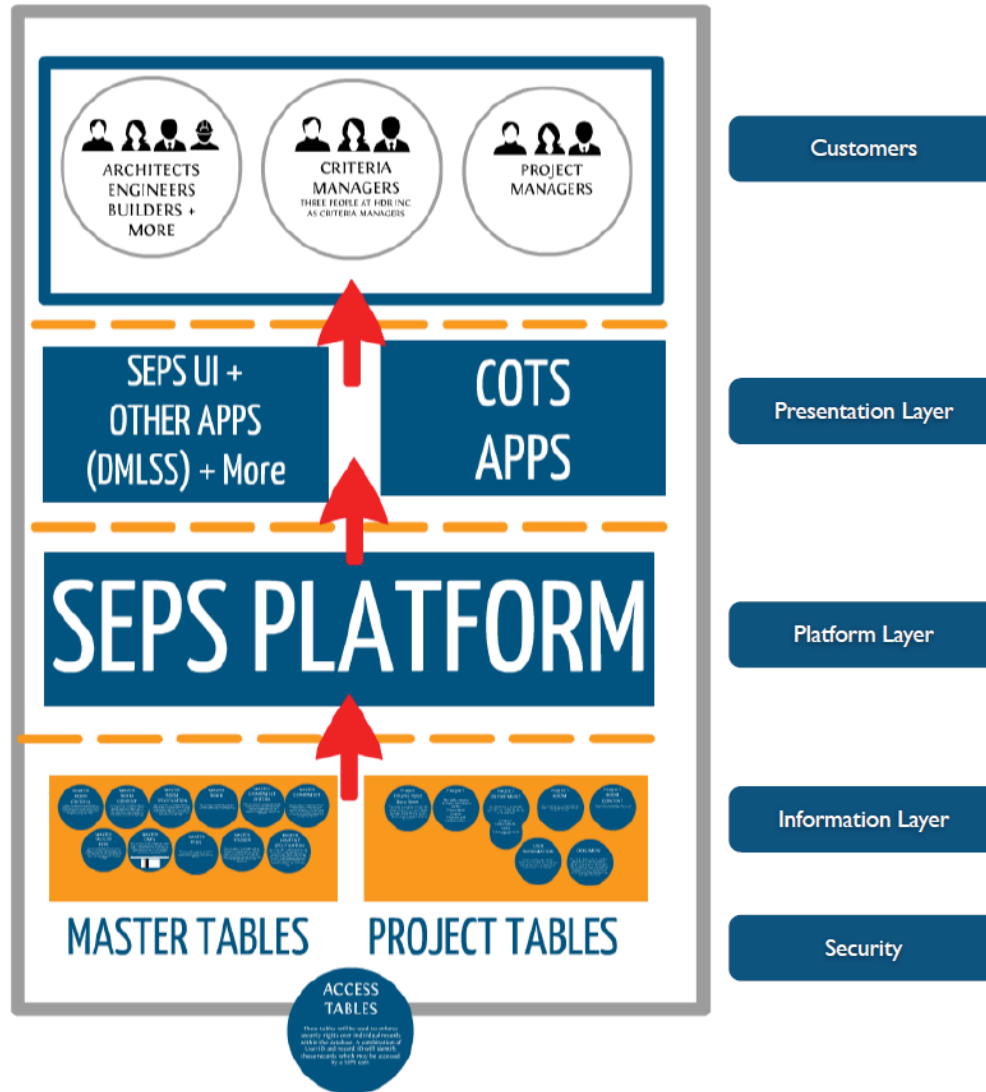


Aligned with White House, DOD, VA and MHS



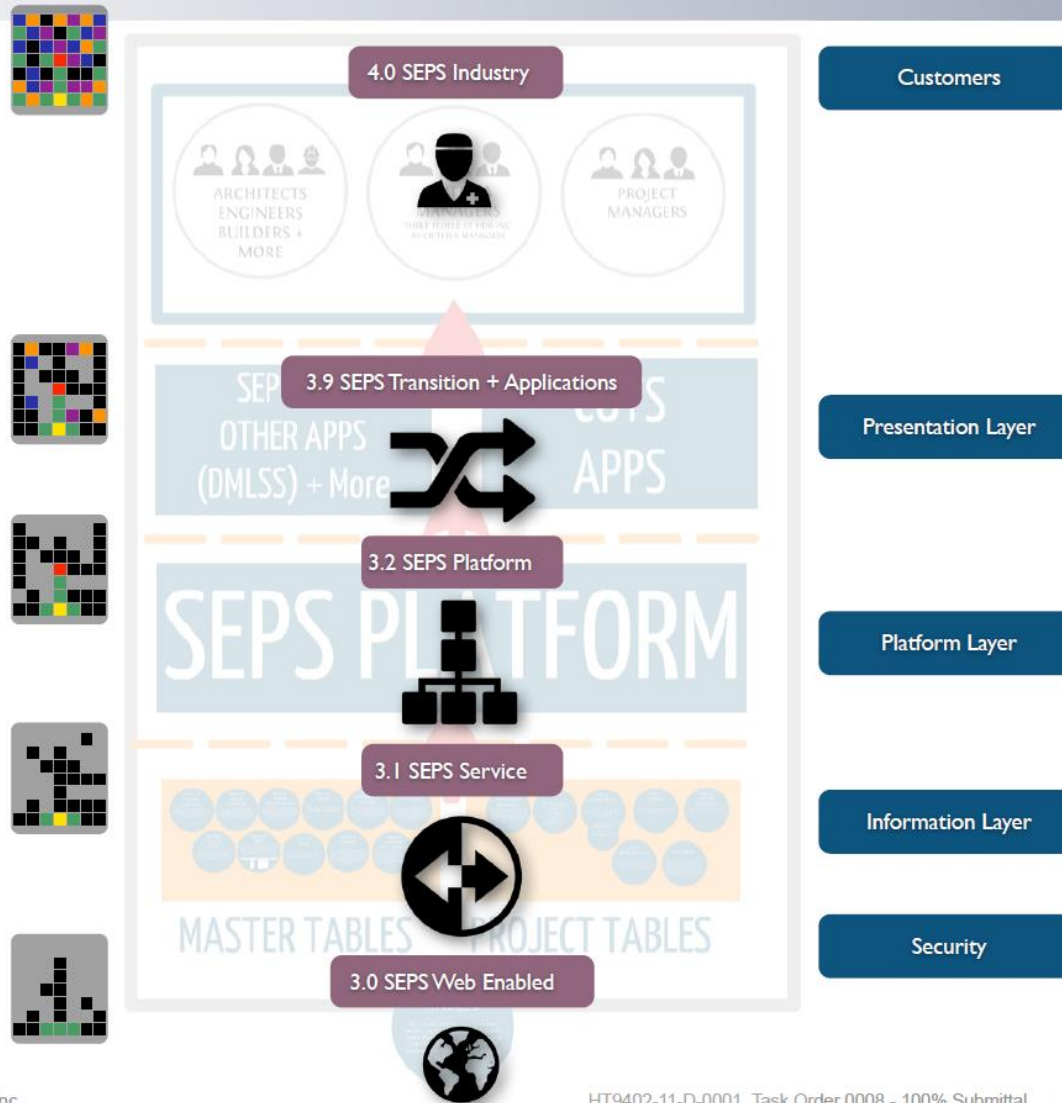


Aligned with White House, DOD, VA and MHS



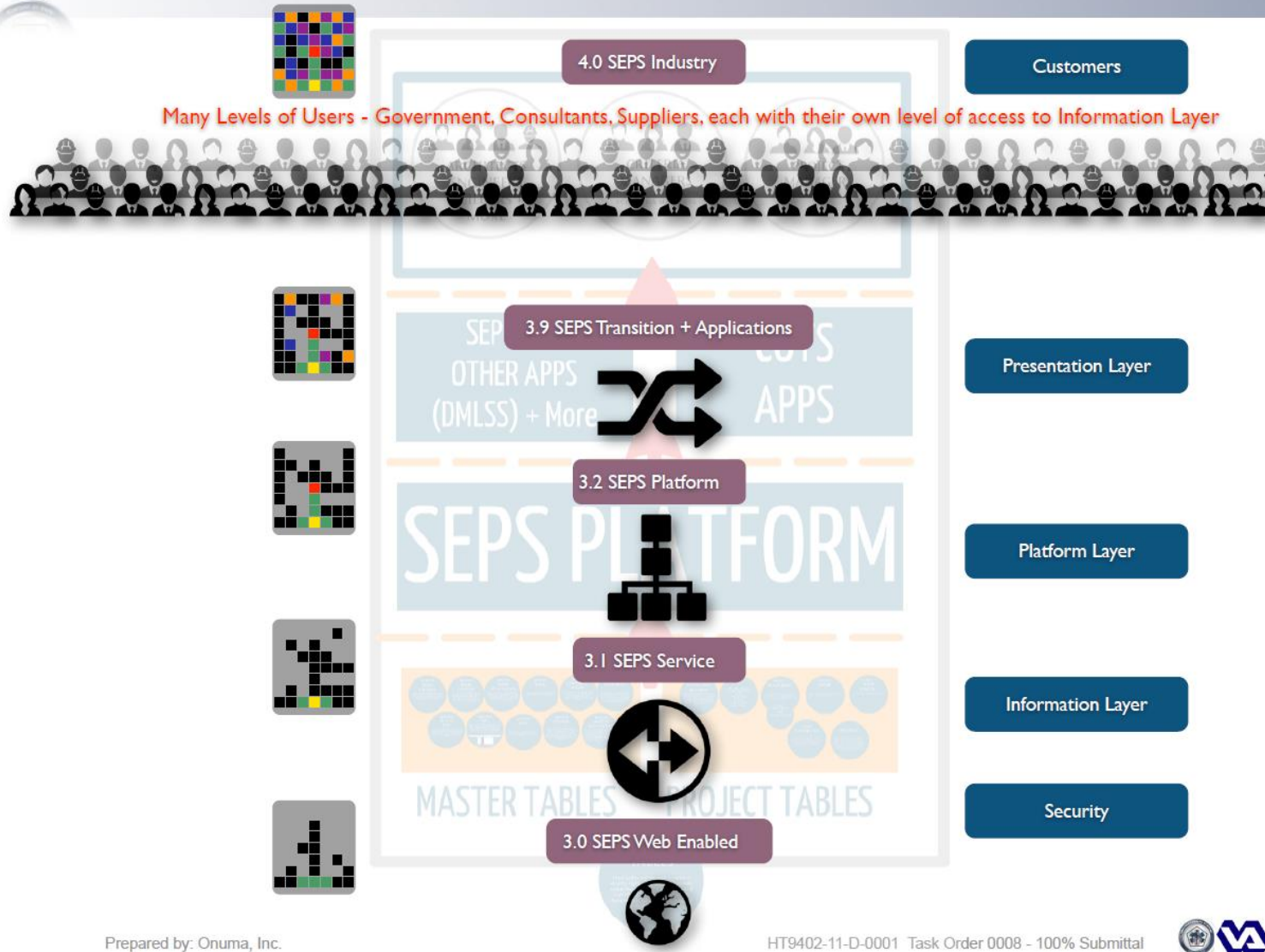


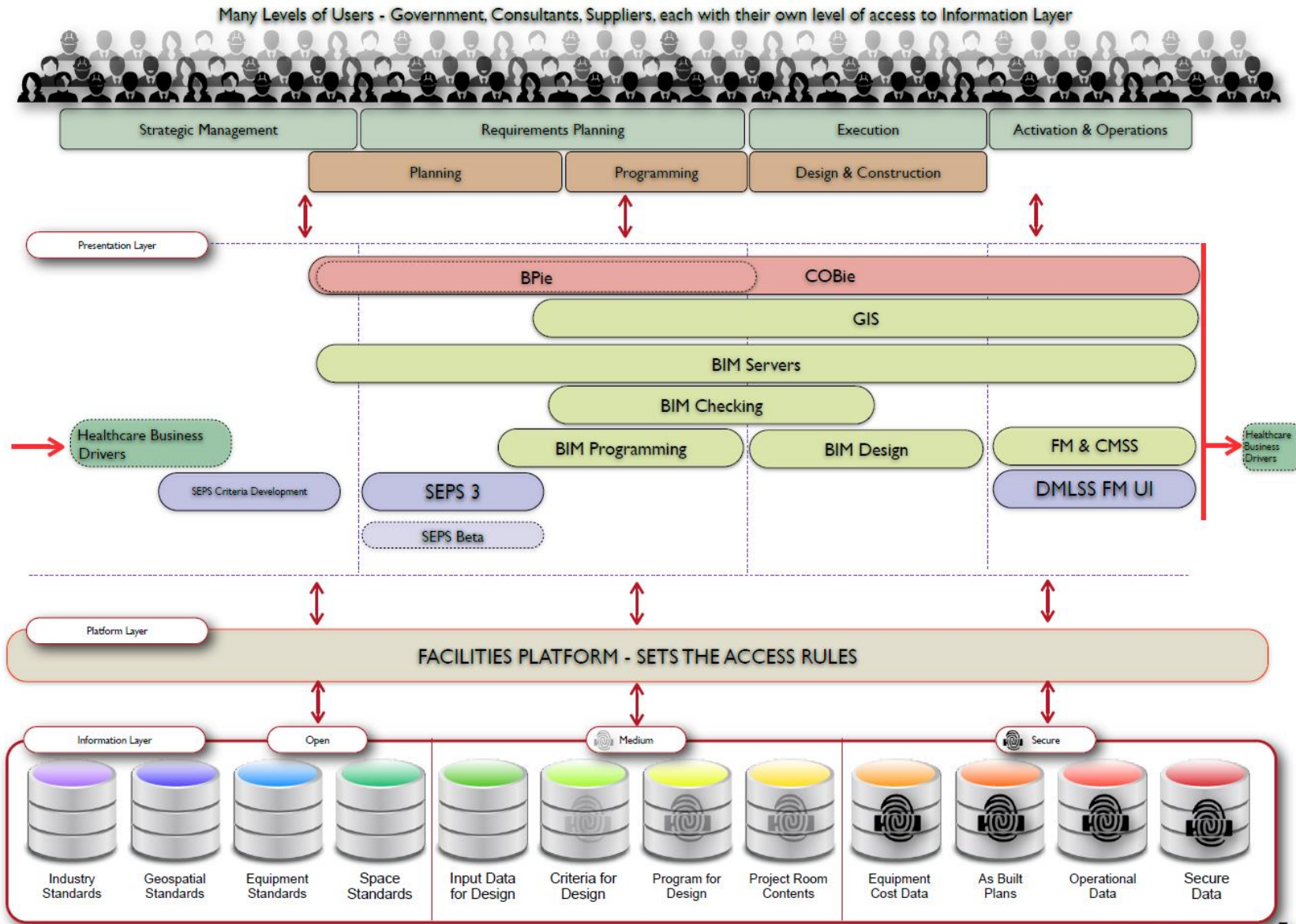
Aligned with White House, DOD, VA and MHS





Aligned with White House, DOD, VA and MHS

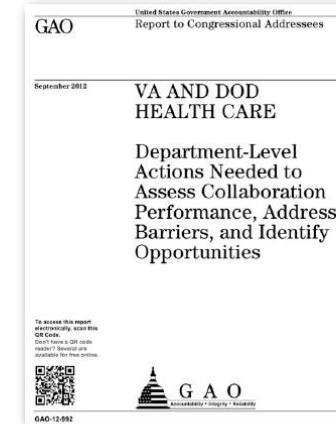




Government Initiatives to Improve Data Management

Before diving into SEPS specific strategies, it is useful to understand some of the broader data management and web/cloud based government initiatives that are taking place. This is especially relevant as SEPS transitions from the locally installed 2.0 to the web-based 3.0 version. A multitude of Executive Orders and initiatives from the Office of Management and Budget (OMB) seek to encourage a more streamlined, transparent execution of data management while employing an effective use of the web. This SEPS Strategic Plan acknowledges these larger governmental goals and objectives, as well as pressures, and seeks to use this opportunity to address some of these overarching and overlapping ambitions.

It is understood some of the issues raised by these government studies and initiatives maybe be addressed with a technological resolution or a business and workflow process or a combination of both. The aim of this strategic plan is to see what is pragmatic and reasonable from the perspective of developing and moving SEPS forward with the understanding SEPS should not be




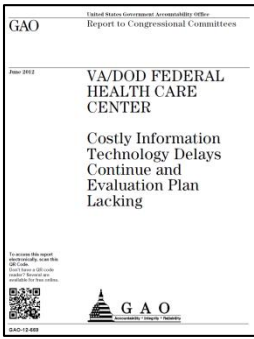
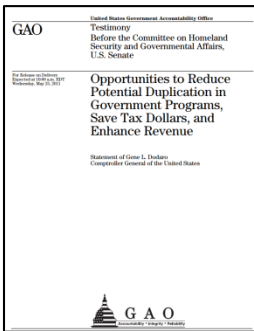
Veterans Administration Transformation Twenty-One Total Technology (VA T4)

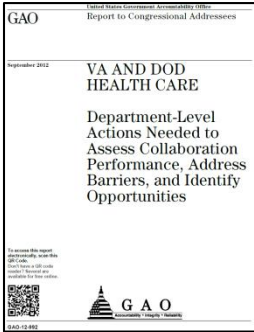


Veterans Administration Transformation Twenty-One Total Technology (VA T4) is a five-year indefinite delivery/indefinite quantity (IDIQ) contract that enables VA to modernize services through transformational capabilities, systems engineering, and other solutions that span the entire range of lifecycle-based IT including cyber security, LAN/WAN management, and technical facilities support. As the world's largest full-service technology company, HP Enterprise Services and our partners can deliver more to VA than any other IT team - including best-in-class capabilities and practices, innovation, and a distinct heritage of demonstrated service delivery excellence.

Figure 12: Align SEPS Strategic Plan with White House, DOD, VA and MHS

burdened with trying to solve all government information technology issues. However, this plan will seek to explore as many opportunities to enhance SEPS while bringing the related government data objectives a step closer to its goals.

The following table summarizes a portion of the findings related to governmental studies and initiatives related to better data management.

	<ul style="list-style-type: none"> • OMB Digital Government: Building a 21st Century Platform to Better Serve the American People (May 23, 2012) • Makes case for a “mobile-first” vision towards data management • Unlock federal data and make accessible to the public to spur innovation • <i>“Early mobile adopters in government—like the early web adopters—are beginning to experiment in pursuit of innovation... Building for the future requires us to think beyond programmatic lines. To keep up with the pace of change in technology, we need to securely architect our systems for interoperability and openness from conception. We need to have common standards and more rapidly share the lessons learned by early adopters. We need to produce better content and data, and present it through multiple channels in a program and device-agnostic way. We need to adopt a coordinated approach to ensure privacy and security in a digital age.”</i>
	<ul style="list-style-type: none"> • VA/DOD FEDERAL HEALTH CARE CENTER - Costly Information Technology Delays Continue and Evaluation Plan Lacking (June 2012) • Integration of VA and DoD medical health care experience costly delays in the area of Information Technology (IT) • <i>“...However, as previously reported by GAO, there have been delays implementing 1 of the integration areas—IT—which have resulted in additional costs for the FHCC, although the FHCC has been unable to quantify the total costs resulting from these delays. Despite an investment of more than \$122 million for IT capabilities at the FHCC, VA and DOD have not completed work on all components required by the Executive Agreement, which were to have been in place in time for the FHCC’s opening in October 2010...”</i>
	<ul style="list-style-type: none"> • Opportunities to Reduce Potential Duplication in Government Programs, Save Tax Dollars, and Enhance Revenue (May 25, 2011) • Testimony seeks to reduce waste by identifying and reducing redundant efforts • <i>“...We found that duplication and overlap occur for a variety of reasons. First, programs have been added incrementally over time to respond to new needs and challenges, without a strategy to minimize duplication, overlap, and fragmentation among them. Also, agencies often lack information on the effectiveness of programs; such information could help decision makers prioritize resources among programs. Lastly, there are not always interagency mechanisms or strategies in place to coordinate programs that address crosscutting issues, which can lead to potentially duplicative, overlapping and fragmented efforts....”</i>

	<ul style="list-style-type: none"> • VA AND DOD HEALTH CARE - Department-Level Actions Needed to Assess Collaboration Performance, Address Barriers, and Identify Opportunities (Sept 2012) • Improved collaborations between VA and DoD can lead to reduced overlap between these two separate health care systems. • Because VA and DOD collect, store, and process health information in different IT systems, providing access to information needed to best treat patients has proved problematic. • <i>“...VA and DOD do not have a fully developed process for systematically identifying all opportunities for new or enhanced collaboration. Instead, the identification of those collaboration opportunities is largely left to local medical facility leadership. Although the departments have a process for jointly identifying a select number of sites with opportunities for new or expanded collaboration, that process does not address all opportunities for collaboration across both health care systems and there is no requirement that sites identified by that process move forward to implement collaboration. Without a fully developed process to systematically identify and select additional collaboration opportunities, the departments may miss opportunities to achieve their shared goals and reduce duplication of services, such as through additional sharing agreements...”</i>
	<ul style="list-style-type: none"> • http://www.data.gov/ • <i>“A primary goal of Data.gov is to improve access to Federal data and expand creative use of those data beyond the walls of government by encouraging innovative ideas (e.g., web applications). Data.gov strives to make government more transparent and is committed to creating an unprecedented level of openness in Government. The openness derived from Data.gov will strengthen our Nation's democracy and promote efficiency and effectiveness in Government.”</i> • <i>“...Public participation and collaboration will be key to the success of Data.gov. Data.gov enables the public to participate in government by providing downloadable Federal datasets to build applications, conduct analyses, and perform research. Data.gov will continue to improve based on feedback, comments, and recommendations from the public and therefore we encourage individuals to suggest datasets they'd like to see, rate and comment on current datasets, and suggest ways to improve the site...”</i>
	<ul style="list-style-type: none"> • http://www.whitehouse.gov/open • Three principles of transparency, participation, and collaboration form the cornerstone of an open government. • Empower the public through greater openness and new technologies to influence the decisions that affect their lives. • See DoD and VA data scorecard

	<ul style="list-style-type: none"> • http://www.usaspending.gov/ • Provide the public with information about how their tax dollars are spent • Provide greater transparency about federal grants, loans and contacts • Provide an immense amount of data in easy to view charts and graphs, leveraging modern, web-based interfaces with simple “point and click”. Minimal training to use.
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Figure 13: Government Initiatives towards Better Data Management and Effective Web-Based Implementation

Government Trend towards Open Data

The ability for SEPS to become web-enabled is very much in alignment with the current trend towards the federal government making its data more open and accessible through cloud-based and “mobile-first” strategies. This is a very

good opportunity for the information that has historically been siloed within SEPS to become “decoupled” and the *data* made accessible, where appropriate, for other systems to transact with. This leverages the work effort already expended to generate this information and has the

potential to streamline workflows for other stakeholders that are involved in the planning, design, construction and management of federal healthcare facilities.



Figure 14: Government Initiatives towards Open Data

DoD Information Technology Enterprise Strategy, Executive Orders and other Legislation

There are several key pieces of legislation, Executive Orders (EO's), and DoD guidance that have both direct and indirect impacts on the SEPS strategic plan. See Appendix B for an overview of the other requirements and DoD programs and initiatives.

This section presents short list of recommendations that help align SEPS with the

- Coordinate with DoD CIO the implementation of the DoD Information Technology (IT) Enterprise Strategy and Roadmap 2011 and migration of SEPS to consolidated data centers and virtualization.
- Prepare MHS staff and SEPS users for SEPS to operate in a secure cloud environment as defined in the DoD Cloud Computing Strategy 2012.
- Prepare MH staff and SEPS users for the adoption and implementation of the DoD Risk Management Framework to replace DIACAP and use the RMF to accredit the next version of SEPS.
- Prepare vendors and the AECOM community to have medical equipment and devices certified to FIPS 199 standards and update the SEPS data elements.
- Conduct a Gap Analysis and develop Courses of Action to use the SEPS Strategic Plan to create an initiative and formalize a Modernization budget in compliance with the Business Enterprise Architecture and submit to the Real Property and Installations Lifecycle Management (RPILM) Investment Review Board for approval.
- Implement sustainability requirements for energy intensity and consumption; water, steam and natural gas consumption, and space utilization factors in SEPS data fields in support of the DoD Strategic Sustainability Performance Plan 2011 and the Enterprise Energy Information Management System 2012 initiative.

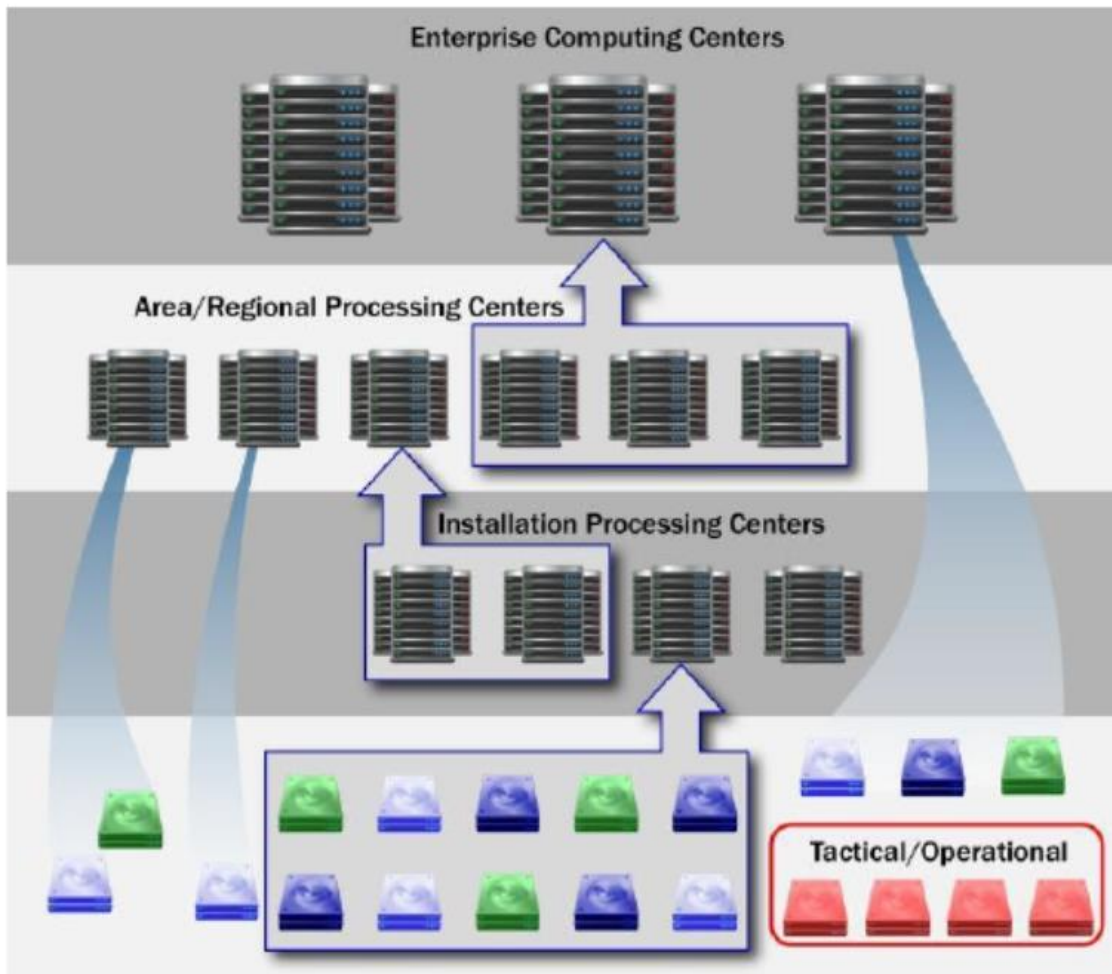


Figure 5-3: DoD Computing Center Consolidation Approach

Figure 15: DoD Data Center "End State"

DC Type	Definition
Core Data Center (CDC)	A fixed DoD data center meeting DoD standards for facility and network infrastructure, security, technology, and operations and adhering to enterprise governance under a “franchise” model. CDCs provide access outside the DoD environment.
Installation Processing Node (IPN)	A fixed DoD data center serving a single DoD installation with local services that cannot be (technically or economically) provided from a CDC. There will only be one IPN per DoD installation but each IPN may have multiple enclaves to accommodate unique installation needs (e.g. Joint Bases). IPNs will connect to the CDCs.
Special Purpose Processing Node (SPPN)	A fixed data center supporting special purpose functions that cannot (technically or economically) be supported by CDCs or IPNs due to its association with mission specific infrastructure or equipment (e.g., communications and networking, manufacturing, training, education, meteorology, medical, modeling & simulation, test ranges, etc.). No general purpose processing or general purpose storage can be provided by or through a SPPN. SPPNs will connect to the CDCs via IPNs.
Tactical/Mobile Processing Node (TPN)	Tactical/Mobile Processing Nodes will provide services similar to a CDC but optimized for the tactical or deployed environment. Depending upon the circumstances, TPNs will connect to the CDCs directly or via IPNs.

Figure 16: DoD Data Center "End State" diagram definitions

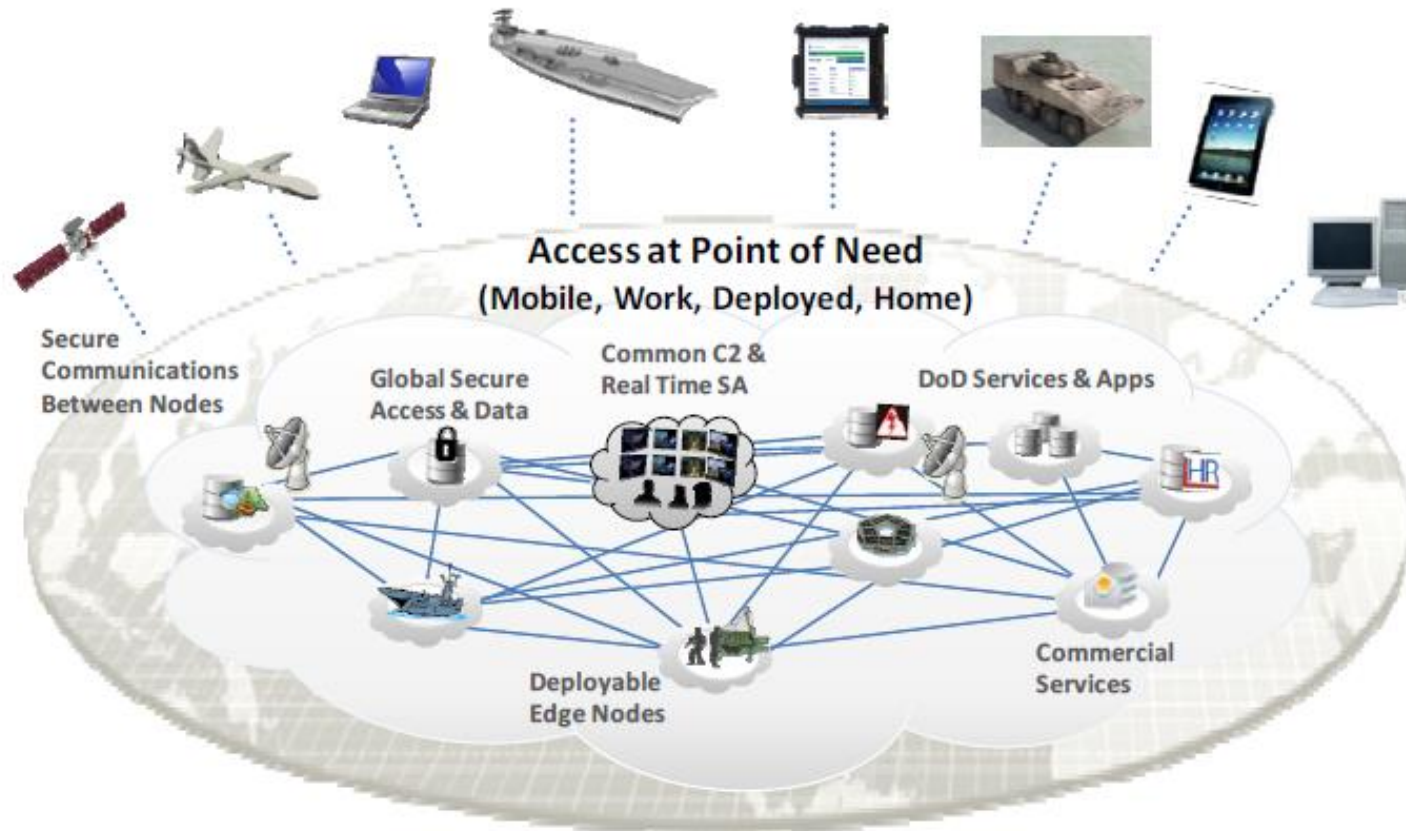


Figure 1: DoD Enterprise Cloud Environment

Figure 17: DoD Enterprise Cloud Environment

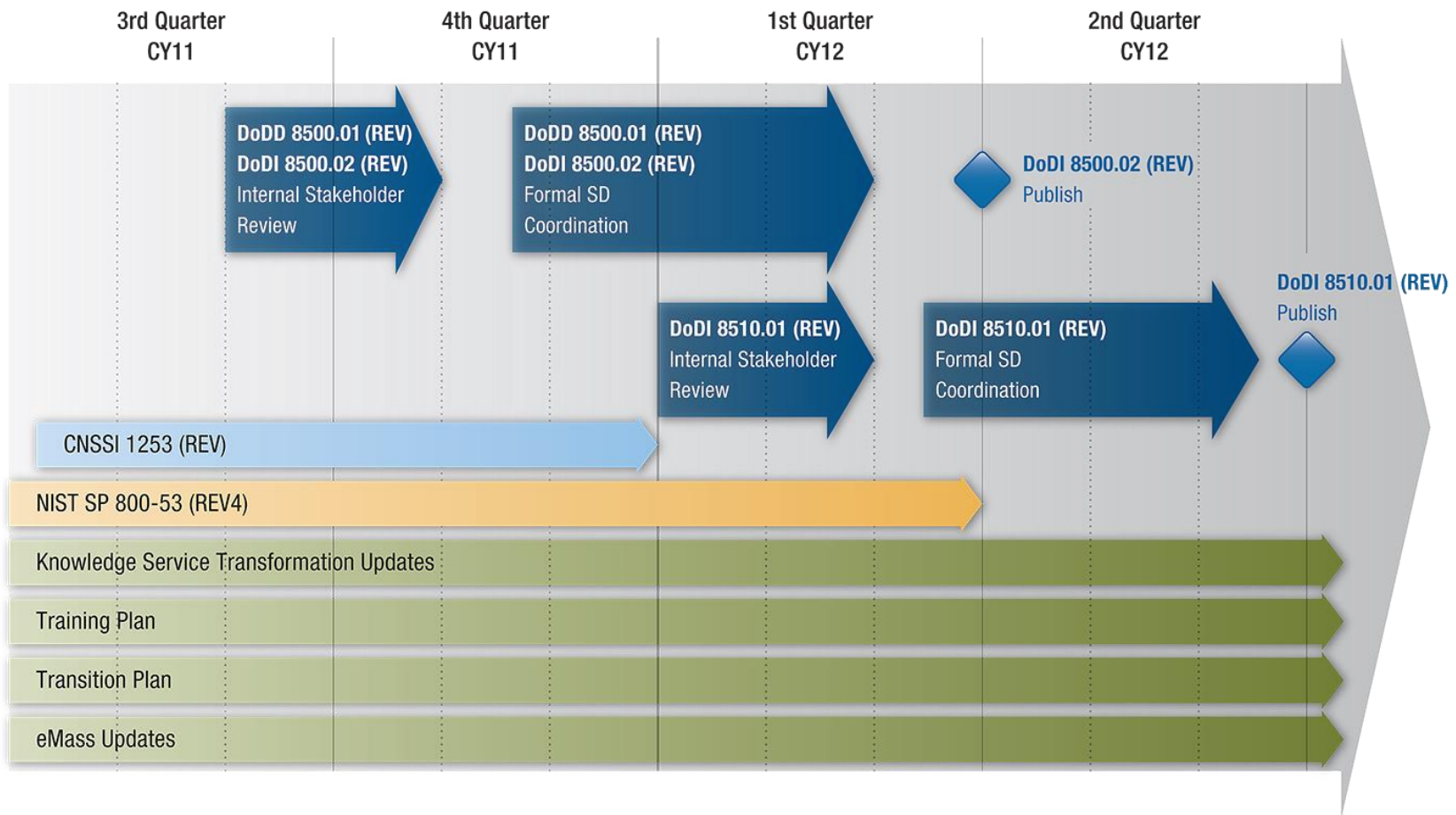


Figure 18: DoD 8500 Risk Management Framework timeline

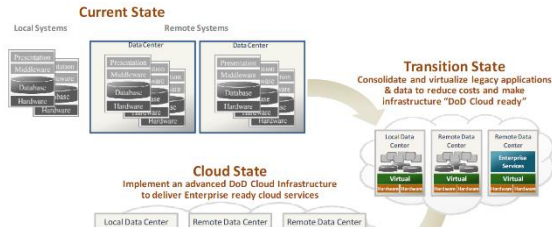


Figure 19: DoD Cloud Computing Strategy 2012

consolidated into Defense Enterprise Computing Centers (DECCs) by 2015 (or similar infrastructure inside DVA), and SEPS 3.0 should plan to operate in a virtualized DECCs.

DVA’s high-level goal is to consolidate all DVA enterprise assets into approximately four data centers with no VA owned data centers. DVA will achieve this goal in a series of planned phases, the first of which

will be to co-locate DVA health care IT systems currently operating in 80 or more medical center locations into two Defense Information Systems Agency (DISA) Defense Enterprise Computing Centers (DECCs).

SEPS, along with all DoD and VA IT applications, are in the process of being

<p>Phase 1 (VHA) 2011-2013 Co-location of VistA and related systems from medical facilities in regions 2 and 3 into DECCs.</p>
<p>Phase 2 (VHA) 2014-2015 Co-location of VistA and related systems from existing regional data centers into the DECCs.</p>

As part of DVA’s strategy to greatly consolidate data centers, DVA will initially co-locate and manage systems with intent to migrate to Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS).

While the Cloud Computing Strategy will have a near-term impact on SEPS, it should be a relatively easy migration and have limited impact on the user community. Much more challenging will be identifying, preparing for, and executing new technologies and business

process that dramatically shorten the traditional IT, facilities, and acquisition lifecycle and how SEPS will be modernized and sustained. These technologies and initiatives include:

- Integration of SEPS with Geospatial Information Systems
- Integration of SEPS with Building Information Modeling
- Updating SEPS space classification criteria using IFMA/BOMA and Omni Class standards
- Integration with CMMS/IWMS

- Incorporating Collaborative Project Management & Web conferencing technologies with SEPS process
- Updating SEPS to the DoD Business Enterprise Architecture v10
- Accrediting SEPS using the new DoD 8500 Risk Management Framework
- Coordinating with vendors and suppliers to get medical equipment FIPS certified and into SEPS equipment lists
- Develop or update SEPS total life-cycle cost modules and reconcile

how the DoD MILCON and SRM, and the DVA Capital and Minor projects and O&M, budget cycles interface on joint projects

- Updating the DoD Information Technology Portfolio Repository and budget for long-term sustainment funding.

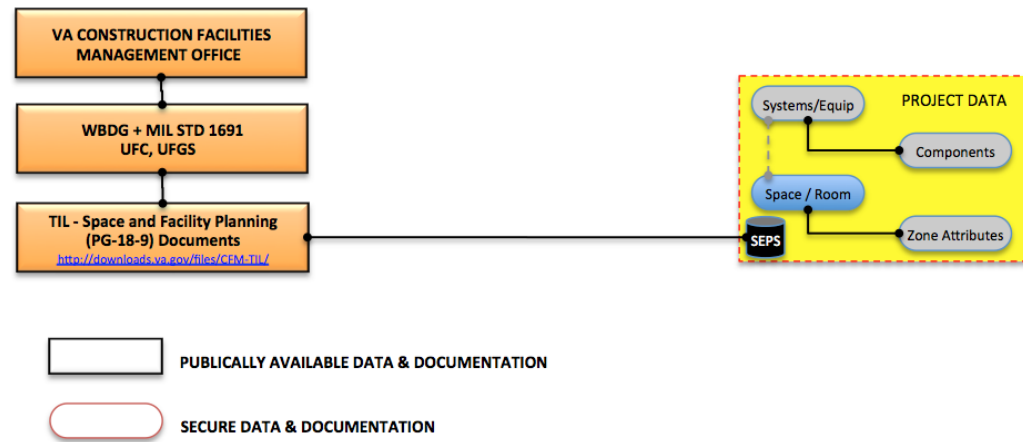


Figure 20: Existing SEPS Configuration

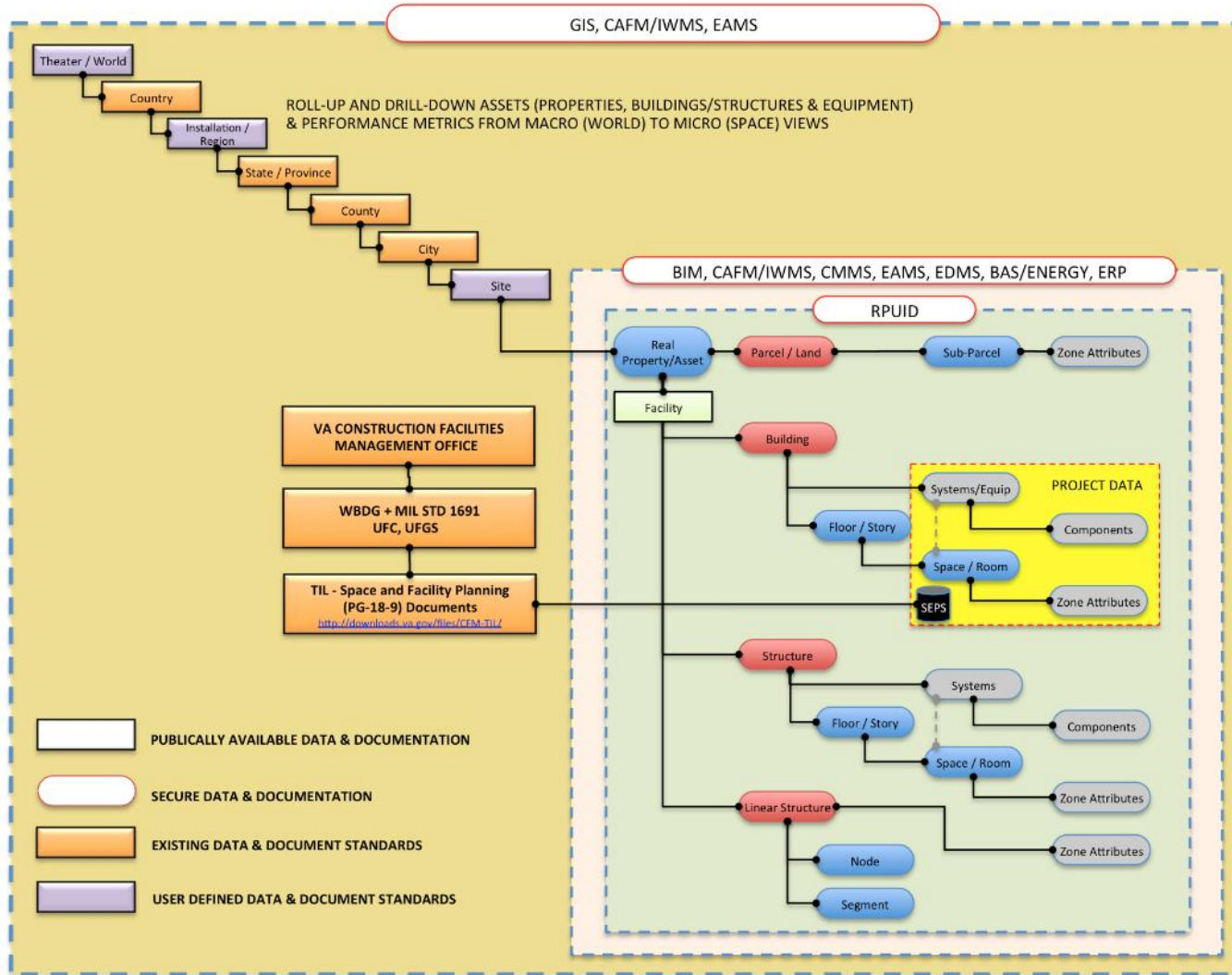


Figure 21: SEPS Conceptual Model within Real Property System

Full Life Cycle Management (FLCM)

SEPS “Starts” Data for Facilities

SEPS sits at the very beginning of the planning and programming stages of the Facility Life Cycle and has a significant influence downstream on DoD MHS and VA facilities. Two views of the FLCM are important:

- The approved diagram of the DoD Facility Life Cycle illustrates how facility life cycle is truly a “circle” with significant opportunity for feedback from the beginning of Requirements Planning all the way through to Corporate Strategic Facilities Management
- The Military Medical Construction Timeline illustrates that projects typically take 5 to 8 years to plan, design, construct, out-fit and occupy a health care facility.

With SEPS 3.0 at the beginning of the facility lifecycle, its ability to positively influence the quality of health care facilities is enormous. In addition, with the longer the length of time it takes to plan, design, procure, construct and deliver facilities, the more likely portions of the



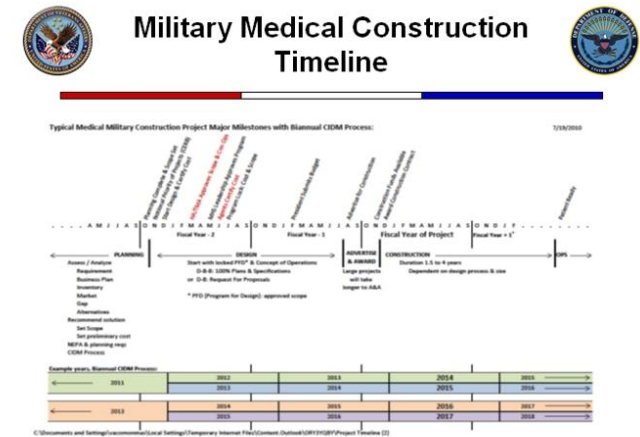
newly opened facility will be out of date or

Figure 22: Facility Life Cycle and the Military Medical Construction Timeline

fail to satisfy dynamically changing new models of health care the facility needs to support.

AEC’s and Design & Construction

The other current challenge of fully supporting the vision of FLCM is that often times the AEC of a particular project, becomes the “bridge” to maintain continuity among the data structure. Typically they are given the PFD and the PRC at the beginning of their work. They further vet the program and then begin



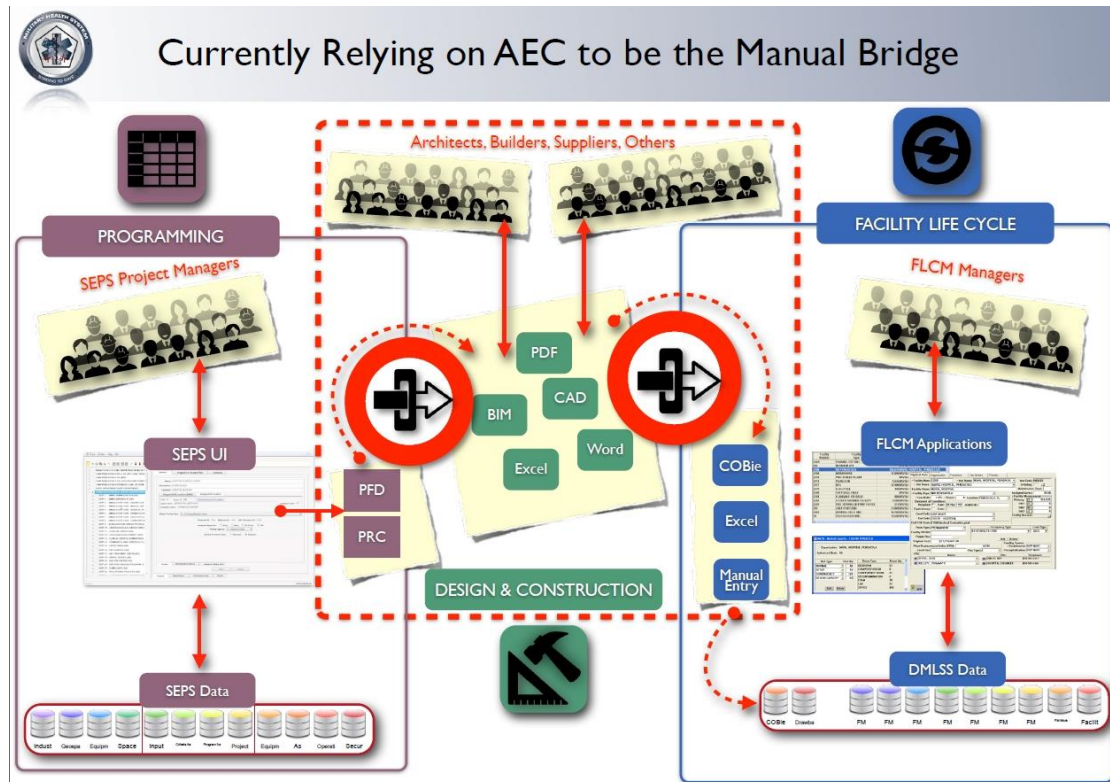
their planning and design work. By the

time the project has matured throughout the Design and Construction phase, the data initially generated by SEPS becomes manipulate, translated and morphed into a new “language” that manifests in the form of BIM/CAD, Excel and Word docs that describe the facility ready for construction. However, the essential “linkages” and connection back to the original SEPS data becomes eroded since the intent of the SEPS data is to establish the initial project baseline and not account

for the more detailed project information to follow in some of these downstream phases.

Bridge the Data

This strategic plan maintains the level of data just needed to establish the baseline PRD and PRC. The manner in which this is done however allows for that continuity, where applicable, to be carried through for the downstream phases and to help support the Facility Management (FM) phase of the real property. In addition to that, the strategic plan also envisions the availability of the more accurate inventory of current, "as-is" conditions will help support the kinds of work effort that will take place at an early project phase where SEPS will typically be employed. Thus, this achieves the vision of truly implementing and maintaining a FLCM strategy that



comes full circle for all of the medical facilities under consideration. *Figure 23: Challenges of maintaining data integrity to support FLCM*

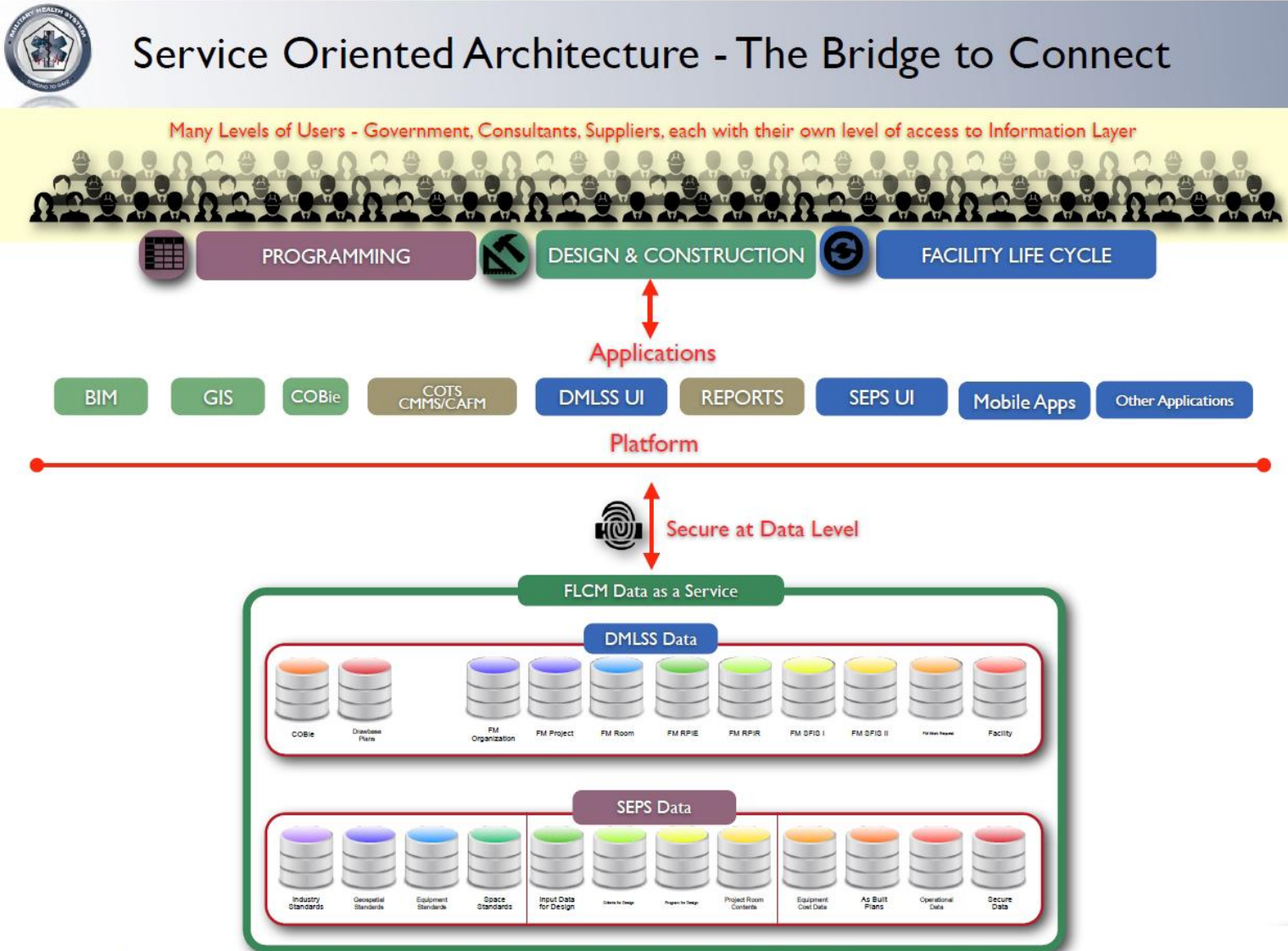


Figure 24: Using SOA as a means to bridge data across phases

SEPS Releases Beyond 3.0

Introduction

The recommendations made in this SEPS Strategic Plan are organized by distinct “releases” of SEPS. These incrementally developed versions of the application utilize the concept of an “Agile” approach vs. the “Waterfall” approach to software design. The main advantages of an agile approach is its adaptability and responsiveness to course correction when implementing new features and capabilities.

The traditional or “waterfall” approach towards software design is based on a serial, sequences of steps. Each step must be completed before the next step can start. The disadvantage of this traditional approach is it requires long development cycles and is not conducive to course correction once decisions have been made in each step. A shift in policy, procedures or implementation strategies means going back to previous steps and adjust accordingly. An example of software using the Waterfall Model for development is Microsoft Windows operating system (i.e. XP, Vista, Windows 7, and Windows 8).

The Agile Model assumes adjustments and course corrections will be needed. It also

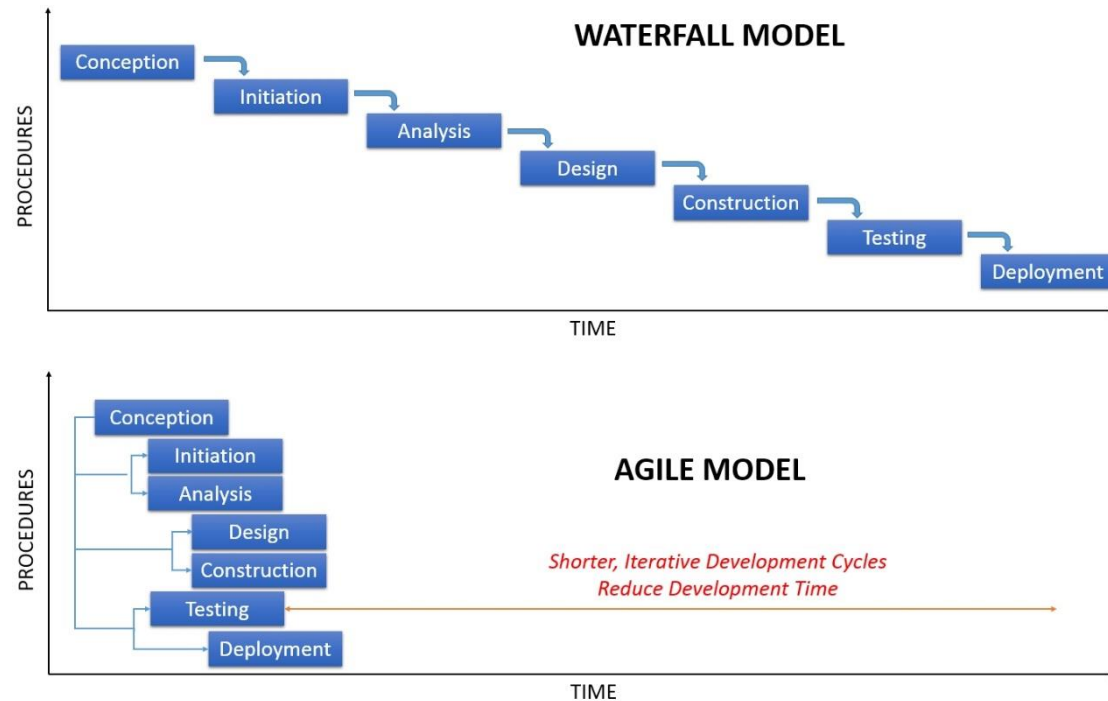


Figure 25: Agile vs. Waterfall Model

acknowledges smaller, incremental developments will be less disruptive to users than major shifts to the application’s user interface, functionality and overall user experience. Rather than adopt a serial accession, this model may have several steps running in parallel. The incremental changes are small enough to manage and evaluate as it is being designed and tested. This method is also

better suited to take advantage of future technologies since it is less “fixed”, thus making the system more “future-proof”. Examples of applications using the Agile Model include the various web-based products from Google (i.e. Gmail, Google Maps, and Google Calendar).

Conceptually, much of the strategies and implementation steps were based on the

agile approach. The following releases of SEPS have steps built into them that work well and create synergies with each other. Each subsequent release builds off the foundation the previous release provides as well as synergizing and adding new functionality incrementally to the overall application.

The earlier efforts in SEPS 3.1 and to some extent, 3.2 are meant to mobilize the application to more fully capitalize on the new web-based environment. These efforts, to a large extent, are meant to be more “behind-the-scenes” preparatory releases and the typical SEPS user will not notice much change in their day to day use of SEPS. However, these early steps are critical to the success of maintaining SEPS in this new web-based environment and fully taking advantage of all the potential of integrating with other web-based capabilities in this cloud ecosystem.

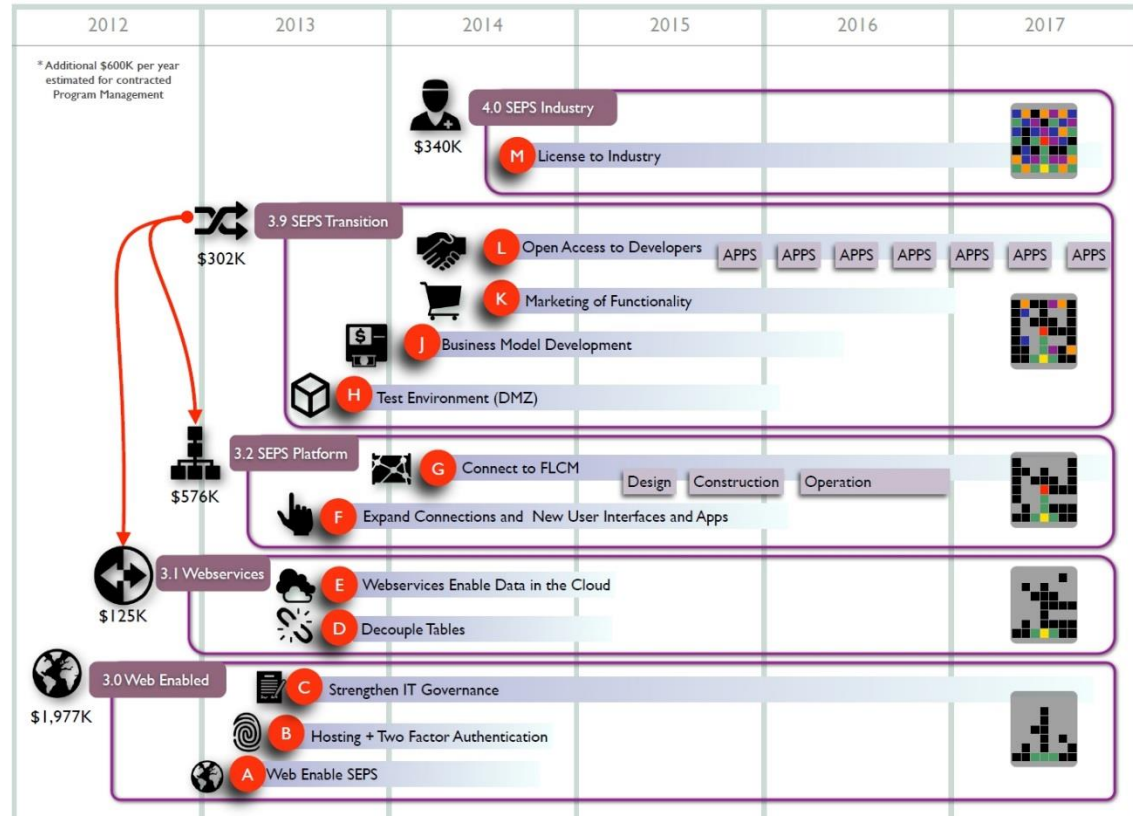


Figure 26: SEPS Strategic Plan Timeline



SEPS Development Phases and Features

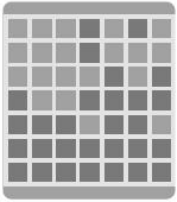
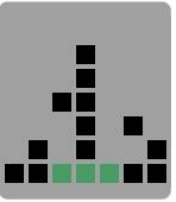
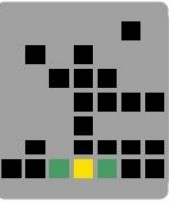
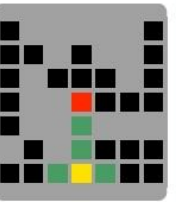
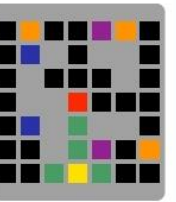
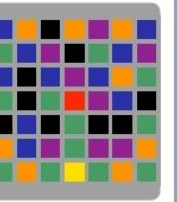
	 SEPS Legacy	 SEPS 3.0 Web Enabled	 SEPS 3.1 Webservices	 SEPS 3.2 Platform	 SEPS 3.9 Transition	 SEPS 4.0 Industry
	2012	2013 - Q1	2013 - Q3	2013 - Q4	2014	2014
Web Enabled		○	○	○	○	○
Two Factor Authentication		○	○	○	○	○
Decoupled Data			○	○	○	○
Webservices API			○	○	○	○
New User Interfaces and Apps				○	○	○
Hosted DMZ Test Environment					○	○
Third Party Developer Apps					○	○
License to Private Industry						○

Figure 27: SEPS Development Phases and Features

SEPS 3.1 - Webservices



Order of Magnitude Budget: \$ 35,200

- D1** Place all SEPS Master Tables on Max.gov
- D2** Place SEPS Project Tables on Max.gov
- D3** Place SEPS Criteria Input Tables on Max.gov
- D4** Place Live Links to Services on WBDG



Order of Magnitude Budget: \$ 90,600

- E1** Mil. Std. 1691 as a Service
- E2** Appendix B of UFC 4-510-01 as a Service
- E3** Launch Beta of SEPS Data as Services
- E4** Launch SEPS Data as Services

The primary objective of the SEPS 3.1 release is to initiate the use of webservices in the application. This step begins to capitalize the foray into Services Oriented Architecture (SOA) and cloud computing that was obtained in SEPS 3.0.

This release starts the critical step of decoupling some of the critical data tables from SEPS. This is a fundamental move towards the separating the **Information Layer** from the **Platform Layer** that was outlined in the digital services described in the document, “Digital Government:

Building a 21st Century Platform To Better Serve the American People”. The importance of this step is it establishes a single, authoritative source for specific data elements that can then be used in multiple locations. This architecture provides a mechanism for the source data to be updated which in turn will automatically update the instances of those data elements where they happen to be referenced. This eliminates much of the latency and fragmentation issues that occur when multiple copy “instances” of the same data is being used as the latest publication of that information.

The following data tables are proposed to be the first to be decoupled.

- **Mil. Std. 1691**
- **Appendix B of UFC 4-510-01**

These two tables have been selected as the “low-hanging fruit” in this initial step. Their use in SEPS is clearly identifiable and there is also value in being able to provide these tables as a service since these data elements can be consumed through webservices in many other governmental functions. This creates numerous benefits as a by-product to standing up SEPS. This ripple-effect of benefits is part of the strategies intended in this report. The

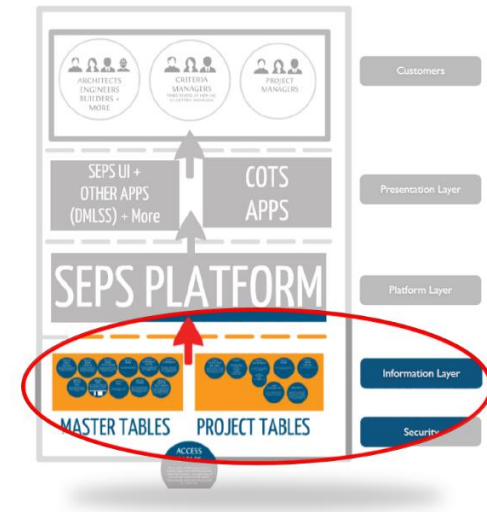


Figure 28: Decouple Data in the Information Layer

planning of better data management and implementation for the SEPS application will also echo through to other government applications and systems that share or interact with the information that is directly and indirectly related to the information processed when using SEPS.

In addition to decoupling Mil. Std. 1691 and Appendix B of UFC 4-510-01, the following tables within SEPS will be made available on MAX.gov. as webservices.

- **SEPS Master Tables**
- **SEPS Project Tables**
- **SEPS Criteria Input Tables**

The intent here is to further expand the process of differentiating the data layer from the platform layer. The data in these three categories represent information fundamental to the use of SEPS. By making the Master and Project tables available beyond the SEPS application, it opens the accessibility to a larger number of people that are authorized to view this information, but may not have access or training in SEPS to get to this data.

Similarly, the availability of the SEPS Criteria Input Tables as webservice on

MAX.gov provides the first step to using the cloud environment to maintaining, managing and implement the ever-changing planning drivers and criteria all in one step. This reduction in latency as it pertains to integrating the criteria back into SEPS is a key benefit that a collaborative, cloud-based environment accommodates.

Another objective SEPS 3.1 sets to accomplish is unveiling the “black box” nature of a complex application and shed light on revealing the data elements and

drivers that ultimately produce the baseline Program for Design (PFD) and Project Room Contents (PRC). This increase in transparency starts to inform users how the “engine” of SEPS is assembled and configured. It also begins to open the door for a greater potential pool of subject matter experts that may participate in the maintenance and development of future versions of SEPS as opposed to the select few that currently understand how this engine works.

SEPS 3.2 - Platform



Order of Magnitude Budget: \$ 288,000

- F1 Access 1691 in New UI
- F2 Access of Appendix B New UI
- F3 Access of Master Tables
- F4 Access of criteria data
- F5 Access to Project Tables
- F6 Demonstrate Mobile Applications
- F7 Beta test import and export using other Apps
- F8 Export using other Apps
- F9 Expand SEPS Connections



Order of Magnitude Budget: \$ 297,000

- G1 Prototype Connection potential of data
- G2 Develop Connections to CAFM and CMMS

The previous release laid the foundation for providing some of the fundamental data tables available for use in the cloud environment. In SEPS 3.1, those data tables will be integrated with the SEPS platform. This release will expose some of the benefits of synthesizing the Information Layer with the Platform Layer previously discussed.

The SEPS Platform includes specific, new user interfaces (UI) that access the decoupled Mil. Std. 1691 and Appendix B

of UFC 4-510-01 tables. These UI's is one of what will likely be many other UI's that can begin to consume this data that is now available as a service. Additionally, this release of the SEPS Platform will also



Figure 30: Develop the SEPS Platform

provide a UI to access the Master Tables, Criteria Data and Project Tables.

The other opportunity explored when developing a SEPS Platform is use of many different mobile devices that can consume the data coming from SEPS. This is analogous to distributing news through traditional print media vs. making the news data available as a web or news feed, which then in turn, can be consumed

through a variety of different media. For the same work effort it takes to assemble and generate the initial information, the



Figure 29: Traditional vs. Web-based Distribution of Data as a Service

data can now be made available as a service to be distributed to a multitude of computers and devices to a wider group of people. This optimizes the value of the data by making it more accessible to the appropriate stakeholders associated with the medical facility under consideration.

This also forecasts the opportunities of aligning the data generated during the SEPS planning phase with the downstream activities associated with Design and Construction as well as opportunities in supporting CMMS and CAFM systems. It is understood since these activities are downstream from SEPS, additional effort is not to be spent within SEPS developments

to support activities beyond the application. It should just be noted these benefits become available as a by-product of web-enabling the data. This strategic plan to increase the efficiency within SEPS and its stakeholders has the ripple-effect of producing similar efficiencies as the data transitions to the downstream phases and activities.

There is also the opportunity to make use of the data processed in SEPS to support work efforts such as managing the criteria and developing BIM templates. The process of updating the criteria can make use of the “live” data directly and there are mechanisms to even automate the generation of the tabular data into graphical BIM data. This continuity of information formats is a constant principle that is incorporated in 3.2 and becomes much more fully embraced in the 3.9 release.

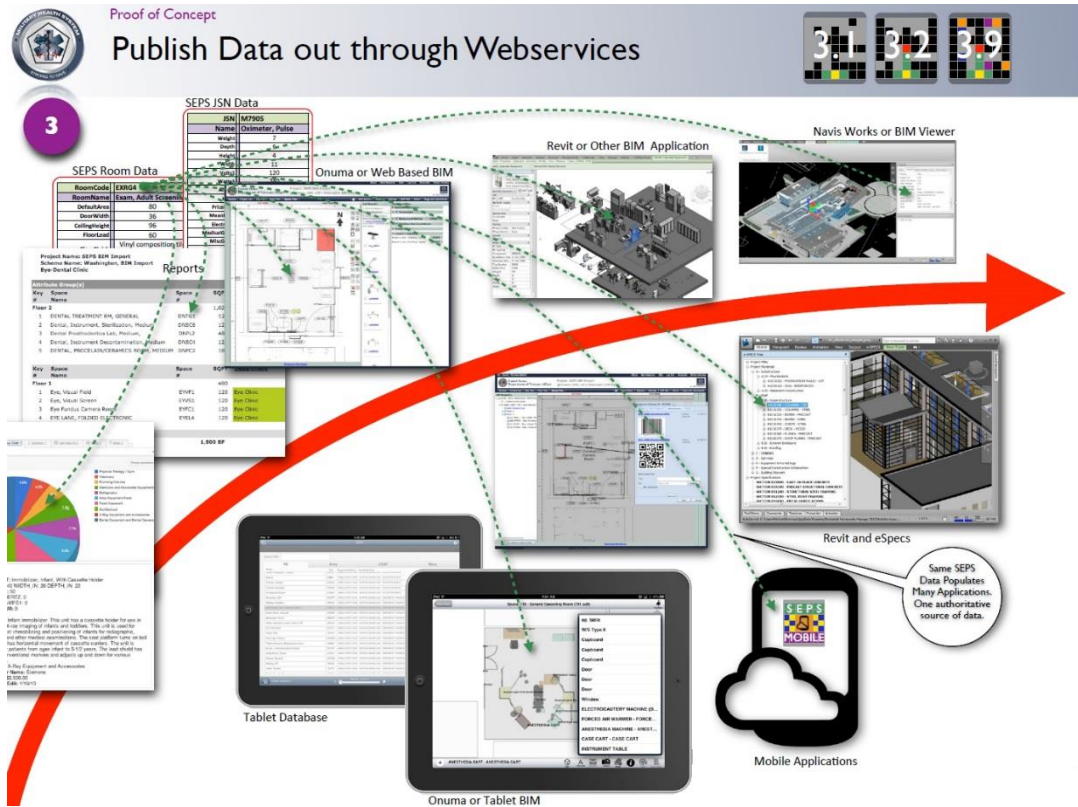


Figure 31: Explore making data more accessible using Webservices



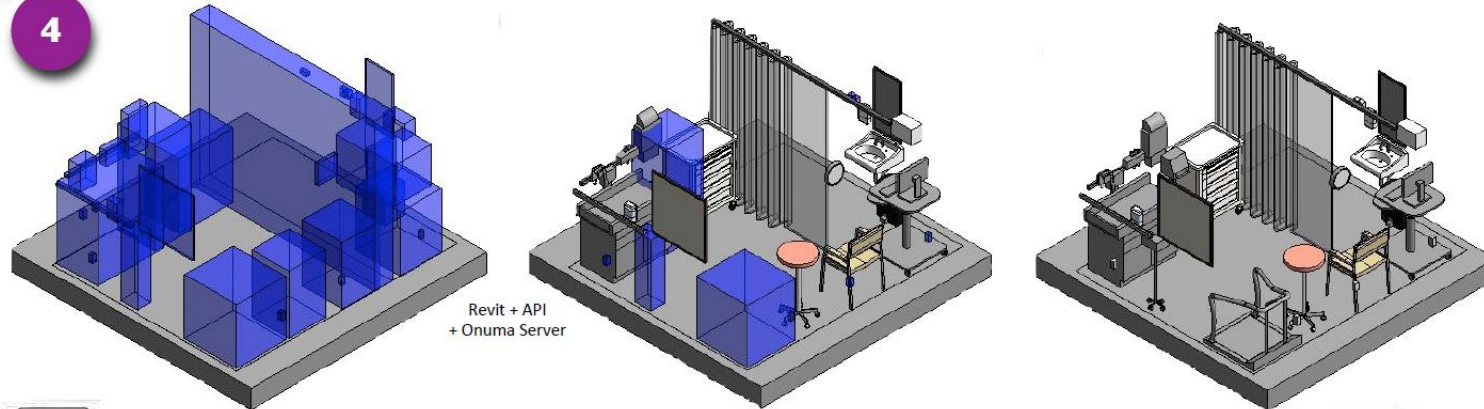
Proof of Concept

Templates and Criteria Management

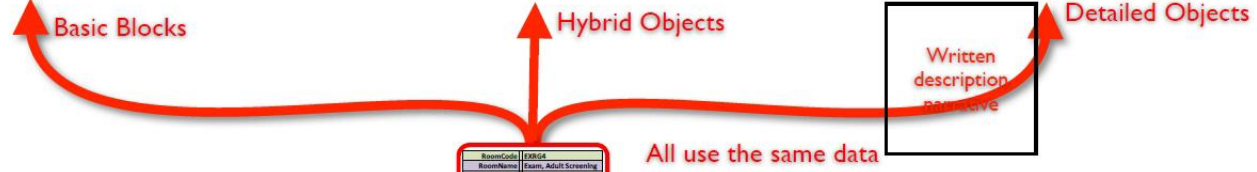
Updating of SEPS Templates with Live Links to SEPS



4



- Criteria
- UFC (Appendix A)
- MS-1691
- Templates (Guidelines)



JSN	M7905	JSN	M7905	JSN	M7905	JSN	M7905	JSN	M7905	JSN	M7905	JSN	M7905	JSN	M7905	JSN	M7905
M4116	Monitor, Vital Signs	M7905	Chimetry, Pulse	M7905	Chimetry, Pulse	M7905	Chimetry, Pulse	Exhibit	Exam, Adult Screening	M7905	Chimetry, Pulse	M7905	Chimetry, Pulse	M7905	Chimetry, Pulse	M7905	Chimetry, Pulse
Weight	7	Weight	7	Weight	7	Weight	7	RoomCode	Exhibit	Weight	7	Weight	7	Weight	7	Weight	7
Depth	9	Depth	9	Depth	9	Depth	9	RoomName	Exam, Adult Screening	Depth	9	Depth	9	Depth	9	Depth	9
Height	10	Height	11	Height	11	Height	11	SourceName	86	Height	11	Height	11	Height	11	Height	11
Width	10	Width	4	Width	4	Width	4	RoomType	86	Width	4	Width	4	Width	4	Width	4
Vols1	130	Vols1	130	Vols1	130	Vols1	130	RoomDesc	86	Vols1	130	Vols1	130	Vols1	130	Vols1	130
Vols2	240	Vols2	240	Vols2	240	Vols2	240	RoomCode	86	Vols2	240	Vols2	240	Vols2	240	Vols2	240
Ampl1	2	Ampl1	2	Ampl1	2	Ampl1	2	RoomName	86	Ampl1	2	Ampl1	2	Ampl1	2	Ampl1	2
Ampl2	2	Ampl2	2	Ampl2	2	Ampl2	2	RoomDesc	86	Ampl2	2	Ampl2	2	Ampl2	2	Ampl2	2
PresDate	1/12/2009	PresDate	1/12/2009	PresDate	1/12/2009	PresDate	1/12/2009	RoomCode	86	PresDate	1/12/2009	PresDate	1/12/2009	PresDate	1/12/2009	PresDate	1/12/2009
MeanPr1	2427	MeanPr1	2427	MeanPr1	2427	MeanPr1	2427	RoomName	86	MeanPr1	2427	MeanPr1	2427	MeanPr1	2427	MeanPr1	2427
StdDev1	130 VOLT	StdDev1	130 VOLT	StdDev1	130 VOLT	StdDev1	130 VOLT	RoomDesc	86	StdDev1	130 VOLT	StdDev1	130 VOLT	StdDev1	130 VOLT	StdDev1	130 VOLT
Medication	VACUUM & LP AIR	Medication	VACUUM & LP AIR	Medication	VACUUM & LP AIR	Medication	VACUUM & LP AIR	RoomCode	86	Medication	VACUUM & LP AIR	Medication	VACUUM & LP AIR	Medication	VACUUM & LP AIR	Medication	VACUUM & LP AIR
MiscCase	LIQUID NITROGEN	MiscCase	LIQUID NITROGEN	MiscCase	LIQUID NITROGEN	MiscCase	LIQUID NITROGEN	RoomName	86	MiscCase	LIQUID NITROGEN	MiscCase	LIQUID NITROGEN	MiscCase	LIQUID NITROGEN	MiscCase	LIQUID NITROGEN
NonMedication	ACEPULFENE GAS	NonMedication	ACEPULFENE GAS	NonMedication	ACEPULFENE GAS	NonMedication	ACEPULFENE GAS	RoomDesc	86	NonMedication	ACEPULFENE GAS	NonMedication	ACEPULFENE GAS	NonMedication	ACEPULFENE GAS	NonMedication	ACEPULFENE GAS



SEPS Data Services Oriented Architecture

The tools used to demonstrate the proof of concept are not selected as the only solutions possible, but to illustrate what type of an ecosystem could develop in the next version of SEPS once a services oriented architecture is enabled. Other vendors are encouraged to demonstrate how their solutions fit into the SEPS ecosystem.

Figure 32: Support Templates and Criteria Management



SEPS 3.9 - Transition

- H

3.9
Test Environment (DMZ)

Order of Magnitude Budget: \$ 206,000

 - H1 Create SEPS DMZ Testing Enclave
 - H2 Beta Test Test Environment
 - H3 Use for Training
 - H4 Open Sandbox to All Interested Stakeholders
 - H5 Create SEPS API
- J

3.9
SEPS Business Mode

Order of Magnitude Budget: \$96,000

 - J1 Develop License Model
- K

3.9
Marketing of Functionality

Order of Magnitude Budget: \$73,600

 - K1 Announce Opening of SEPS as Webservice
 - K2 Invite Developers to Use SEPS Webservice
 - K3 Invite Equipment Suppliers Product Data
 - K4 Public Presentations of SEPS through NIBS
 - K5 Training in use of SEPS and Max.gov Services
- L

3.9
Open Access to Developers

Order of Magnitude Budget: \$58,800

 - L1 Provide API Access to Developers
 - L2 New Applications from Developers

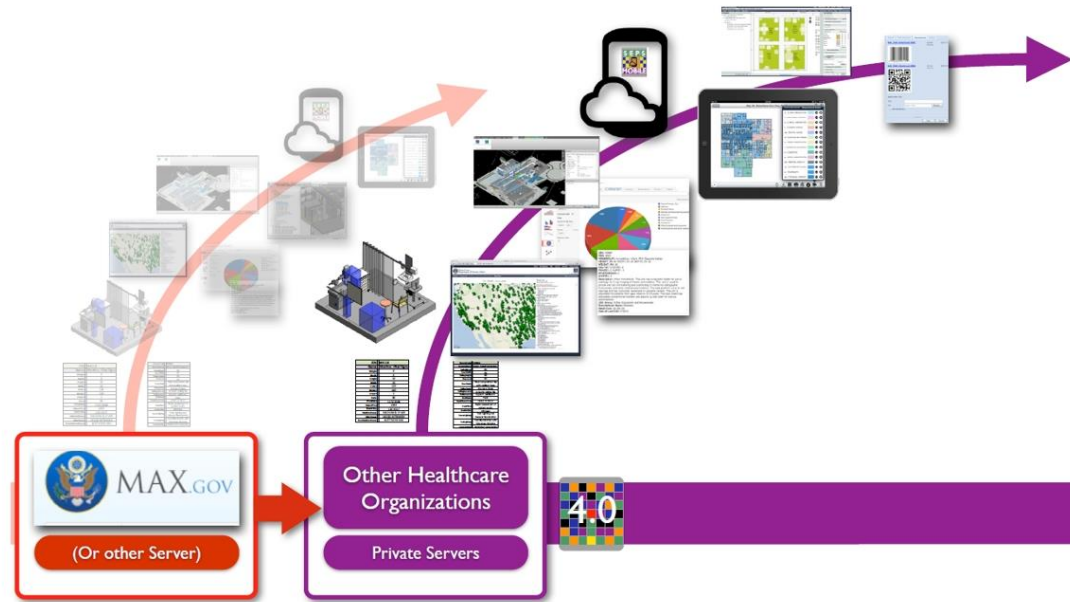


Figure 33: SEPS 3.9 Prepares for Commercialization towards other Healthcare Organizations

SEPS 3.9 is comprised of numerous steps. Much of this is in preparation for the next major release, SEPS 4.0. In addition to the technical advancements, the application

will be mature enough to begin establishing a business case and license model for the commercialization of SEPS beyond the current government user community. A SEPS DMZ testing enclave is also proposed to engage more people and ideas for how to best leverage the potential of this new web-based SEPS application. This sandbox also facilitates the ability for developers interested in creating Application Programming Interface (API). The significance of this is some future capabilities and features may

be provided by third party developers who are given an incentive to interact with this web accessible data. This “free” developers’ mindshare from numerous developers offloads all the current development duties that are currently funded by the government. This mutually beneficial relationship between the government hosted application and private developers can only take place because the data architecture of SEPS 3.0 and beyond, is made much more accessible.

In addition to being a testing environment, the sandbox is also anticipated to being a forum where new ideas can be initiated for future ideas about functionality and features within SEPS. This beta version of the tool can be used as fertile grounds for experimenting with issues that are technical as well as process orientated.

The support for Templates and Criteria management continues to be developed and additional functionalities are added such as developing “field tools” that can begin to capture data live for project requirements based on interviews and site visits that are conducted prior to planning and design. The aim is to keep the stakeholders more connected to their data and coordinate that with actual workflows so that the technology is continuously supporting relevant business case scenarios.

SEPS 3.9 also has a concerted effort to market and raise awareness towards organizations in the industry that might want to participate in the larger development community. It is recommended to partner with the National Institute of Building Sciences (NIBS) to hold public presentations to promote this cloud based forum is available.

Proof of Concept
Templates and Criteria Management

4
Local Military Facilities Templates
Pub Date: 27-Apr-12

Medical Military Facilities Templates
Pub Date: 27-Apr-12

DEFINT - EQUIPMENT SCHEDULE

JOB	DESCRIPTION	Quantity												
		Qty	UF	RF	WF	US	1	2	3	4	5			
AD01	Table, Exam Room	1	A	A	A	A	-	-	-	-	-	-	-	-
AD02	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD03	Chair, Exam Room	1	A	A	A	A	-	-	-	-	-	-	-	-
AD04	Chair, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD05	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD06	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD07	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD08	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD09	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD10	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD11	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD12	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD13	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD14	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD15	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD16	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD17	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD18	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD19	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD20	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD21	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD22	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD23	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD24	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD25	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD26	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD27	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD28	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD29	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD30	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD31	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD32	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD33	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD34	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD35	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD36	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD37	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD38	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD39	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD40	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD41	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD42	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD43	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD44	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD45	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD46	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD47	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD48	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD49	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-
AD50	Table, Exam Room, with 22 Plugs	1	A	A	A	A	-	-	-	-	-	-	-	-

DEFINT - DATE/TIME/PHONE

JOB	DESCRIPTION
AD10	Telephone Room
AD11	Telephone Room

EYFC1 - INTERIOR DESIGN

Floor Finish		Wall Finish		Ceiling Finish		Room Height	Room Noise		
Preferred	Alternate	Preferred	Alternate	Preferred	Alternate	ft. - in	Min NC	Max NC	SC
VF	-	GPT	-	ATI	-	8' - 0"	30	35	40

Edits for New Criteria or Project Specific Requirements trigger a need for a new version.

Figure 34: Templates and Criteria Management



SEPS 4.0 - Industry



Order of Magnitude Budget: \$340,000 / Yearly

- M1** Maintain and Update SEPS for Private Healthcare
- M2** Implement SEPS for Private Healthcare
- M3** Implement SEPS for Multiple Groups

SEPS 4.0 capitalizes on the culmination of development efforts that took place in the previous releases. This now mature application can be commercialized for other Healthcare organizations in the private sector. The application has also evolved to a point where it can connect future “modules” of functionality in terms of data interoperability. This can be achieved without creating additional “bloat” to the SEPS application, but by creating a flexible, agile ecosystem where numerous disparate parts can work as one unified system.

The data in SEPS at this point can be made accessible to a variety of different devices including laptops, tablets, smartphones, etc. It is important to note with each ability to access the data in SEPS, it is understood there will also be a detailed business process and security model that

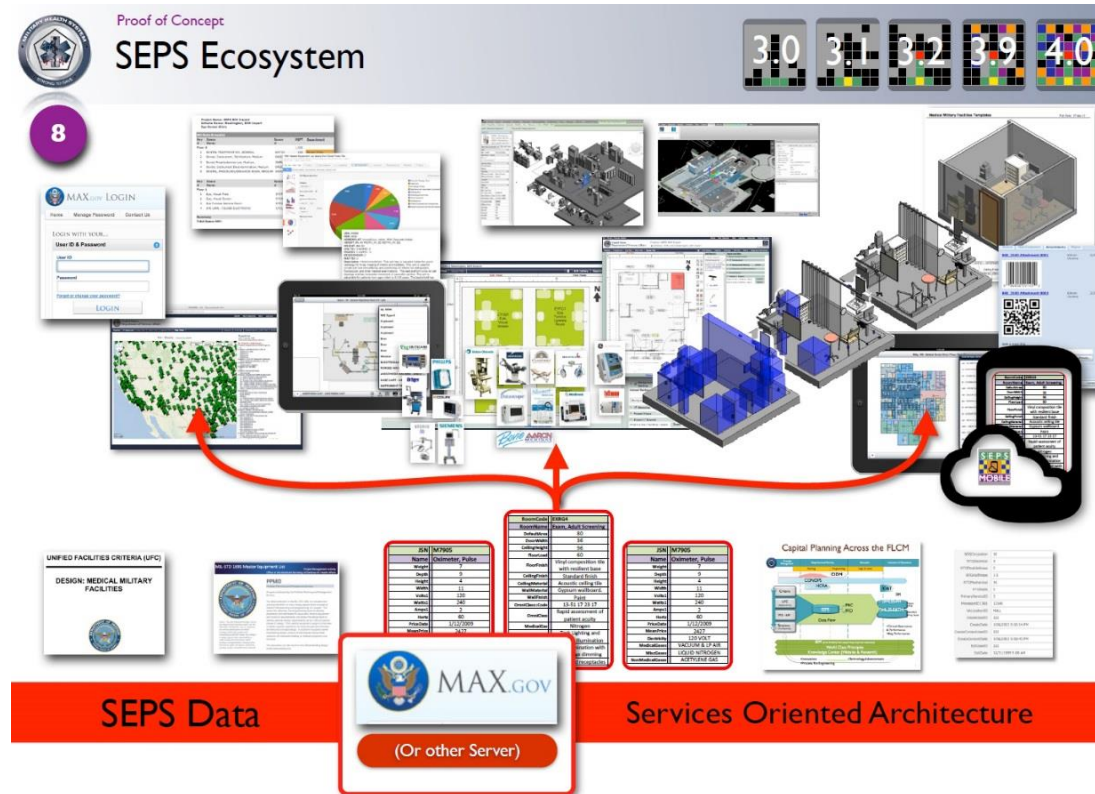


Figure 35: SEPS Ecosystem ready for private and public sectors

is maintained and coordinated with these new capabilities. The issue of access control will also be established and then the technology will follow suit. This is part of the reason the authentication was one of the first steps to be implemented at the very beginning of the move towards the web-based environment. This way, as new

capabilities arise and new ways of accessing the information becomes available, the control will already be in place to ensure appropriate people are seeing the information they have privileges to.

Much of the flexibility and future-proof characteristics of this developed release of

SEPS is due to the SOA configuration and the fact it makes judicious use of industry recognized open standards. This helps to ensure the data structure is not some proprietary configuration that can not be leveraged by other systems and applications. This strategic plan seeks to establish the data structure in SEPS to align with (but not limited to) the following:

- Web Services
- XML
- GIS
- IFC
- COBie
- BPie

Since much of the beta-testing as well as “real-world” scenarios have been cycled through multiple SEPS releases, the system will have reached a level of maturity where it can be replicated on other organization’s enterprise cloud system. The fees generated from the licensing of SEPS will be used to offset some of the development and maintenance costs. Since the system will have evolved as a flexible, scalable application, it will have great marketability by the time it reaches release 4.0.

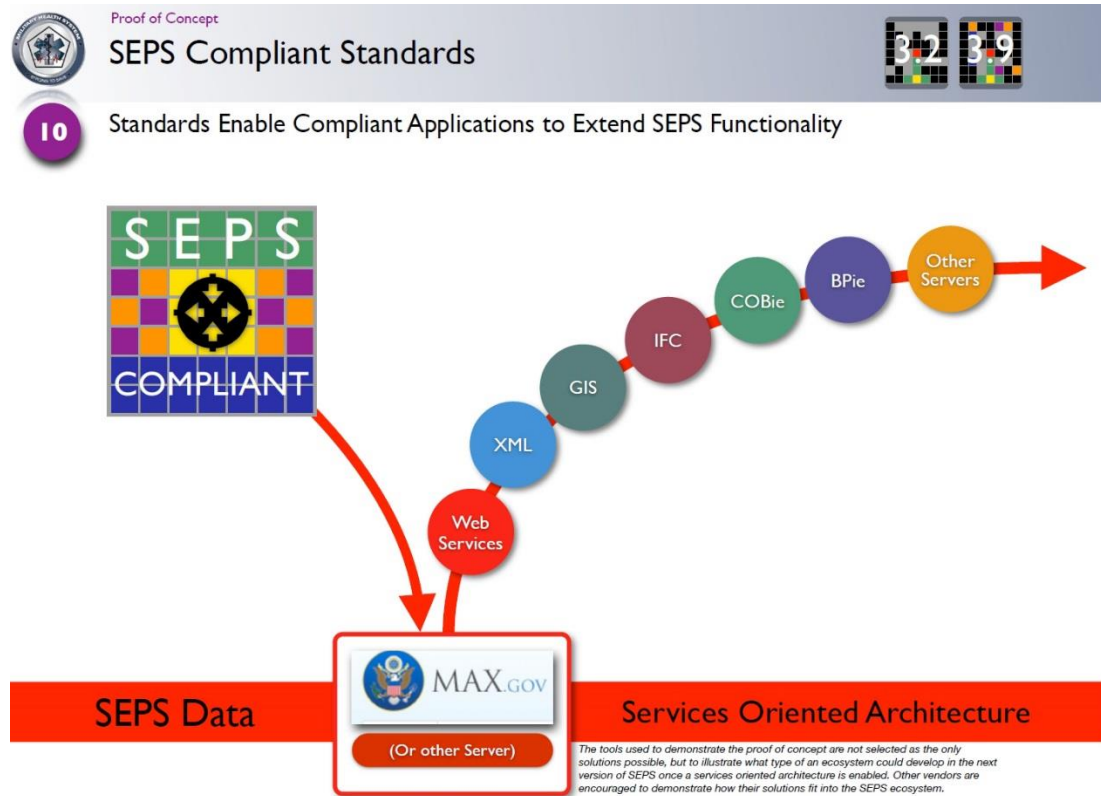


Figure 36: Standards ensure 4.0 the most flexibility

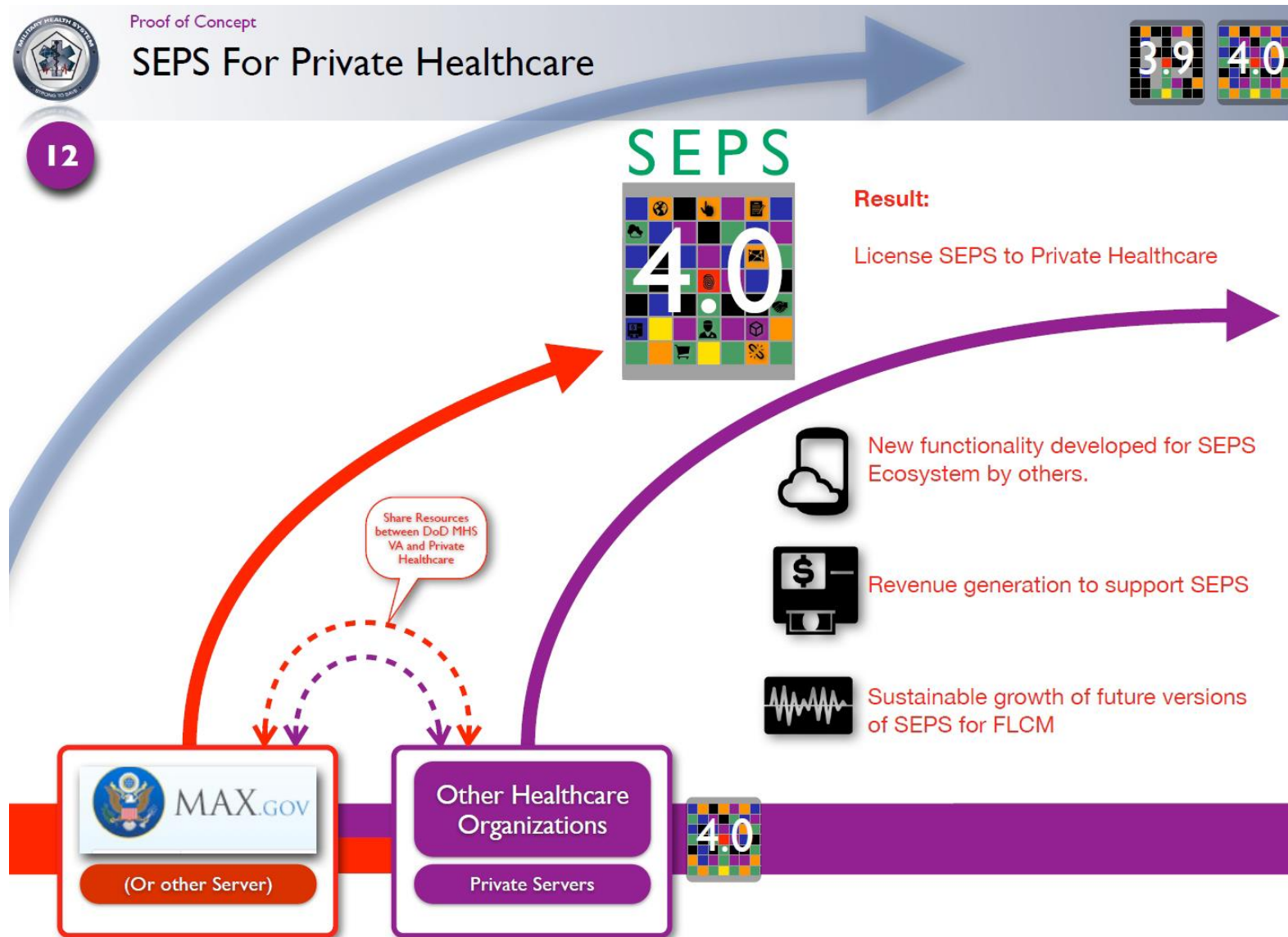


Figure 37: SEPS for Private Healthcare

Return on Investment (ROI)

There are numerous areas of savings and benefits that factor into the discussion related to Return on Investment (ROI). The SEPS Strategic Plan delineates the path for the evolution of the SEPS application. However, its benefits can be traced to a multitude of areas including workflows processes, project management and even producing a marketable product.

The following graphs depict some of the main analyses that quantify the ROI. The Return on Investment Summary takes a look at the overall cost of SEPS ownership and evaluates that with potential savings based on the recommendations made in this strategic plan. This is a high level view of the costs based on preliminary assumptions and projections. The fundamental trendline is the earlier SEPS releases and steps will yield relatively smaller returns while the system is ramping up and mobilizing for the new web-based environment. However, the ROI quickly shifts upwards towards the end of SEPS 3.2 and makes rather substantial gains once the application reaches SEPS 4.0. This is due to the cumulative effect of gaining efficiencies for SEPS users as well as all the efficiencies

Return on Investment (ROI) Summary						
SEPS Build	Software and Hardware Cost + Program Mgt	Staff Consultant Time Effort Using SEPS	Licensing Revenue	Annual Total	ROI	5 Year Cumulative (2013 - 2018)
3.0 (Baseline)	\$ 3,787,038	\$ 40,751,200	\$ -	\$ 44,538,238		\$ 222,691,192
3.1 SEPS Services	\$ 1,666,800	\$ 38,348,520	\$ 174,480	\$ 39,840,840	282%	\$ 199,204,200
3.2 SEPS Platform	\$ 2,126,900	\$ 22,377,110	\$ 436,200	\$ 24,067,810	962%	\$ 120,339,050
3.9 SEPS Transition	\$ 1,843,000	\$ 20,744,950	\$ 523,440	\$ 22,064,510	1219%	\$ 110,322,550
4.0 SEPS Industry	\$ 1,881,000	\$ 16,664,550	\$ 8,072,400	\$ 10,473,150	1811%	\$ 52,365,750

Figure 38: Return on Investment Summary

gained for streamlining the maintenance of the system.

Another key element that supports the rise in ROI is the governance strategies that have been put in place. As the tool matures and its new capabilities are used and understood, steering committees will be able to evaluate the kinds of additional new features as well as define new business processes and workflows to capitalize on the collaborative, web-based platform. It should be noted, it is expected the stakeholders involved with the governance of the SEPS application will be continuously looking for course-correcting measures as well as define new needs within the framework outlined in this strategic plan.

The other benefits that arise from this strategic plan is the value and integrity of the SEPS data itself. By making the structure and format of the data comply with web-based standards, the value of the data increases. This worth increases when compounding the ease and flexibility of distributing this information to a wider number of people that have authorization to access this information.



Cost Reduction Per Year for Template Updates

Create and Maintain VA & MHS Templates

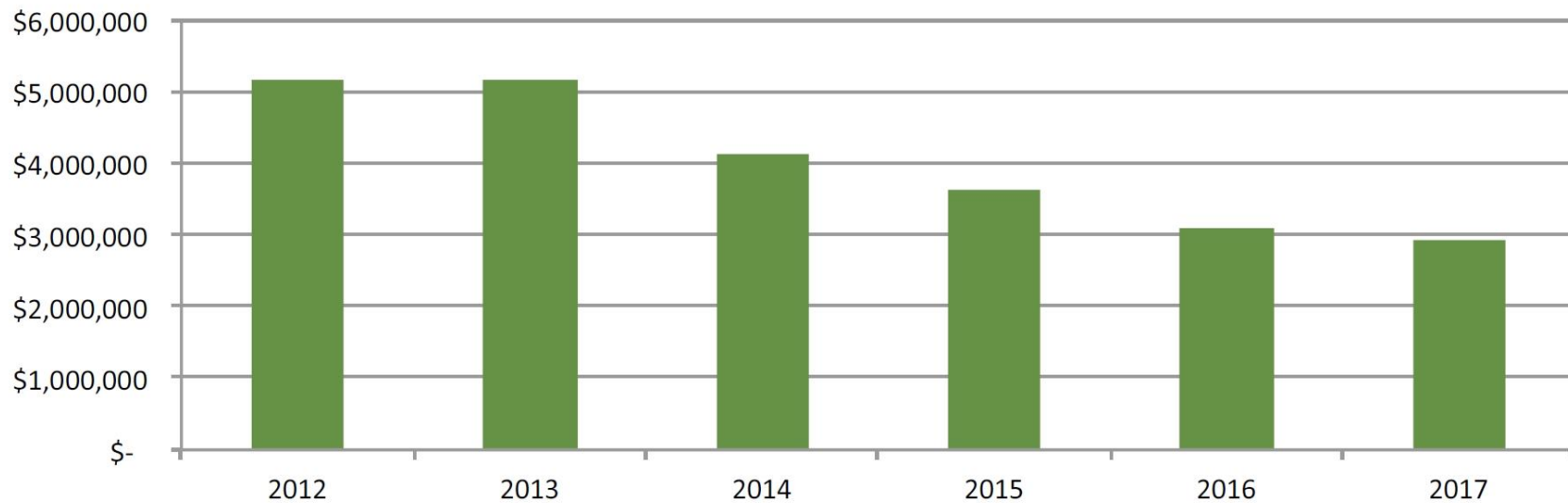


Figure 39: Cost Reduction per Year for Templates Updates



Cost Reduction Per Year for Maintenance

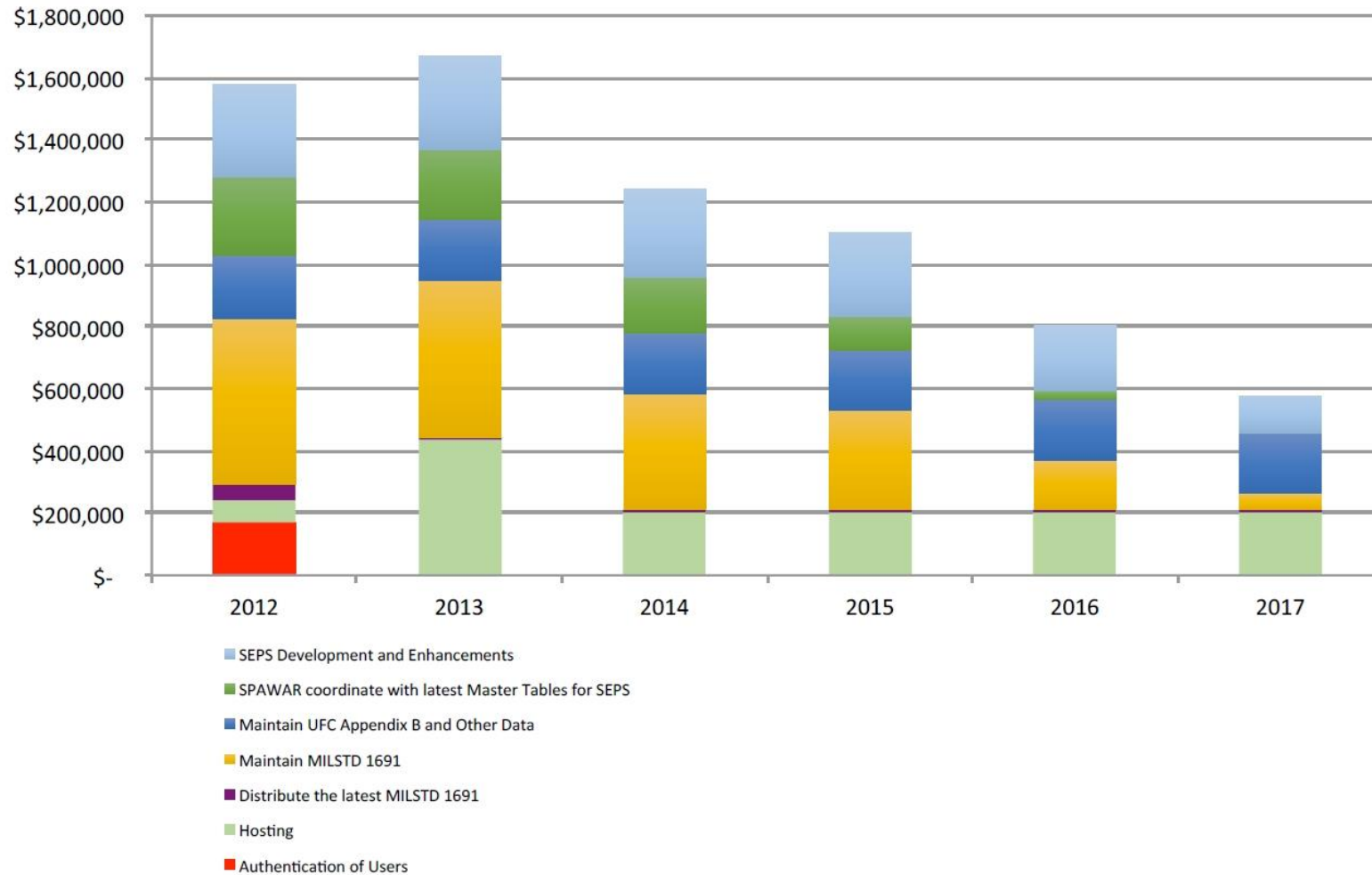


Figure 40: Cost Reduction per Year for Maintenance



Efficiencies Gained + Licensing Revenue Generated

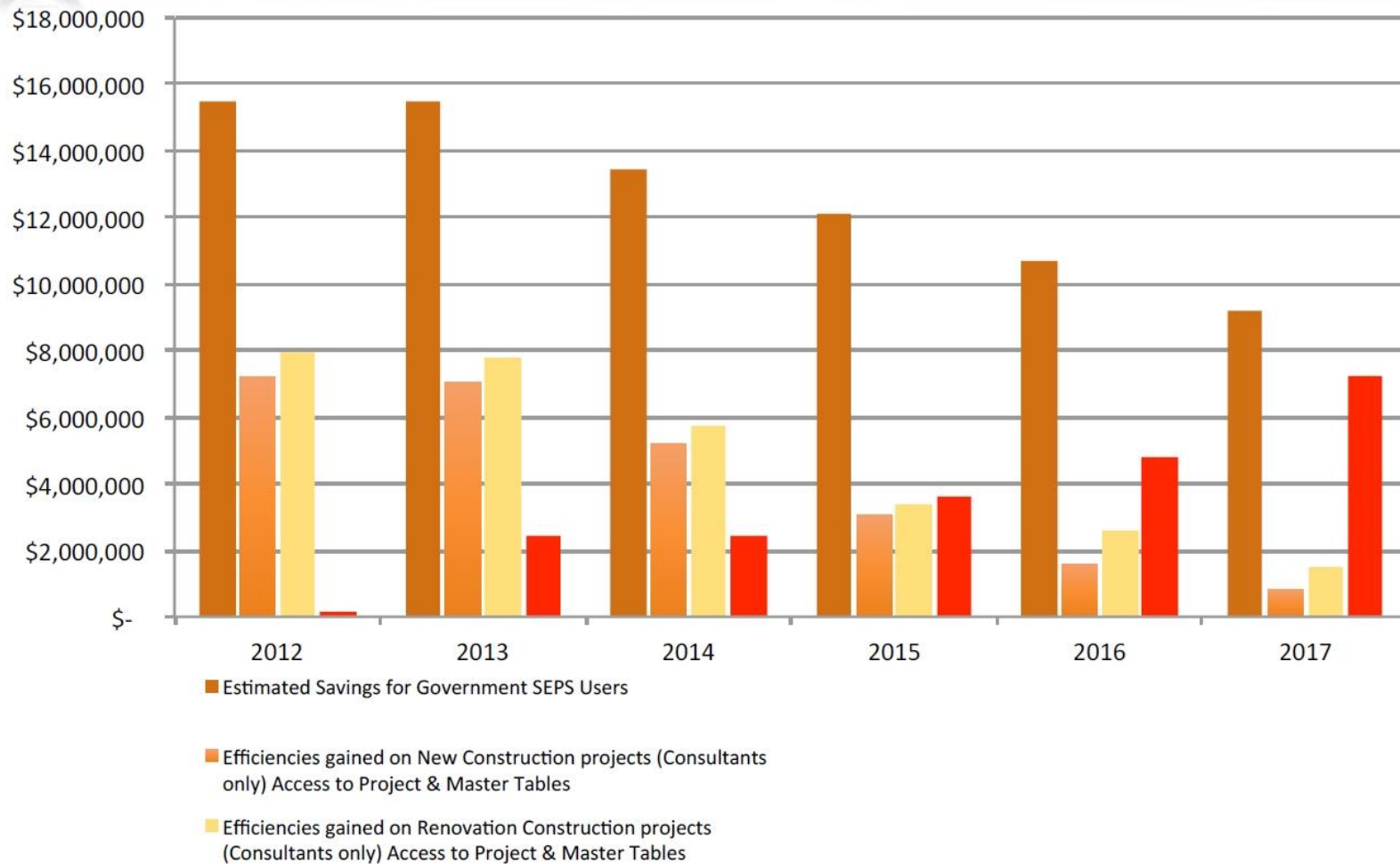


Figure 41: Efficiencies Gained + Licensing Revenue Generated



Estimated Development Cost SEPS 3.0 to SEPS 4.0

Version	SEPS Development Milestones Cost	Hours	Rate	Subtotal	Estimated Budget		Notes
					Total		
3.0	SEPS Web Enabled				\$	1,977,200	
	A SPAWAR Development Cost of SEPS 3.0				\$	1,500,000	One Time Cost
	B SEPS Hosting + Authentication				\$	439,000	Per Year for First Year at Max.gov
	C Strengthen IT Governance				\$	38,200	One Time Cost
3.1	SEPS Services				\$	125,800	Per Year
	D Decouple Data				\$	35,200	One Time Cost
	E Webservice Enable Data				\$	90,600	
3.2	SEPS Platform and Applications				\$	585,900	One Time Cost
	F Expand Connections New User Interfaces and Applications				\$	288,000	
	G Connect FLCM				\$	297,900	
3.9	SEPS Transition and Testing Platform				\$	302,000	One Time Cost
	H SEPS Test Environment				\$	206,000	
	J Business Model Development				\$	96,000	
	K Marketing of SEPS Functionality				\$	73,600	
	L Open Access to Developers				\$	58,800	
4.0	License SEPS to Private Healthcare Industry				\$	340,000	Yearly Maintenance Cost
	M License SEPS to Private Healthcare Industry				\$	340,000	
3.0 to 4.0	SEPS Transition Program Management				\$	600,000	Yearly Program Mgt Cost
	N Overall program management, including Internal Stakeholder communications, External Industry Relationship Development, and SEPS Phase Management				\$	600,000	

Figure 42: Estimated Development Costs

Governance and Organizational Collaboration

Introduction

Integral to achieving success moving forward will be insight into the best approaches for governance and organization collaboration. Key purposes of a SEPS governance structure are:

- Projects and Overall Program are Aligned with Strategic Objectives
- Spending is Balanced Across those Objectives
- Risk and Value are Balanced
- Projects and Program Remain Healthy

Success of SEPS governance structure is:

- Focus on Value Derived
- Emphasis on what will be realistically adopted
- Ability to Accept and Address Change
- Full scale deployment (not partial) across the organization(s)

Critical characteristics of SEPS Governance are:

- Continues DoD and VA Coordinated and Collaborative Approach

- Spans FLCM
- Structure Evolves with SEPS Development Phases
- Reinforces Key SEPS Drivers
- Embraces Stakeholder Interests
- Helps Drive ROI

The SEPS Governance Structure by necessity will embrace all of the SEPS stakeholder community:

- DoD Portfolio Planning and Management Division (PPMD)
- VA Office of Construction and Facilities Management (CFM)
- Office of Services’ Surgeons General
- DoD-MHS Space Planning Committee
- MIL STD 1692 Equipment Working Group
- Upstream Criteria Planning Consultants
- SEPS Power and Average Users
- Downstream A/E CM and other Professionals
- External Health Care Industry
- DoD and VA IT Organizations
- SPAWAR and SEPS Developers
- MAX.Gov
- NIBS and WBDG Working Groups

The following diagram illustrates the SEPS 3.0 Governance Structure as a baseline. To the left are the organization structure elements, and to the right are the technology platforms. Key elements to note are that the DoD MHS and VA are at the top as leaders and drivers of this governance structure. Below are the critical elements of:

- SEPS Joint Steering Team
- Stakeholder Working Groups
- SEPS 3.0 to 4.0 Program Management

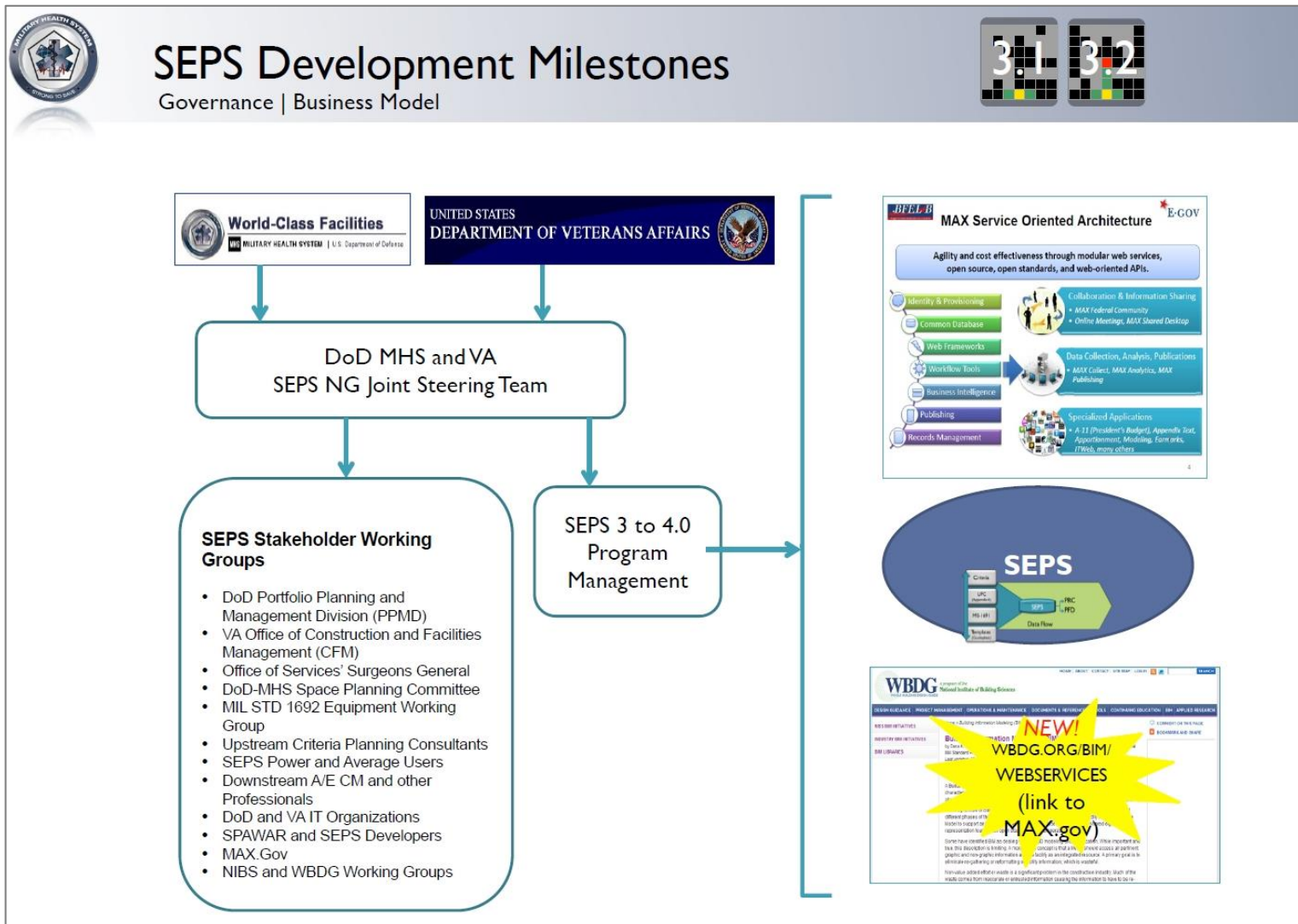


Figure 43: Governance | Business Models for SEPS 3.0 Baseline

SEPS Phases 3.1 Service and 3.2 Platform

SEPS Phases 3.1 Service and 3.2 Platform are very similar to the SEPS 3.0 Governance Structure.

SEPS Phase 3.9 Transition and Apps

SEPS Phase 3.9 Transition and Apps adds a new element to the organization structure:

- A New APPs Marketplace
- An opportunity for a new SEPS developer community to build, deploy and market SEPS Compliant applications and “apps”



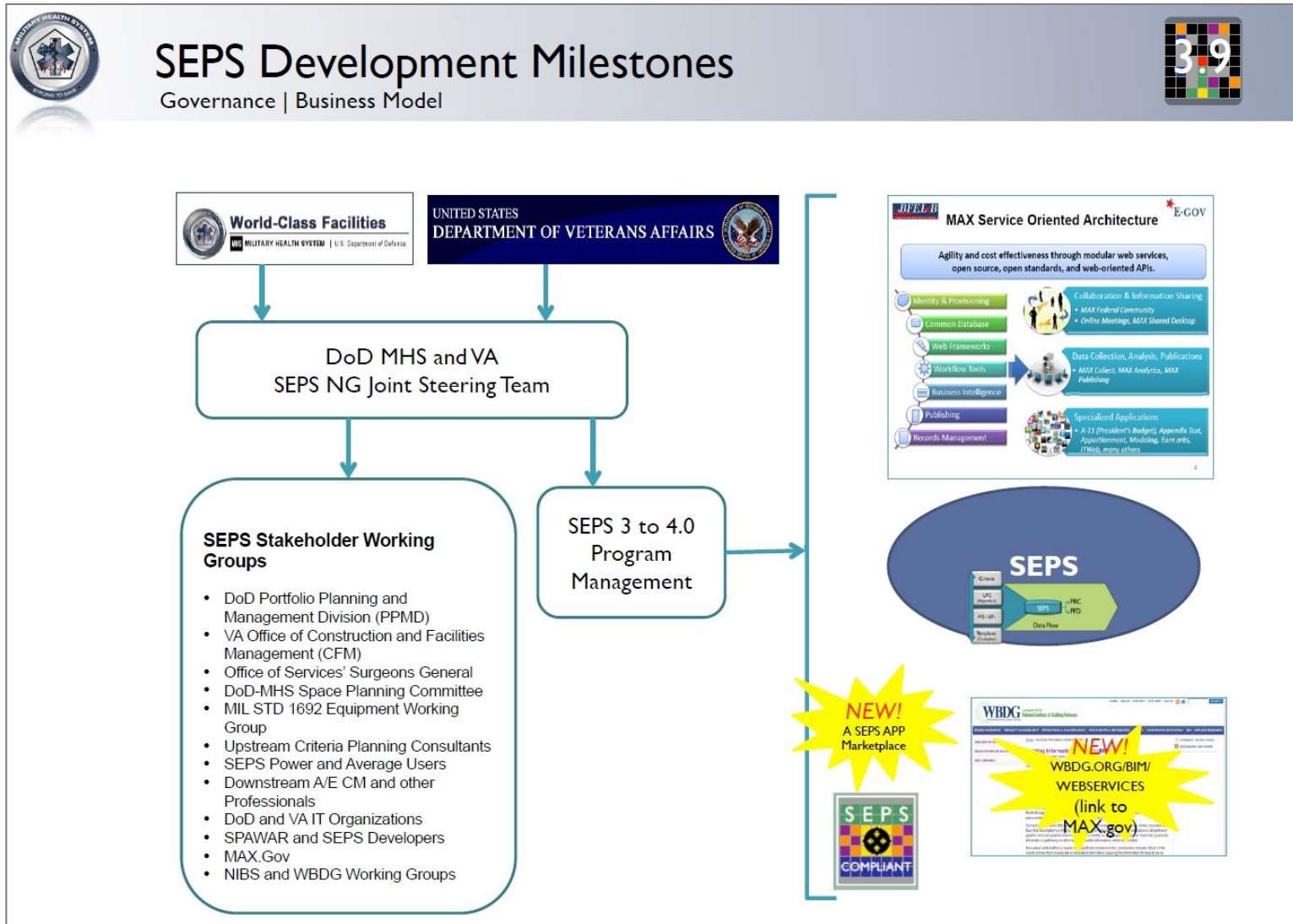


Figure 44: Governance | Business Models for SEPS 3.9 Transition and Apps

SEPS Phase 4.0 Industry

Along with governance and organization collaboration is a strategy to change the funding and acquisition approach for SEPS and commercialize it so that a broader stakeholder base can increase the value of the SEPS application as well as a SEPS software and “app” technology ecosystem and lower or limit the increase of costs to the government.

The National Institute of Building Science’s (NIBS) unique position as a congressionally

chartered organization that can combine both private sector funds and federal funds for project execution places it as a prime candidate and primary partner with DoD MHS and DVA in the SEPS 3.0 to 4.0 Business Model. NIBS’ success with first the Construction Criteria Base, begun by DoD and then handed to NIBS to commercialize, has since been a widely acclaimed success as the Whole Building Design Guide (WBDG). US Army’s Construction Engineering Research

Laboratory (CERL) ProjNet is another example of a commercialization success story by NIBS.

The diagram below illustrates the proposed SEPS 4.0 governance structure. Added to the previous phases are two additions to the governance structure:

- National Institute of Building Sciences (NIBS)
- Other Healthcare organization

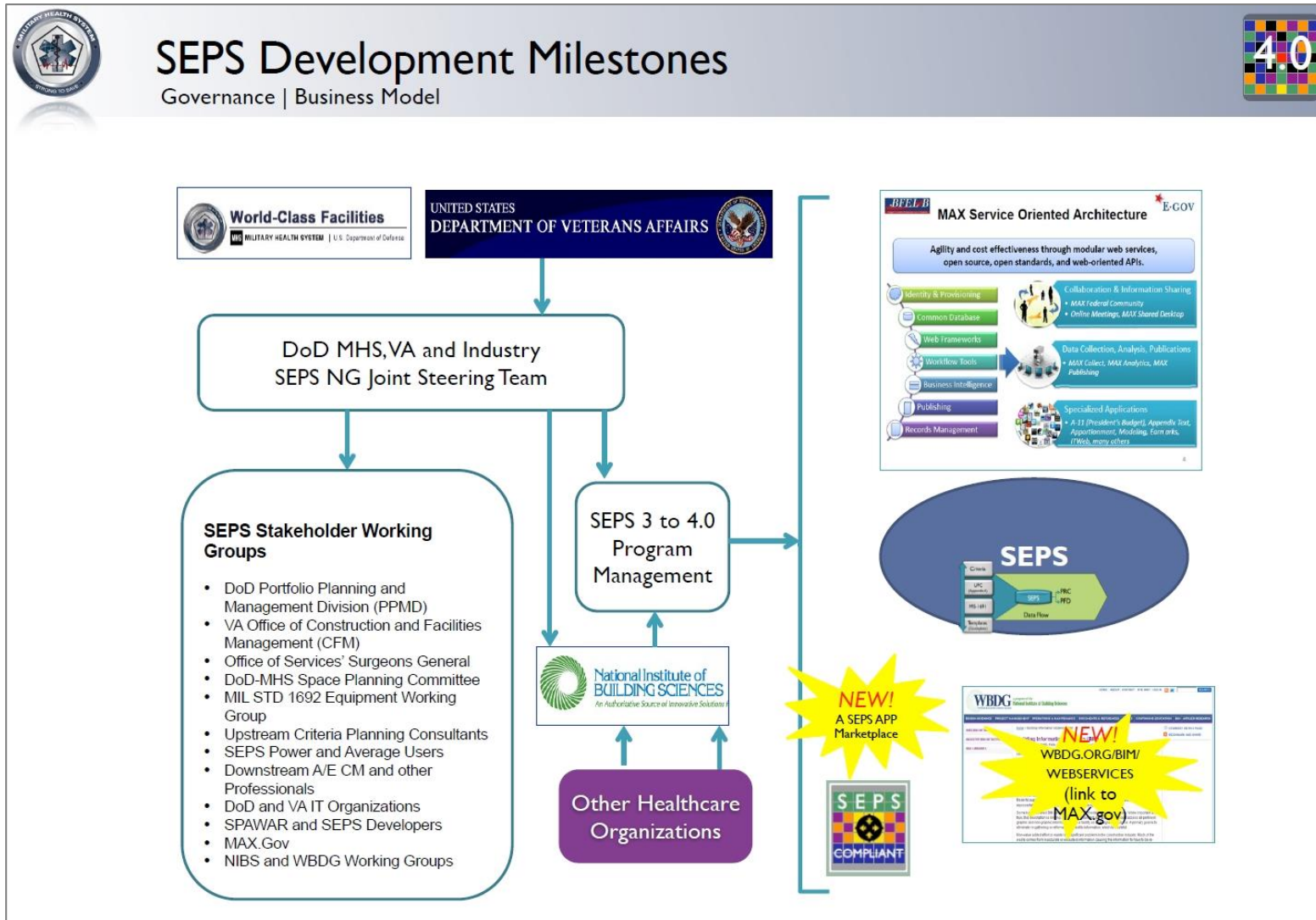


Figure 45: Governance | Business Models for SEPS 4.0 Industry

SEPS Governance Roles and Responsibilities Matrix

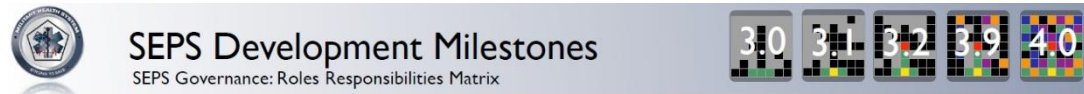
Along with governance and organization structure included below is a matrix of roles and responsibilities that coincide with the structures.

Public Private Collaboration and Commercialization Models

There are a range of public | private collaboration models already in place and supporting both the DoD MHS and VA facilities program and/or are illustrative of paths forward for potential commercialization of SEPS as an application beyond the federal government. The following are discussed in detail in Appendix E:

- Appendix E1: ProjNet (Dr Checks): NIBS, CERL and Now RiverBank Technologies
- Appendix E2: BUILDER: NIBS and CERL
- Appendix E3: FUSION
- Appendix E4: Max.Gov

During the development this strategic plan, additional collaboration models have been encountered that directly relate to SEPS, DoD MHS, and the VA:



SEPS Build	Organizational Structure	Stakeholders	Roles / Responsibility
3.0, 3.1, 3.2, 3.9, 4.0	SEPS Next Generation (NG) Joint Steering Team	DoD MHS and VA	Overall SEPS Program Leadership and Authority
3.0, 3.1, 3.2, 3.9, 4.0	SEPS Stakeholder Working Groups	DoD Portfolio Planning and Management Division (PPMD)	Input from User Groups
		VA Office of Construction and Facilities Management (CFM)	
		Office of Services' Surgeons General	
		DoD-MHS Space Planning Committee	
		MIL STD 1692 Equipment Working Group	
		Upstream Criteria Planning Consultants	
		SEPS Power and Average Users	
		Downstream A/E CM and other Professionals	
		•DoD and VA IT Organizations	
		•SPAWAR and SEPS Developers	
		•MAX.Gov	
		•NIBS and WBDG Working Groups	
3.0, 3.1, 3.2, 3.9, 4.0	SEPS NG Program Manager	All SEPS Leadership and Stakeholders	Program and Specific SEPS Build Project Management and Control
4.0	NIBS--National Institute of Building Sciences	All SEPS Leadership and Stakeholders	SEPS Program Funding and Contractual Mechanism
4.0	Industry Partners	Private Industry Health Care Organizations	External Industry Licensing of SEPS and User Stakeholder Input

Figure 46: SEPS Governance Roles and Responsibilities Matrix

- OSEHRA (VA and Medical Health Records Initiative)
- NIBS and the Whole Building Design Guide
- Health Care BIM Consortium
- Establishing a Program Management team
- Organizing the SEPS Steering Team
- In conjunction with the SEPS Stakeholder Working Groups,

The recommended steps for moving SEPS through Phase 3.0 Web Enabled Baseline to Phase 4.0 Industry are shown elsewhere in this strategic plan. The commercialization of SEPS will entail:

- author both a detailed business plan and a Feasibility Study for implementing SEPS 4.0 and a detailed program management plan and timeline for implementation.

Appendix

Excerpt taken from a document providing background information as part of the Statement of Work for this SEPS Strategic Plan.

Appendix A: SEPS Background and History

The current SEPS 2.0 is a standalone Government Off-the-Shelf (GOTS) application that was developed by TRICARE Management Activity (TMA) and written by SSC-LANT. Its purpose is to create baseline Programs for Design (PFD) and Project Room Contents (PRC). The user base, consisting of approximately 655 government employees and 200 consultants, processes a series of input data questions relative to Mission, Workload and Staffing. From those series of inputs, a project program is generated by SEPS in the form of required spaces and equipment. This list of Spaces and Equipment defines the preliminary basis for a project. Data in SEPS may also be utilized in a system such as PACES (Parametric Cost Engineering System) to study cost implications at a high level. With this preliminary program and budget in place, the project can now be contracted out to an A/E for design and ultimately construction.

List of Government initiatives that helped inform the direction and substance of the SEPS Strategic Plan. The recommendations sought to align principles and objectives with the numerous government goals concerning better management of data.

Appendix B: Legislation, Executive Orders, and DoD Guidance

Energy Performance Act 2005

Epact 2005 establishes significant goals for federal agencies to reduce energy and water consumption, increase use of renewable energy, and acquire Alternative Fuel Vehicles (AFV's). Section 103 of Epact 2005 includes the following requirements surrounding energy use measurement and accounting:

- Directs that all Federal buildings be metered "...for the purposes of efficient energy use and reduction in the cost of electricity used in such buildings..." by October 1, 2012. Advanced meters or metering devices must provide data at least daily and measure the consumption of electricity at least hourly. These devices must be used to the maximum extent practicable.
- Directs the Secretary of Energy to develop guidelines for implementation. The Guidance for Electric Metering in Federal Buildings was published on February 3, 2006.
- Requires Federal agencies to submit to the Department of Energy (DOE) an implementation plan identifying personnel responsible for achieving the requirements, and any determination by the agency that advanced meters or metering systems are not practicable in their specific situation.

<http://www1.eere.energy.gov/femp/regulations/epact2005.html>

Energy Independence Security Act 2007

The Energy Independence and Security Act of 2007 (EISA 2007) established energy management goals and requirements while also amending portions of the National Energy Conservation Policy Act (NECPA). EISA 2007 sets Federal energy management requirements in several areas, including:

- Energy Reduction Goals for Federal Buildings
- Facility Management/Benchmarking
- Performance and Standards for New Building and Major Renovations
- High-Performance Buildings
- Energy Savings Performance Contracts
- Metering
- Energy-Efficient Product Procurement

- Office of Management and Budget (OMB) Reporting
- Reducing Petroleum/Increasing Alternative Fuel Use

<http://www1.eere.energy.gov/femp/regulations/eisa.html>

Executive Order (EO) 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*

EO 13423 strengthens key goals for the Federal Government. It set more challenging goals than Eact 2005 and superseded EO 13123 and EO 13149. EO 13423 sets numerous Federal energy and environmental management requirements in several areas, including but not limited to:

- Implementing Instructions
- Reducing Energy Intensity
- Increasing Use of Renewable Energy
- Reducing Water Intensity
- Designing and Operating Sustainable Buildings
- Managing Federal Fleets

<http://www1.eere.energy.gov/femp/regulations/eo13423.html>

Executive Order (EO) 13514; *Federal Leadership in Environmental, Energy, and Economic Performance*

EO 13514 expanded upon the energy reduction and environmental performance requirements of EO 13423 and sets numerous Federal energy requirements in several areas, including:

- Accountability and Transparency
- Strategic Sustainability Performance Planning
- Greenhouse Gas Management

- Sustainable Buildings and Communities
- Water Efficiency
- Electronic Products and Services
- Fleet and Transportation Management
- Pollution Prevention and Waste Reduction

<http://www1.eere.energy.gov/femp/regulations/eo13514.html>

DoD Strategic Sustainability Performance Plan 2011

The DoD, as well as all federal agencies as required by EO 13514, developed the Strategic Sustainability Performance Plan. As stated in the plan, “The Department recognizes that many key issues facing DoD can be addressed through smart investments that improve sustainability as well as promote the mission, such as using energy and water more efficiently, acquiring more energy from renewable sources, designing buildings for high performance, reducing the use of toxic and hazardous chemicals, and optimally managing solid waste.”

http://www.denix.osd.mil/sustainability/upload/DoD-SSPP-FY11-FINAL_Oct11.pdf

DoD Cloud Computing Strategy 2012

As required by legislation and EO’s, the DoD must consolidate data centers and move to a cloud computing environment. As stated in the strategy, “The DoD Cloud Computing Strategy introduces an approach to move the Department from the current state of a duplicative, cumbersome, and costly set of application silos to an end state which is an agile, secure, and cost effective service environment that can rapidly respond to changing mission needs. The DoD Chief Information Officer (CIO) is committed to accelerating the adoption of cloud computing within the Department and to providing a secure, resilient Enterprise Cloud Environment through an alignment with Department-wide IT efficiency initiatives, federal data center consolidation and cloud computing efforts.”

<http://www.defense.gov/news/DoDCloudComputingStrategy.pdf>

DoD Business Enterprise Architecture

The BEA is the enterprise architecture for the DoD BMA and reflects the DoD business transformation priorities; the business capabilities required to support those priorities; and the combinations of enterprise systems and initiatives that enable those capabilities. It also supports use of this information within an End-to-End (E2E) framework. The purpose of the BEA is to provide a blueprint for DoD business transformation that helps ensure the right capabilities, resources and materiel are rapidly delivered to our warfighters – what they need, where they need it, when they need it, anywhere in the world. The BEA guides and constrains implementation of interoperable defense business system solutions as required by the National Defense Authorization Act (NDAA). It also guides information technology (IT) investment management to align with strategic business capabilities as required by the Clinger-Cohen Act, and supporting Office of Management and Budget (OMB) and Government Accountability Office (GAO) policies.

<http://dcmo.defense.gov/products-and-services/business-enterprise-architecture/>

Defense Installation Spatial Data Infrastructure (DISDI)

The Defense Installation Spatial Data Infrastructure (DISDI) is the geospatial oversight program responsible for leveraging spatial information across I&E's business mission areas to better manage global installations and bases.

Using the Global Information Grid (GIG), DISDI develops standards and policy to enable the sharing and interoperability of high-quality geospatial data at all levels of installation management. DISDI—comprised of people, policies, and practices—ensures that I&E's geospatial information infrastructure is aligned with DoD's net-centric data sharing strategies and business transformation goals.

<http://www.acq.osd.mil/ie/bei/disdi.shtml>

DoD IT Portfolio Repository (DITPR)

The DoD Information Technology Registry supports capital planning and investment processes of selection, control, and evaluation. The Registry contains a comprehensive inventory of the Department's mission critical and mission essential national security systems and their interfaces. It is web-enabled to .mil users, and has classified and unclassified portions accessible through NIPRNET and SIPRNET. Department of Defense Information Technology (IT) Registry Policy Guidance for 2004, dated December 1, 2003 establishes Registry responsibilities to include update and maintenance of information in the Registry.

<https://acc.dau.mil/CommunityBrowser.aspx?id=31586&lang=en-US>

DoD Information Assurance Directive 8500.1 and 8500.2

Information Assurance (IA) concerns information operations that protect and defend information and information systems by ensuring their availability, integrity, authentication, confidentiality, and non-repudiation. This includes providing for the restoration of information systems by incorporating protection, detection and reaction capabilities.

<https://acc.dau.mil/CommunityBrowser.aspx?id=31584&lang=en-US>

DoD Information Technology (IT) Enterprise Strategy and Roadmap

This document is our Strategy and Initial Roadmap to achieve these goals and deliver a streamlined, rationalized, and simpler network by consolidating IT infrastructure across DoD. As such, this document also aligns with the U.S. Chief Information Officer (CIO) —25 Point Implementation Plan to Reform Federal Information Technology Management , particularly its call for enhanced operational efficiency. Through this strategy, we are committing to a task that requires changes to policies, cultural norms, and organizational processes to provide lasting results. We will focus initially on obtaining tangible results in Fiscal Years (FY) 2011–2012 and plan for aggressive consolidation through FY2015. Aggressively consolidating now will better position us to embrace emerging technology and provide cutting-edge service to our warfighters. This aggressive consolidation cannot, however, come at the price of degraded

capabilities for the warfighter or inflexible commitment to a specific technological solution. Accordingly, this strategy and roadmap is intended to provide DoD with sufficient flexibility to respond to and incorporate emerging technology and to identify and take appropriate actions for those efforts that are not producing.

http://DoDcio.defense.gov/Portals/0/Documents/Announcement/Signed_ITESR_6SEP11.pdf

Real Property and Installations Lifecycle Management Investment Review Board

The Real Property and Installations Lifecycle Management (RPILM) Investment Review Board (IRB) was established by the Under Secretary of Defense (Acquisition, Technology & Logistics) (USD (AT&L)) as the Certification Authority to execute business capabilities, business and investment management, and business transformation oversight responsibilities in accordance with 10 USC 2222. The purpose of the IRB is to provide an effective, functionally knowledgeable and integrated business transformation framework that provides leadership, identifies capability gaps, defines functional requirements, directs process reengineering efforts, eliminates duplicative efforts, assesses defense business system (DBS) investments, and enables rapid delivery of necessary business capabilities aligned to enterprise goals and priorities.

<http://www.acq.osd.mil/ie/bei/irb.shtml>

This is an example of the opportunities that become available once the secure and non-secure data are decoupled and the non-secure data is made available to industry vendors to participate in the SEPS ecosystem.

Appendix C: SEPS Data Reconfiguration for Web Services

Current SEPS Configuration

SEPS

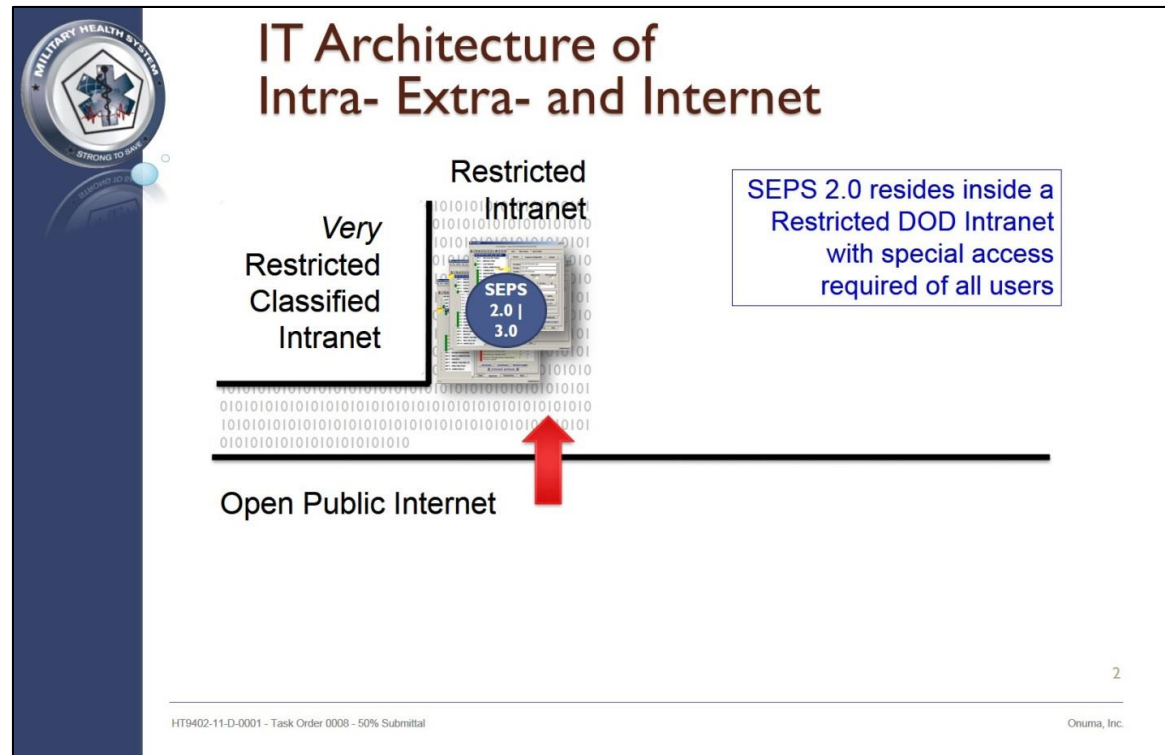
Architects, Planners

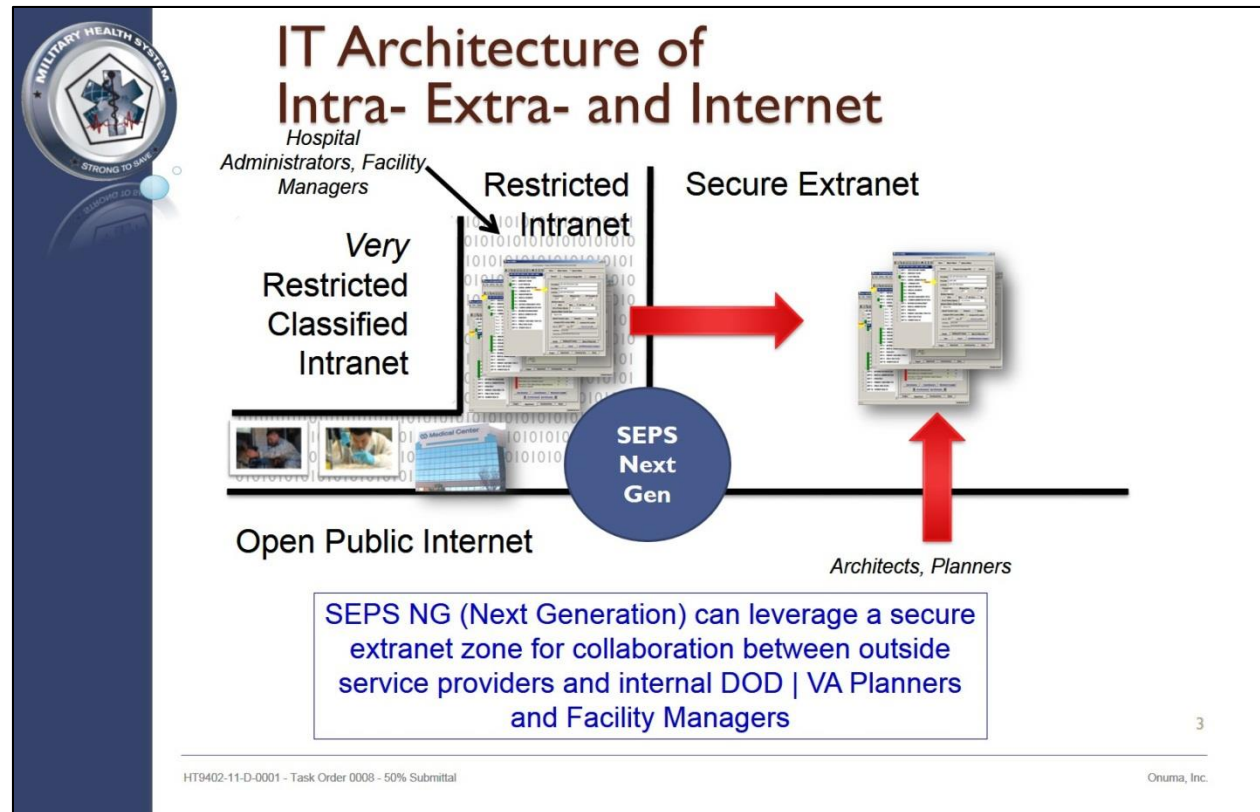
Hospital Administrators, Facility Managers

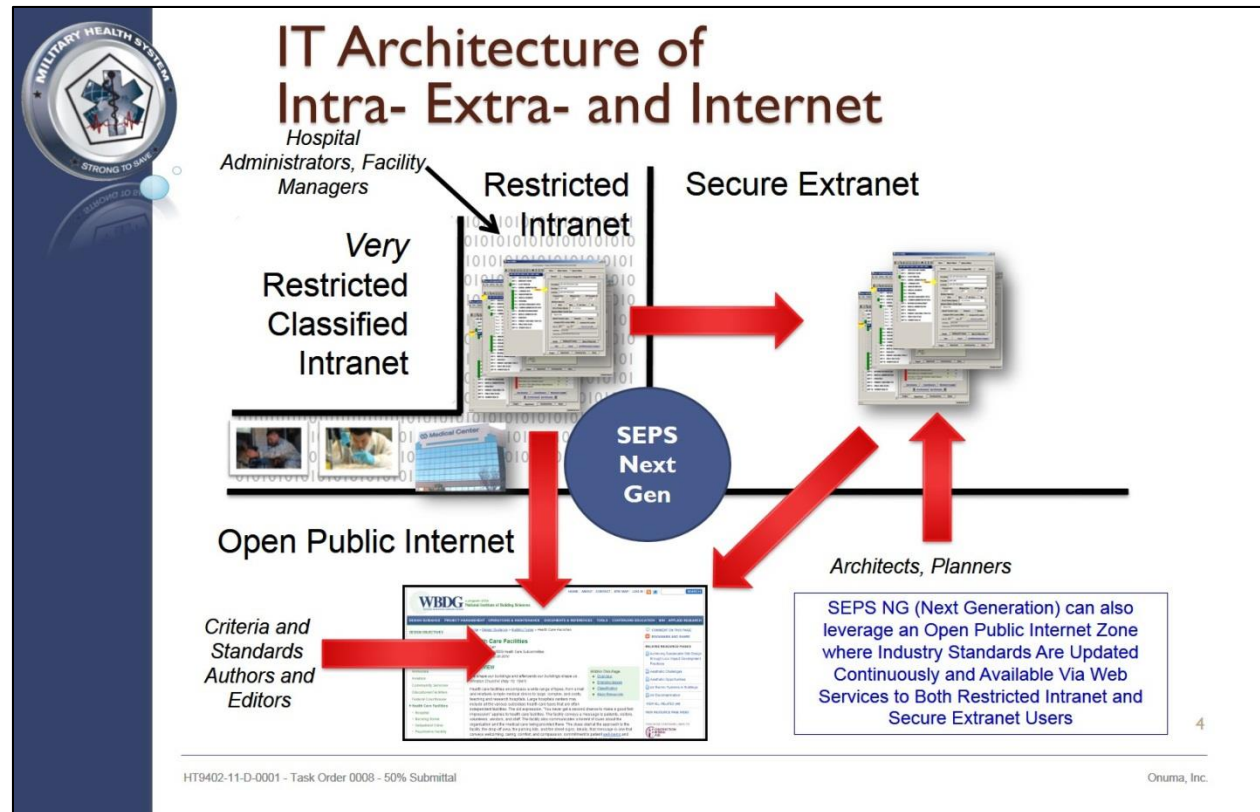
Data developed in SEPS is not directly leveraged in other efforts related to the medical facility


HT9402-11-D-0001 - Task Order 0008 - 50% Submittal

Onuma, Inc.



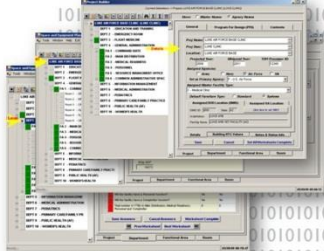






Current SEPS Configuration

SEPS



The data in SEPS is all 'contained' within SEPS.


This original program information further "degrades" during the Planning & Design Phase.

Once the facility is constructed, it is even more challenging to compare how well the final commissioned project responds to the original Space and Equipment requirements defined in SEPS.

5

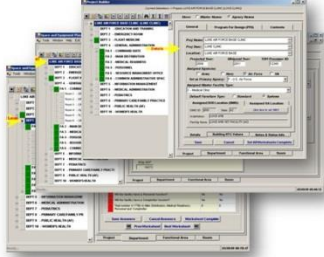
HT9402-11-D-0001 - Task Order 0008 - 50% Submittal

Onuma, Inc.



Proposed SEPS Configuration

SEPS




Key Points in Enhancing SEPS

1. Identify what is **secure** and **non-secure** data
2. Make the non-secure, public data accessible to the industry for developments.
3. Leverage the data generated by SEPS for the Planning & Design Phase as well as the Lifecycle Management of the facility. Consider developing workflows with the AEC and FM teams to utilize and maintain the integrity of the data.

6

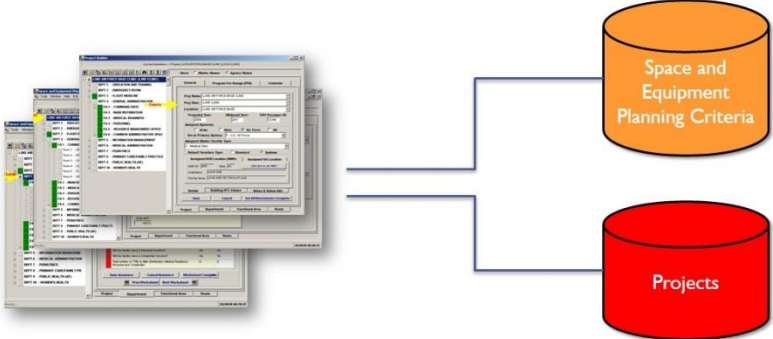
HT9402-11-D-0001 - Task Order 0008 - 50% Submittal

Onuma, Inc.



Proposed SEPS Configuration

SEPS




Two main parts to SEPS

- **Space and Equipment Planning Criteria**
- **Projects**

7

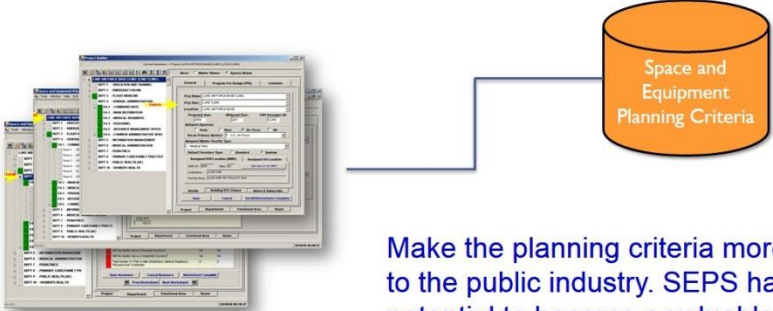
HT9402-11-D-0001 - Task Order 0008 - 50% Submittal

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Proposed SEPS Configuration

SEPS



Make the planning criteria more accessible to the public industry. SEPS has the potential to become a valuable “conduit” to enhance planning & design of medical facilities. Some of this criteria like the VA Design Guides, is already available on the web. However, it is in the form of numerous static PDFs instead of data.

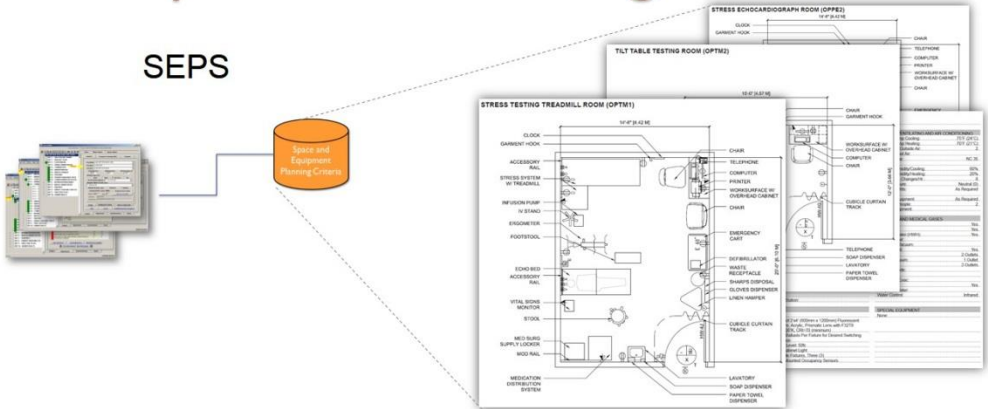
8

HT9402-11-D-0001 - Task Order 0008 - 50% Submittal

Onuma, Inc.

Proposed SEPS Configuration

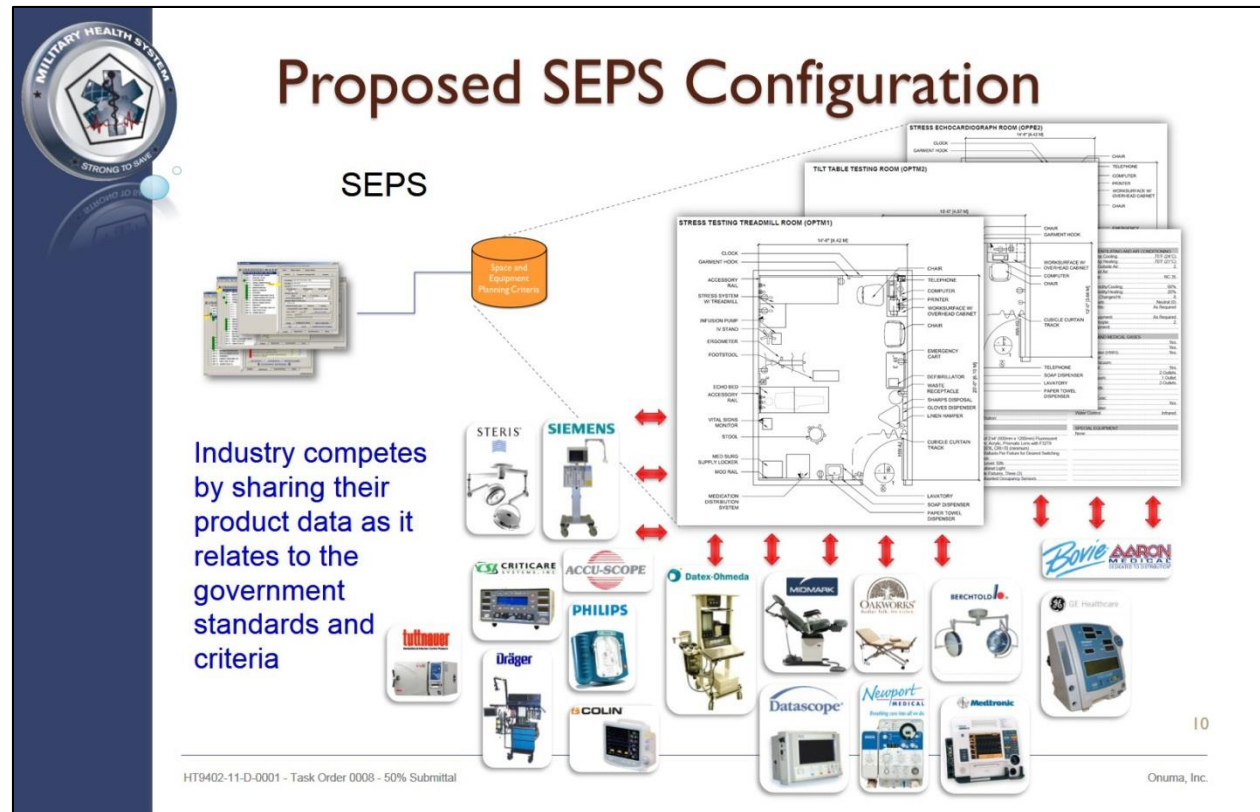
SEPS




Allow the industry to publically access the standards. This incentivizes them in turn to publish how their products comply with these government standards, making it easier for designer and planners to spec their products.

HT9402-11-D-0001 - Task Order 0008 - 50% Submittal

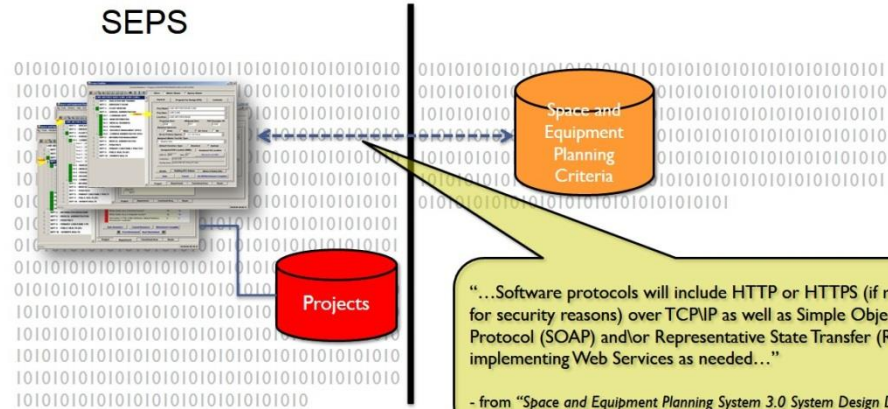
Onuma, Inc.





Current SEPS Configuration

SEPS



"...Software protocols will include HTTP or HTTPS (if required for security reasons) over TCP/IP as well as Simple Object Access Protocol (SOAP) and/or Representative State Transfer (ReST) for implementing Web Services as needed..."

- from "Space and Equipment Planning System 3.0 System Design Document"

Strategically share data to enhance the overall Programming, Planning and Design of medical facilities while maintaining the critically secure data. **Web Services** is already a planned feature in SEPS 3.0 which is a flexible, scalable means of sharing this information.






HT9402-11-D-0001 - Task Order 0008 - 50% Submittal

Onuma, Inc.

There is an overview of the outreach efforts that were made as part of assembling this SEPS Strategic Plan.

Appendix D: Industry Outreach Effort

D1: Industry Outreach Letter

Introduction
Washington DC - Oct. 25, 2012

The National Institute of Building Sciences (NIBS) has been contracted by the Department of Defense, Military Health System (MHS) which will include input from the MHS, Department of Veterans Affairs (DVA) and public sector healthcare organizations.

The first task is to review the current processes of programming and designing spaces and equipment for healthcare facilities. The second task is to review how data is exchanged and managed throughout the facility life cycle management (FLCM) – which includes planning through design and construction into the corporate facilities operations and management systems.

The following information is sought:

- 1 What are best practice tools within the industry to support planning and managing of healthcare facilities?
- 2 What tools are used that support planning criteria implementation and assessment? What industry tools are available to support computer aided facility management (CAFM) and computerized maintenance management systems (CMMS)?
- 3 These activities and functionality are currently supported within the MHS using the Space and Equipment Planning System (SEPS), and Defense Medical Logistics Standard Support Facility Management Module (DMLSS-FM). Feedback from current SEPS and DMLSS-FM system users is also sought.

Results of the Study
The results of the study will help to guide the further development of the Space and Equipment Planning System (SEPS) and provide a strategic plan for a fully functional web centric healthcare planning tool. The results will also provide a roadmap for the MHS for leadership guiding the path for the MHS's CMMS and CAFM tool set. These studies will produce reports that include recommendations to include references to existing industry tools and processes, best practices and guidelines for future development.

Why Participate
Participants may choose to remain anonymous or be credited as a contributor in the reports.

Respondents will receive recognition in the reports and have a chance to provide their input through this report to the healthcare owners. If you are interested in contributing feedback to this effort please provide your contact information at: <https://facilities.health.mil/home/Contract-NIBS/SystemRoadmaps>

MHS World Class Facilities Website: www.facilities.health.mil

Notice: The participation in this effort or contribution of information shall not incur any financial reimbursement by the federal government, nor does it provide any commitment for future actions or use of products or services in the future. The results of this study are expected to be classified as "For Official Use Only (FOUO)" and therefore will NOT be published in the public domain.

D2: BIMForum Tacoma

Date: October 10 - 12, 2012

Time: 2:30pm – 5:00pm (Pacific)

Venue: Tacoma (<https://bimforum.org/resources/tacoma-presentations/>)

Agenda: Focus on BIM and FM, with presentations by Owners, Constructors, and Vendors.

Attending:

- Over 250 professionals and technology providers

Take Aways

- Industry standards are critical
- FM and BIM is still in its infancy

D3: CONSTRUCT 2012 and The Annual Construction Specifications Institute (CSI) Convention

Date: September 11 - 14, 2012

Venue: Phoenix (<http://www.csiphoenix.org/CONSTRUCT2012.aspx>)

Agenda: Focus on BIM, Specifications and Industry Standards, including Spatial Program and Building Product Data and Data Dictionaries

Attending:

- Over 10,000 professionals and technology providers

Take Aways

- Industry standards are critical
- FM and BIM is still in its infancy

D4: IFMA World Workplace 2012

Date: October 31- November 2, 2012

Venue: San Antonio (<http://www.worldworkplace.org/conference/>)

Agenda: IFMA's World Workplace Conference & Expo is the largest, most longstanding and well-respected annual conference and exposition for facility management and related professions.

Attending:

- Over 11,000 FM professionals and technology providers

Take Aways

- First meeting of IFMA BIM Lifecycle Operations (BIMLO) Community of Practice whose mission is to acquire process and disseminate information pertaining to the practice of BIM, Integrated Project Delivery (IPD) and Lean Practices through the entire lifecycle of the built environment to the 23,000

global members of IFMA.

D5: Architectural Record Innovations Conference

Date: October 4, 2012

Venue: New York City (<http://construction.com/events/>)

Agenda: Shaping the Future. This year's conference highlighted the profession's top innovators, most influential new projects, and groundbreaking achievements in super-tall, super-efficient and super-smart buildings.

Attending:

- Architects, constructors and other professionals

Take Aways

- Industry standards are critical
- FM and BIM is still in its infancy

D6: 2012 Symantec Government Symposium Washington DC

Date: November 7, 2012

Venue: Washington DC (<https://bimforum.org/resources/tacoma-presentations/>)

Agenda: Internet and Cyber security Issues for Government

Attending:

- Over350 professionals and information technology providers

Take Aways

- Cyber security is increasing exponentially
- Cloud First and Agile are becoming the go-to platforms

D7: CIFE Workshop: International Exchange on Healthcare Infrastructure Planning, Delivery, and Innovation

Date: October 25th, 2012 (Thursday)

Time: 2:30pm – 5:00pm (Pacific)

Venue: CIFE, Stanford University (<http://cife.stanford.edu/contact>)

Agenda: Each participating organization (healthcare operators, researchers, designers, builders, BIM specialists, etc.) will be invited to give a 10-minute presentation, to be blended with open discussion throughout the workshop

Attending:

- MOHHoldings Singapore - http://www.mohh.com.sg/about_mohh.html , Stanford Medical, UC SF Medical Center, CIFE, Foundation for California Community Colleges, Aditazz, BIMScore, Beck Technologies, Ecodomus. Onuma

Take Aways

- Everyone is trying to get the holy grail of connecting BIM to Operations
- Importance of including maintenance and operational thinking during design << key point made
- Some owners are frustrated about being trapped in systems that are difficult to maintain

D8: Health Care BIM Consortium

Date: October 17th, 2012

Time: All Day (meeting on RFP)

Venue: NIBS (<http://www.buildingsmartalliance.org/index.php/projects/activeprojects/162>)

Agenda: The Healthcare BIM Consortium (HBC) has been created by healthcare owners in collaboration with software vendors, designers and builders to seek solutions for interoperability to support the Facility Life Cycle Management (FLCM).

Attending:

- Department of Defense Military Health System (DoD MHS), Department of Veterans Affairs (DVA), Kaiser Permanente (KP), and Sutter Health

D9: COAA 2012 Fall Owners Leadership Conference

Date: October 31 to November 2, 2012

Venue: Orlando, FL

(<http://www.coaa.org/Conference/2012-Fall-Owners-Leadership-Conference>)

Agenda: This 2 1/2 day conference will feature 17 high-quality, Owner-focused educational sessions, exhibitor area, a variety of networking opportunities

Attending:

- Owners, design and construction and facility management professionals

D10: ESRI and GIS

Date: October 22, 2012

Venue: ESRI Tysons Corner Office, meeting with John Young
(www.esri.com)

D11: EcoBuild 2012 in Washington DC, December 2012

D12: NIBS 2013 Building Innovations Conference and buildingSMART Alliance conference 1/7 to 1/11/2013

D13: AIA Technology In Architecture Practice (TAP) 9th Annual Building Connections 1/11/2013

This is an overview of the government and Industry Collaboration models that have been implemented in the past.

- **ProjNet (Dr Checks)**
- **Builder**
- **FUSION**
- **MAX.gov**

Appendix E: Government and Industry (private sector) Collaboration Models

Four distinct models of Government and Industry Collaboration are described below:

- ProjNet (Dr Checks)
- Builder
- FUSION
- MAX.gov

Each has a different history of development and business model.

Appendix E1: ProjNet (Dr Checks)

The screenshot shows the ProjNet website interface. At the top, the 'ProjNet' logo is on the left, and 'Quick Add Help' is on the right. Below the logo, the text reads 'The ProjNet Suite: design, bid, build.' A yellow banner contains a message: 'Please select Quick Add from the top if you were provided a key to access DrChecks, Bidder Inquiry, Plan Room, or eSubmittal. All other users should use the form below to log in.' The login form includes fields for 'Managing Agency (req)' (with a dropdown menu showing 'USACE'), 'Email (req)', and 'Password (req)'. There is a 'Sign in' button and links for 'Forgot your password?' and 'Register'. To the right of the form is a diagram showing overlapping circles representing stakeholders: Owners, Operators, Construction Management Agent, Architects/Engineers, Builders, Sub-Contractors, Suppliers & Mfgs, and Consultants.

Figure 47: ProjNet

The Project Extranet or ProjNetSM provides business-process based information exchange applications between public sector contract or project management offices, funding agencies, and all tiers of designers, consultants, builders, subcontractors, suppliers, and manufacturers. While ProjNetSM doesn't help your stakeholders create designs, prepare bidder inquiries, or

create construction submittals, it does allow you to securely coordinate the information with authorized team members who can take action on the information exchanged. The specific applications contained in ProjNetSM are described in the user documentation, identified below.

ProjNetSM is a not-for-profit software development by the U.S. Army Engineering Research and Development Center (ERDC). The National Institute of Building Sciences administers ProjNet provides

business-process based information exchange subscriptions and provides user support services. Agencies participating in ProjNetSM are automatically given seats on the NIBS Government-to-Business process committee where best practices are shared and new requirements identified and vetted. ProjNetSM development began over ten years ago with research into web-based prototypes to automatically capture lessons learned during design reviews.

Today over 28,000 users in seven federal agencies, three state government agencies and their commercial business partners use ProjNetSM applications.

Appendix E2: Builder



BUILDER™

From a US Army Civil Engineering Research Laboratory (USACERL) Technical Report M90-19, dated July 1990.

The U.S. Army owns and operates over 1 billion sq. ft. of building area in approximately 194,000 facilities. The number of facilities at a given installation is potentially large, which makes it difficult to effectively manage their maintenance and repair (M&R). Nevertheless, effective maintenance management of facilities is required so M&R budgets can be accurately determined and funds allocated where they are needed most.

Effective maintenance management requires knowledge of the inventory and physical condition of the buildings, the performance over time of building components, and the impact of component performance on overall building performance. A condition index rating system is necessary to provide a standard basis for rating current building and component condition.

Unfortunately, the Army has neither a structured objective index rating system for buildings nor a procedure for capably monitoring the effectiveness of applied M&R.

A BUILDER system will provide maintenance managers with a means of performing effective, meaningful maintenance management. By combining engineering, architectural, and management methods with data base management technology, BUILDER will facilitate decision support so an optimal level of building M&R can be planned and accomplished at the lowest cost. BUILDER will include methods for gathering, storing, manipulating, retrieving, and reporting information on building inspection and assessment.

This 1990 report defines the management problems related to M&R of Army buildings, investigates and assesses available technology, and presents concepts for developing and implementing a structured objective condition index rating system for building maintenance management.

From 2008 Press Release by CALIBRE (<http://redhat.sys-con.com/node/631500/print>)

License Agreements for BUILDER(TM) to Offer Vendor Options

The U.S. Army Engineer Research and Development Center (ERDC) signed four separate agreements with CALIBRE that will enable the company to sell BUILDER™ engineered management system software and services. Developed by ERDC's Construction Engineering Research Laboratory (CERL), BUILDER™ is a web-based application that optimizes maintenance and repair (M&R) decisions for buildings and reduces the overall cost of building ownership. It provides for an objective engineering analysis based on condition index ratings.

The legal documents signed with CALIBRE include a Patent License Agreement for three BUILDERTM patents, a Trademark License Agreement, and a Copyright License Agreement. In addition, CERL and CALIBRE signed a Cooperative Research and Development Agreement to provide a robust support network and to enable the company's investment in further improving and developing BUILDER™ tools.

“Our strategy is to establish multiple options for vendors from which facility managers, owners, and operators can purchase BUILDER™,” said Lance Marrano, project manager at CERL. “The priority is to ensure that BUILDERTM users have easy access to support services and expertise that will help them implement the system successfully.”

The agreements mark the first set in a planned series of licensing agreements with industry to make the BUILDERTM engineered management system available to the private sector while creating a competitive market from which users can acquire this tool.

“CALIBRE is honored to be the first commercial firm recognized as meeting CERL’s recommended qualifications to perform BUILDER™ implementation services,” said Joe Martore, CALIBRE’s Executive Vice President & Chief Operations Officer. “This activity is consistent with CALIBRE’s approach to providing durable solutions to BUILDERTM users.”

CERL intends to negotiate similar agreements with several other potential providers, including the University of Illinois at Urbana-Champaign which previously hosted the BUILDER™ Support Center. Unlike exclusive patent licenses, this competitive approach will ensure that BUILDERTM remains affordable for military installation customers and others.

BUILDER™ Version 3.0 was just released upon signing the agreements with CALIBRE. Version 3.0 is a network-based, multi-user system that includes: inventory of building major components; photo imaging; checklist-style, pen-based inspections; condition indexes; functionality ratings; condition prediction capabilities; revised remaining service lives based on condition; seismic and other building compliance ratings; budget planning procedures; prioritized long-range work-planning procedures; presentation graphics, linkages to AutoCAD, Microstation and other building drawings; a built-in geographic information system (GIS) viewing capability; and ability to interface with an external GIS.

About ERDC-CERL

The U.S. Army Engineer Research and Development Center (ERDC) is the premier research and development facility for the U.S. Army Corps of Engineers. It consists of seven laboratories --including CERL -- at four geographical sites, with over 2,000 employees, \$1.2 billion in facilities, and an annual research program exceeding \$700 million. ERDC conducts research in both military and civil works mission areas for the Department of Defense and the nation. CERL originally pioneered the engineered management system concept to help military installations manage maintenance and repair for their infrastructure.

About CALIBRE

Established in 1989, CALIBRE is an employee-owned management and technology services company. CALIBRE builds and delivers practical, timely, best value solutions to solve management, technology, and program challenges. The company is headquartered in Alexandria, Virginia.

For more information about CALIBRE, please visit www.calibresys.com.

Appendix E3: FUSION



<http://cccfusion.org/Home/tabid/404/Default.aspx>

Overview of FUSION

The Foundation for California Community Colleges (FCCC), in concert with the CCC Chancellor's Office (CCCCO), initiated a state-wide program in 2003 to streamline the process for funding, managing and completing facility projects at all 72 of its districts. One of the key initiatives is the "Facilities Utilization, Space Inventory Options Net" or "FUSION" Project.

FUSION is a web-based, integrated network of relational databases and a platform for other applications to link to through the web. Users access the FUSION website using web browsers. The FUSION system's hardware and software are owned by the California community colleges and are operated and maintained by San Joaquin Delta Community College District (SJDCCD).

Scope of FUSION

Prior to FUSION, the management and reporting on campus facilities involved numerous stand-alone processes implemented by various spreadsheets, databases and paper forms. This approach was not only inefficient but it also frustrated attempts by the districts and the CCCCCO to develop consistent, standardized data sets needed to support effective planning.

In response to this, FUSION brought together tools to support many of these processes using a single, integrated database. These include tools to support the following:

1. Facility Assessment
2. Facility Space Inventory
3. Planning (including forecasting, Capital Outlay at both the district and state-wide level, and Local Assistance planning)
4. Project Management
5. Project Task Contract Management
6. E-manual (i.e., online documentation of CCCCCO business practices, industry "best practices", and help/support function for FUSION-system navigation & operation)

To date, there are 1,000 FUSION users. This includes System Office staff, district administrators, district and campus users, and contractor staff. Contractors make up 30% of all FUSION users, which promotes better uniformity in the products and services provided state wide.

Benefits of FUSION

FUSION is designed to promote enhanced and timely communications between the Districts and the Division of College Finance & Facilities Planning, CCC Systems Office. The FUSION system by its nature automates data collection, analysis and management in a secure, web-based environment. Data from many separate projects can be rolled up to various levels (e.g., building, campus, district, system-wide), thereby facilitating the gathering and summarizing of information for periodic state and local reporting. FUSION has been well received by users from across the state. This includes both 'high-tech' and 'low-tech' users. Some of the specific benefits to District personnel and/or CCCCCO personnel include:

1. Enter data once and control changes to that data.
2. Manipulate how the data is viewed for greater insight and effectiveness.
3. Generate mandated reports from data that exists within the system.
4. Define criteria and address more objectively any equity issues between district, campus or individual buildings.
5. Package deficiencies or issues into projects to support facility renovation and renewal to protect mission critical teaching, research and support functions.
6. Prepare Initial Project Plans, Final Project Plans, and five-year CO Plans online.
7. Develop procurement strategies and bulk purchase plans.
8. Conduct scenario planning, thereby making planning more effective and robust.
9. Update, certify, and track space inventory status, project status, forecasts (weekly student contact hours or WSCH, FTEs per college, etc.) online while permitting CCCCCO view only access.
10. Streamline project management, tracking and reporting functions – submitting bond funding and loan requests, grants and project change requests, and development and phase documentation to CCCCCO.
11. Track, view, interpret, and understand the overall performance of many projects with various funding streams spanning multiple fiscal years, and more proactively manage risk.
12. Access the latest procedures such as CCCCCO Facilities Business Processes, Best Practices from the AEC industry, etc.
13. Orient new employees within facilities management more effectively.

FUSION's Design for Adapting to Advancing Technology

In 2008, the CCC Geographic Information System (CCCGIS) Collaborative opened up access to geospatial maps and data. This created an interactive, on-line repository of maps, tabular data and

reference documents about college district boundaries, campus boundaries, building footprints as well as maps and data about regional demographics, legislative districts, transportation corridors and other data important to colleges for various planning purposes.

Starting in 2011 the use of FUSION was expanded by opening up connections through web services and web APIs to other applications. The first was a connection through web services to Building Information Modeling (BIM). The CCCGIS data was also connected to through web services. The result is graphical real time user interface to the FUSION data that links to BIM and other tools. Since then, other applications and solutions such as Building Automation Systems and Controls, Work Order Systems, Facility Assessment Applications, Classroom Scheduling, and Tablet and Smartphone based applications have linked into FUSION through web services. The open architecture and platform of FUSION has enabled this rapid development and deployment of web based tools. In addition, this design 'future proofs' the system to be able to remain responsive and adaptable to future advances in technology. Over 20 districts have now started to use the graphical interface of FUSION CCCGIS ONUMA.

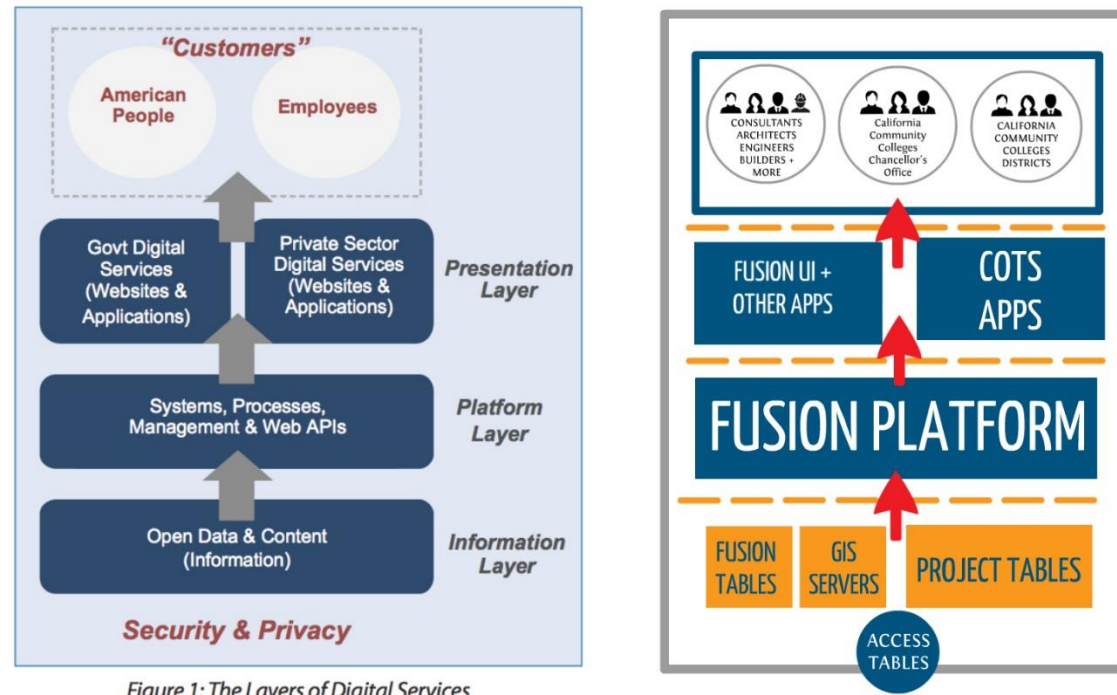


Figure 1: The Layers of Digital Services

Figure 48: The FUSION Platform follows very closely the Layers of Digital Service outlined in the May 23, 2012 document from President Barack Obama titled "Building a 21st Century Platform to Better Serve The American People"

The Business Side of FUSION

The FUSION system has a unique history and strategy in the development, funding and sustainment of the platform. The California Community Colleges faced a challenge in 2003. Budget constraints, disparate technology systems, lack of information for decision making and a need to constantly deliver more for less.

To make better business decisions on the future of the community colleges and the over over 5,000 buildings, there was a need to be able to evaluate data in a consistent format at the local district and state level. This was not possible if each district was using a mixture of paper, Excel, and DOS based

systems. There was also the natural tendency of each of the 72 districts moving toward separate proprietary systems.

Rather than licensing a single piece of software and off the shelf enterprise solution it was decided along with the support of the California Community Colleges Chancellor's Office to build a system that would be web based, agile and open to allow for future expansion through web services.

FUSION allowed the California Community Colleges to be in control of their own data and to create a platform that then set the stage of how other software solutions and systems can interact with it. This strategy allowed the CCC to be more in control of their future. It simplified and reduced the cost of maintaining and updating the platform with modular tools that plug and play into the FUSION and allowed for infinite scalability.

Prior to 2003 several districts were using a system for tracking facility data called Comet developed by 3Di. The California Community Colleges State Chancellor's office was able to get an initial 10 of the 72 districts to invest \$75,000 each in development of the first version of FUSION. This grew from 10 districts to 16 districts. Within 18 months all 72 Districts in the state signed up for FUSION. Annual operating budget is just over \$1M.

For a total initial investment of \$800,000 the FUSION System was developed and is owned by the California Community College Districts. The annual operating budget for FUSION is just over \$1M and is maintained by the Foundation for California Community Colleges. A yearly maintenance fee is charged to the districts and this supports the updating and maintenance of the FUSION System. Consultants can also be given access to FUSION after the district gives them permission.

The CCC Geographic Information System (CCCGIS) has also been connected to FUSION, creating a link between geographic data such as demographic shifts and decisions made in FUSION. In the last two years Building Information Modeling (BIM) has also been linked to FUSION through Web Services.

The unique business and technology structure of FUSION fosters expanded functionality by encouraging other systems to connect to the foundation created by FUSION in an open way through web services. This strategy allows for the California Community Colleges to maintain constancy of their data, own the information and encourage new functionality to be developed on top of it through web services. This approach saves time and countless dollars by keeping information technology systems agile and interoperable. This is the model of how the Internet functions today and the California Community Colleges had the foresight to build this platform starting in 2003.

References:

<http://www.foundationccc.org/WhatWeDo/FUSION/tabid/76/Default.aspx>

<http://cccgis.org>

<http://www.cccco.edu>

<http://Onuma.com/FUSION>

Appendix E4: MAX.govThe logo for MAX.GOV HOMEPAGE is displayed in a blue-bordered box. The text "MAX.GOV" is in a blue, sans-serif font, and "HOMEPAGE" is in a grey, serif font.

<https://max.omb.gov/maxportal/>

From **Open Government Plan** by White House Office of Management and Budget, dated April 7, 2010 (<http://www.whitehouse.gov/sites/default/files/microsites/100407-omb-opengov-plan.pdf>)

1. MAX Federal Community

MAX is OMB's system for the production of the President's Budget and supporting OMB's data collection, reporting, and modeling needs. The MAX Federal Community provides a secure collaboration, information sharing, and content management capability for interagency activities. It was deemed the official method for interagency activities relating to policymaking, management, and budget activities by OMB's Technology Review Board in 2008, and contains active collaborative government-wide communities for many of OMB's mission areas, including: Budget, E-Government, Grants Management, Financial Management, Performance, and Recovery Act, with new communities starting around Acquisition, Information Management, Intellectual Property, and Open Government itself.

The MAX Community is also used by many agencies for their own collaboration and information sharing activities – both internal, interagency, and with OMB. It currently hosts hundreds of collaborations involving almost 28,000 Federal users from 106 departments and agencies.

2. Interagency Data Collection and Analytics

The ability to collect, organize, analyze and publish data is central to OMB's mission and to the Federal budgeting process. To support these activities, OMB worked with other Federal agencies and the Budget

Formulation and Execution Line of Business to develop a suite of government-wide, collaboration, data collection and analytical tools.

3. **MAX Collect**

To perform its mission and the Federal budgeting process, OMB annually conducts many government-wide data calls to collect, compile, organize, analyze and publish information. To enhance the efficiency and effectiveness of these activities, OMB worked with the Budget Formulation and Execution Line of Business to develop a suite of government-wide data collection, analysis, and publishing tools called MAX Collect. This line of business is an E-Government initiative under the Budget Officers Advisory Council for improving Federal budgeting through the provision of automated capabilities that facilitate collaboration, data collection, and analysis; as well as the development of training and best practices for the budgeting profession.

MAX Collect is a flexible web-based application that enables OMB and agency users to conduct robust government-wide data collection exercises. Even complex data calls can be set-up quickly through a straightforward configuration process without the need for custom programming. The application supports a variety of information structures (text, tables, bullets, attachments, comments), and automatically provides user authentication, workflow with multiple levels of reviews and approvals, and flexible access controls to enable efficient collection and sharing of information.

Once information is collected, it can be automatically compiled into documents with a paginated table of contents, one or more categorizations, and can even be produced in camera-ready publication format. Structured numeric data can be analyzed using reports, tables, charts, and real-time dashboards, and readily exported in XML or spreadsheet formats.

MAX Collect has been used by OMB and other Federal agencies for numerous data collections, including the compilation of the Aid to State and local governments chapter of the Analytical Perspectives volume of the FY 2011 President's Budget, the Terminations, Reductions and Savings document of the FY 2011 President's Budget, the Federal Enterprise Architecture, the Sustainable Acquisition Practices Survey, responding to Questions for the Record (QFRs) from Congress, and many others. It was also used internally for tracking progress in OMB's internal Physical Fitness Pedometer Challenge.

One feature of MAX Collect is its ability to collect data directly from the source –improving both speed and accuracy while significantly reducing workload. For example, in a typical OMB data call for

information from the agencies, larger Departments and agencies would first collect the information from their components offices in a document or spreadsheet that would then be manually compiled at a central office for submission to OMB. MAX Collect allows the information to be directly collected at the component office level, automatically compiled for central office review, and then electronically submitted to OMB when ready. Where appropriate, data can even be collected from non-Federal sources.

MAX Collect and its associated document publishing and analytical capabilities is fully integrated with the MAX Federal Community to provide Federal users with a seamless interface of collaboration, data collection, analysis, and publishing capabilities that fosters knowledge management.

4. **MAX Analytics**

MAX Analytics is a suite of analytical and reporting tools integrated with MAX Collect and the OMB budget database. These tools provide Federal analysts and data owners with an easy to use interface to develop queries, dynamic charts and graphs, analytical cubes, and multiple types of published and web-based reports. These tools have been used in support of multiple data collections.

These tools are integrated with the MAX Federal Community to provide a seamless suite of collaboration, knowledge management, and data collection, analytical and publishing tools. In addition, each of the MAX tools is available as a web-based service to allow integration with applications at OMB and other agencies.

Rough Calculation for Max.Gov Hosting and Licensing				
Calculation for 800 Users				
	Number of Users	Cost Per User	Total Cost	
	Number of Users	800		
	Authentication Per Year Per User	\$10	\$8,000	per year
	Access Per Year Per User	\$50	\$40,000	per year
	Max.gov Hosting Cost		\$100,000	per year
	Total Cost Per Year		\$148,000	
	Per User cost		\$185	per year
	Assumed License Cost Per User			
	Admin and Gov	160	0	\$0
	Others	640	\$1,000	\$640,000
	Total Per Year	800		\$640,000

Figure 49: Rough Calculation of Max.Gov Hosting and Licensing (800 Users)

Calculation for 2000 Users				
	Number of Users	Cost Per User	Total Cost	
	Number of Users	2000		
	Authentication Per Year Per User	\$10	\$20,000	per year
	Access Per Year Per User	\$50	\$100,000	per year
	Max.gov Hosting Cost		\$100,000	per year
	Total Cost Per Year		\$220,000	
	Per User cost		\$110	per year
	Assumed License Cost Per User			
	Admin and Gov	400	0	\$0
	Others	1600	\$1,000	\$1,600,000
	Total Per Year	2000		\$1,600,000
Calculation for 5000 Users				
	Number of Users	Cost Per User	Total Cost	
	Number of Users	5000		
	Authentication Per Year Per User	\$10	\$50,000	per year
	Access Per Year Per User	\$50	\$250,000	per year
	Max.gov Hosting Cost		\$100,000	per year
	Total Cost Per Year		\$400,000	
	Per User cost		\$80	per year
	Assumed License Cost Per User			
	Admin and Gov	1000	0	\$0
	Others	4000	\$1,000	\$4,000,000
	Total Per Year	5000		\$4,000,000

Figure 50: Rough Calculation of Max.Gov Hosting and licensing (2000 and 5000 users)

Appendix F: SEPS Case Study—Balfour Beatty Project Experiences



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Potential Balfour Beatty case study thoughts for SEPS experiences

We welcome the opportunity to continue to provide feedback on the focus on the Onuma, Inc. SEPS case study and report in hopes that we can help evolve and make better data transfer and exchange for healthcare.

The case study we are envisioning, based on Balfour Beatty's experience with SEPS from past projects, will come in two phases:

- 1) Outline of our thoughts for feedback and inclusion in Onuma's 80% report to NIBS contained in this memo.
- 2) White paper case study. This would organize and elaborate on the Bulleted Outline.

Jason A. Reece

A handwritten signature in blue ink, appearing to read "Jason A. Reece".

Contact information:

Please contact Jason Reece with any questions regarding this outline
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Process of interfacing with SEPS and Federal entities using that system

- 1) Any design-build (DB) federal hospital starts with someone in the government developing a Project Room Contents (PRC) list. There is also a Program For Design (PFD) that outlines the general design requirements of a facility or campus that the design build team must also conform with.

The PRC, an output of SEPS, is part of the governments RFP and the DB Team is expected to use this list as the basis of design for room type counts, room sizes, and room contents. Often the PFD and the PRC are in conflict with each other, as the PFD information is an independent document that is not contained within SEPS.

For the SEPS program to be most useful, it should use similar fields as a designer would:

- bldg,
- level,
- room #,
- dept,
- room name,
- guide
- plate/room
- etc.

Some of those exist, but you really need all of them when you get into the procurement and construction phase after NTP

- 2) Immediately after the start of design, the SEPS database information is transferred over to the internal working of the design team. This is a means and methods process driven by the business tools of the designers. This includes various tools like BIM, Excel, and Access depending on the team.

At this stage the PRC is immediately outdated. The actual design and subsequent decisions made by the design build team represent the true nature of the design. A one to one comparison of the SEPS program to the design is not possible and the team must reconcile the differences manually.

Often the RFP information is stale before the contract is awarded. The government KO may be making changes to the SEPS database as they engage more with the end users of the facility.

Prior to award, any changes made after the most recent printed form of the PFD and PRC that are not reflected in an amendment to the solicitation are already lost to the competing offerors. After contract award, the same risk exists, but becomes compounded as more changes are made in SEPS that are not communicated via a contractual vehicle to the design build contractor via the KO's office.

- Not everyone on the government side of the equation understands or agrees with this premise.

- The data is inherently old which many items being obsolete and pricing/budgets can be off by multiples
 - As long as SEPS is using JSN's, you at least have consistency across 2 or 3 potential commercial products. However, at Walter Reed, SEPS didn't have the capacity to add simple data to allow us to track data by "design" room number. We wanted to bring design data into SEPS to help create a means to relate design room numbers to SEPS rooms, but could not do so.
 - The primary key in the database was first by department then room name.
 - The JSN, which is the primary ingredient of SEPS, is a strong piece of data since it allows you to pull up all the specs required of any piece of equipment (spatial allocation and footprint, MEP utilities and R/I requirements, etc).
 - The advancement of commercial healthcare products is far outpacing the update and maintenance of the master JSN book (MIL-STD 1691) when its most recent update was April 2011 (see <http://www.wbdg.org/ccb/M1691/1691.pdf>).
- 3) The original PFD and PRC is used as a benchmark to compare room counts and room contents bought at contract to what a hospital design contains in progressive design iterations. This comparison is necessary so that the government can ensure themselves that they are getting what they bought (due diligence).
- There is no good method to catalog design changes (agreed upon with the government) within SEPS. SEPS appears to be output only and provides reports as a snapshot in time. Keeping SEPS up to date with design would be a manual process, and is not something that the government does.
 - There is no versioning tool, that can catalog changes from the original SEPS to a current SEPS that represents agreed upon design changes.
 - There is not a mechanism where SEPS reads and records changes directly from an output derived from a design model (BIM).

- The project design team can easily be delayed in making efficient progress when they have to re-visit previous decisions and discussions with people that were uninvolved during the original conversation.
- These individuals typically insert themselves late into the process questioning settled issues.
- This may be more of an organizational challenge than a SEPS related issue, but it adversely affects the efficiency of design.
- NAVMED personnel have no contractual relationship with the design build team which made NAVFAC the middle man when our design did not match their SEPS lists.
- Changes from the SEPS derived PFD and PRC are typically cataloged outside of SEPS on comparison spreadsheets. This is excessively time consuming and produces a third or fourth tracking mechanism for accurate program data.
- SEPS has no “change request” interface for end users to submit requested changes for approval prior to incorporation into the live database.
- The “comparison” spreadsheets did the job, but tracking down what RFI, MOD, Design Review Session, etc., led to a change in the design model that subsequently made a change in the equipment list and was a cumbersome task.
- This was and is a huge issue as there is limited information tracking all the room and equipment changes back to the RFP’s.
- Many times the RFP did not agree with what the design team or HFPA expected.
- Some Government Equipment Planners continued to use SEPS after design started to make changes to the SEPS database based on input they received from their User Groups. The Government Equipment Planners would then complain that a Designer provided Equipment List extracted from a more mature design model did not match.

Change management
 Ideally, each change to the room counts and equipment lists needs to be identified with:

- Reason/Cause
- Date/time stamp,
- Persons involved in the discussion.

Doing so would likely save an enormous amount of time. BBC uses our proprietary system, EquipWare to do as a response to this very issue.)

It may be possible to quantify time

- This led to a frustrating “do loop”, where we be continually trying to determine/explain and re-explain why SEPS data differed from the design.
- They fundamentally did not understand that the ONLY valid count of equipment and room MUST come from the design model, not their SEPS database.
- This is the only thing that we are planning. When you are in a FFP situation this gets more difficult to manage as scope can creep.
- In some occasions, the government equipment planners were reluctant to inform the Design Team of changes outside of issuing an official a MOD.
- Contractually, this is correct procedure.
- However, sometimes the Design Team was being held accountable for not making design changes that were still unofficial and in negotiation.
- It would have been beneficial if SEPS had a mechanism to catalog or identify FUTURE contract modifications so as to not confuse Government reviewers and planners that still have to execute the contract. Again, this might be remedied by having a more transparent interface with SEPS.
- Examples - Developing a consensus at Walter Reed on the final equipment list:
 - Due diligence team reviewing: Us, the Designer of Record, and NAVMEDNCA.
 - We went through every room over a three week period with about 8 designers from Dallas. This was necessary due to two equipment lists developed in parallel, but separate paths:
 - The design PRC
 - NAVMED’s SEPS list

One consideration to reduce a lot of re-coordination and reconciliation should be that all hospitals should use a dedicated design build division 10 subcontractor/designer.

It would allow for vetting and selection of acceptable equipment prior to IFC documents.

This which would eliminate having design docs with a sample JSN material or piece of equipment that is different from what is ultimately procured through subcontracting, submitted, approved, furnished,

- Once equipment lists were reconciled, we needed about 5 people between C-BB, W&S, NAVFAC, and NAVMED to reconcile the equipment list, but could have used 8-10.
 - Only in certain circumstance was the design team asked to meet with the end users. This led to later confusion as the HFPA teams got more comfortable with meeting directly with the users then issuing changes to the design team.
 - Eventually we created an access database to manage this data, and had a PE dedicated full-time to coordinating all RFI responses, submittal comments, shop drawing and coordination efforts, etc.
 - A major difference between the private sector and the federal is that the Log Cat C validation is done after design, instead of during. This led to many “in-place” changes and rework during construction.
- 4) If we had our way:
- SEPS access provided to Design Team?
 - Today, you can get it, but have to have a recommendation and support from the military side. It would still provide minimal value without better interactive data that relates to the design.
 - SEPS would record when and why changes were made.
 - We do this in our system now due to the issues above, creating an inefficiency in database reconciliation, but negating a contractual nightmare.
 - SEPS could be synched with Design Model?
 - They would have to take our flat file output and input into their system.
 - It is possible that this might not provide a high value unless back-feeding SEPS would be useful downstream to the client.
- 5) Other questions:
- Why even use SEPS after handoff to a design team? What is the need?

- No current need to do this from a DB perspective, after award, the design must be compliant with the original RFP; everything else is done through a mod, not through SEPS.
- The SEPS data is too old and we would spend more time updating it than using our own system.
- Technology Refresh: How did this happen? Did it happen? I assume it was handled outside of SEPS.
- They supposedly update the system constantly but they contract out this service and as we have seen over and over the data is anywhere from 4 to 10 or more years old. Great examples of the lack of JSN's for equipment booms or even integration packages for the OR's
- SEPS' usefulness is limited by both the care and maintenance of the MIL-STD 1691 equipment itself, as well as the complexity of integrated suites, eg:
 - The difference between a Siemens Symbia T and T16
 - The difference between a Varian Trilogy Tx, Novalis Tx (same thing with Brain Lab attached), and Tomotherapy, all of which had the same JSN designation (X8710) in SEPS (later appended with an alphabetical suffix like 8710A, 8710B, etc)
 - Motek's CAREN lab with its dozen or so options
- Dealing with late equipment changes.
- Requires the right people with the right tools, and a clear understanding of what's in contract vs. post-award wishlist.
- Coordinating the eventual equipment purchases were handled outside of SEPS...?
- We upload all the final EQ list data into our system and then conduct user meetings to validate as well as ensure the make, model and accessory selections.
- We never put it back into SEPS and in the end we have to hand jam it into DMLSS. The DMLSS will not take data from SEPS or even a flat file such as Excel.
- Requires the right people with the right tools, and a clear understanding of when preliminary coordination docs are required from the vendors.
- Ideally the government would pay us to manage the PO's under a separate cost plus contract with BRG so we avoid late coordination of the infrastructure needed.

Appendix G: SEPS Platform Diagrams

See attachments

Appendix H: SEPS Proof of Concepts Demonstrations

See attachments

Appendix I: Balfour Beatty Resource Group Question Responses

Balfour Beatty Resource Group out of Dallas Texas works on healthcare projects using SEPS output. They also have their own in house tools and databases to track project data that have been used to manage SEPS output data in their projects. One of the tools is Balfour Beatty Equipware. The following questions were posed to them in relation to the SEPS Strategic Plan:

Question: If SEPS output data from VA and DOD can be made more consistent, and in a standard format such as XML, COBie, Webservices, rather than just PDF or Excel, how would the interaction with Balfour Beatty Equipware be improved?

Response: it would become more seamless as we would incorporate the data directly using the mapped output which would eliminate any errors from interpretation or general human error. Great examples of this is when one project logistical category changes from one to another project and the planners or user assume that the logistical category is something that it may not be.

Question: If Unique IDs are maintained in SEPS or individual elements, could Balfour Beatty Equipware use that to track changes between versions of output from SEPS?

Response: I do not think so as inherently the JSN number is not unique and is generic to describe the salient characteristics not the individual make and model. Where things get fuzzy is when you do start selecting those specifics. Take for example a simple F2000 trash can that could be 10 different models across a project but still be a F2000. So what we as planners have to do is begin to modify the JSN to something like F2000M1, F2000M2 and so on. We have created a separate field in our database called alternate ID which allows us to have two separate unique identifiers per item but it does not give the whole story as make and model can change during the course of implementation for various reasons such as model obsolesce or change of command and ultimate make mode selection. To address what we have found that works the best is keeping a complete change log within the system that is required. Any time a planner or user makes a change to the count, make or model to included deletion the system automatically has a pop up that demands input as to why this is being done and who requested it. This allows us to track every single change and be able to provide the pertinent data upon request or as part of normal battle rhythm.

Question: Looking on the operations side, and DMLSS, if the same question is asked. If on the DOD and VA side they could accept a standard format such as XML, COBie and Webservices, how could Balfour Beatty Equipware help to populate their data for operations.

Response: It would allow the transfer to be fluid and more real time. Many times users from both sides operate off two separate datasets which leads to frustration and confusion and ultimately more time and effort expenditure. We purposefully have a client web based log in so that at any time a user may view their data and run reports so that we address any transparency issues. On the implementation side once we get to the delivery stage and have to gain the equipment into DMLSS if it were electronic we could just send the corresponding file and have it uploaded in minutes versus spending 15 min per record hand entering the information. To put this into perspective on a hypothetical project of 1,000 items that is 250 hours at an estimated cost of \$90 per hour that cost is \$22,500. Now think of a project the size of Ft. Riley or Ft. Hood which has approximately 36,000 items that have to be gained and you end up spending \$810,000 in time. To add to this as pointed out it is hours that are expended which has to be included in the over delivery and installation schedule which increases the overall delivery and turnover time. So if it were electronic we could in essence reduce the cost of any given implementation project by having data portability between all the various systems.

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Appendix J - Software to Support Facilities Lifecycle

COBie Challenges

The buildingSMART alliance sponsors projects to move facilities industry open exchanges forward.

<http://www.buildingsmartalliance.org/index.php/projects/>

COBie challenges have been ongoing since 2008. Various software vendors have demonstrated how they can consume and create COBie files for exchanges with other systems.

July 2008

<http://www.buildingsmartalliance.org/index.php/newsevents/proceedings/bimdemonstration/>

March 2009

<http://www.buildingsmartalliance.org/index.php/newsevents/proceedings/cobiechallenge/>

Challenge	Vendor	Result
Architectural Programming	Onuma Planning System	Pass
Design	ArchiCAD	Pass
	Onuma Planning System	Pass
Construction	TOKMO	Pass
	Onuma Planning System	Pass
Facility Management	MicroMain	Pass
	TMASystems	Pass

December 2009

<http://www.buildingsmartalliance.org/index.php/newsevents/proceedings/cobie2challenge/>

PARTICIPANTS				DEC 2009 PARTICIPATION			
Company	Product	Country	Market	Presentation	RESULTS	Producer/ Consumer	Method
Bentley	Architecture	US	Design	PPT	RESULTS	Producer	FM MVD IFC
DDS	DDS-CADD	Norway	MEP Design	PPT	RESULTS	Producer	FM MVD IFC
Graphisoft	ArchiCAD	Hungary	Design	Not provided	RESULTS	Producer	FM MVD IFC
FaME	FaME	Germany	FM	PDF	RESULTS	Consumer	FM MVD IFC
Granlund	RYHTI	Finland	FM	PPT	RESULTS	Consumer	FM MVD IFC
Onuma	OPS	US	Multiple	PDF	RESULTS	Producer & Consumer	Spreadsheet
SMB	Morada	Germany	FM	PPT	RESULTS	Consumer	Spreadsheet
TMA	TMA	US	FM	PPT	RESULTS	Consumer	Spreadsheet
Vizelia	Facility Online	France	FM	PPT	RESULTS	Consumer	FM MVD IFC
Tokmo	Tokmo	US	Construction	PPT	RESULTS	Consumer	Spreadsheet

March 2010 Challenge

<http://www.buildingsmartalliance.org/index.php/newsevents/proceedings/march2010cobiechallenge/>

Phase	Challenge	Vendor	Result
Programming	Produce COBie2	Onuma System (PDF 30.4 MB)	Pass
Design	Produce COBie2	Bentley Systems (PDF 3.9 MB)	Pass
		Onuma System (PDF 30.4 MB)	Pass
Construction	Consume Design COBie2 Produce COBie2	Onuma System (PDF 30.4 MB)	Pass
		TOKMO (PDF 1.6 MB)	Pass
Commissioning	Consume Builder COBie2 Produce COBie2	VELA (partial) (PDF 1.3 MB)	Pass
Facility Management	Consume COBie2	ARCHIBUS (partial) (PDF 1.2 MB)	Pass
		AssetWorks (partial) (PDF 542 KB)	Pass
		Eagle Technologies (partial) (PDF 483 KB)	Pass
		TMASystems (PPT 339 KB)	Pass

December 2010 Challenge

<http://buildingsmartalliance.org/index.php/newsevents/proceedings/dec2010cobieinnovations/>

March 2011

<http://buildingsmartalliance.org/index.php/newsevents/proceedings/march2011cobiehelpdesk/>

May 2011 Case Study

<http://buildingsmartalliance.org/index.php/newsevents/proceedings/cobiecasestudies/>

December 2011

<http://buildingsmartalliance.org/index.php/newsevents/proceedings/cobie2011challenge/>

Company	Product	Challenge Presentation	Challenge Result
ARCHIBUS	ARCHIBUS 19.3	PDF	Pass
IBM	Maximo Enterprise Asset Management 7.1.1.8	PDF	Pass
TMA Systems	WebTMA 4.3.5	PowerPoint	Pass

December 2011 Case Studies

<http://buildingsmartalliance.org/index.php/newsevents/proceedings/cobiecasestudies11/>

March 2012

<http://buildingsmartalliance.org/index.php/newsevents/proceedings/march2012cobiechallenge/>

Company	Product	Challenge Presentation	Challenge Result
Eagle Technology	Proteus MMX	PDF	Pass
FM: Systems	FM: Interact	PDF	Pass
Onuma	Onuma System	PowerPoint	Pass
TMA Systems	WebTMA 4.3.5	PowerPoint	Pass

January 2013

<http://buildingsmartalliance.org/index.php/newsevents/proceedings/buildingsmartchallenge13/>

Appendix M – SEPS and DMLSS-FM - Industry interest for Integrating Data and Workflows

6. Which category best describes your field?		
Answer Options	Response Percent	Response Count
Architect/ Engineer/ Planner	0.0%	0
Builder/ Contractor	77.8%	7
Owner	0.0%	0
Software Developer	22.2%	2
Other	0.0%	0
<i>answered question</i>		9
<i>skipped question</i>		0
7. Would your organization RECEIVE any value, if the Design Guidelines and Requirements in the Space and Equipment Planning System (SEPS) were made more accessible using web services?		
Answer Options	Response Percent	Response Count
Yes	100.0%	9
No	0.0%	0
Not sure	0.0%	0
<i>answered question</i>		9
<i>skipped question</i>		0
8. Could your organization PROVIDE any value to SEPS users if the data was made more accessible and interactive?		
Answer Options	Response Percent	Response Count
Yes	88.9%	8
No	0.0%	0
Not sure	11.1%	1
<i>answered question</i>		9
<i>skipped question</i>		0
9. Would your organization RECEIVE any value if the data in the DMLSS-FM (Defense Medical Logistics Standards Support Facility Management) system was made more accessible using web		
Answer Options	Response Percent	Response Count
Yes	66.7%	6
No	0.0%	0
Not sure	33.3%	3
<i>answered question</i>		9
<i>skipped question</i>		0

10. Could your organization PROVIDE any value to DMLSS-FM users if the data was made more accessible and interactive?		
Answer Options	Response Percent	Response Count
Yes	55.6%	5
No	0.0%	0
Not sure	44.4%	4
<i>answered question</i>		9
<i>skipped question</i>		0
11. Please use this section to elaborate on any thoughts regarding the on-going development of the Space and Equipment Planning System (SEPS) system.		
Answer Options	Response Count	
	3	
<i>answered question</i>		3
<i>skipped question</i>		6
12. Please use this section to elaborate on any thoughts regarding the on-going development of the Defense Medical Logistics Standard Support Facility Management Module (DMLSS-FM).		
Answer Options	Response Count	
	2	
<i>answered question</i>		2
<i>skipped question</i>		7

Responses	
	I hope VA and DoD will evaluate if already available commercial software solutions can support the needs they have, before they do a major new development of SEPS. All commercial software is undergoing continuous development and can provide VA/DoD with updated state of the art solutions, probably also at a lower cost than
	If the program focuses on real end user concerns on the front end with the actual end users if possible. Wrapping up construction on the back end will be smoother with less changes or wish lists after move in. Space requires for equipment is a design issue but space and
	Consider a Wiki based approach to enable open, collaborative, environment for the industry to collectively build the standards.
	There are many useful BIM applications: DOD and VA should select several top applications based on their primary benefit, and they should not expect one app to perform all the functions. The applications can integrate using open standards, i.e. COBie Lite XML. DOD and VA should not try to create internal custom apps
	EcoDomus PM has extensive support for COBie data management, including data quality control reports. Owners like DOD and VA can set up program requirements in EcoDomus templates and verify that accurate information is being supplied by their BIM service providers. EcoDomus PM has an EnergyPlus interface module that allows preparing and processing data for energy modeling, and comparing the results with actual data collected from Building Automation Systems. EcoDomus FM has pre-built plug-ins for Maximo CMMS,

References

GAO Report on VA and DOD

<http://www.gao.gov/products/GAO-12-992>

*Similarly, while collaboration sites need some flexibility to implement local solutions that best meet their needs, given that they have different characteristics and can encounter different problems, department-level efforts to address key barriers—such as those we identified with IT systems, business and administrative processes, base access, and joint planning **for construction of medical facilities**—could facilitate collaboration, as well as help reduce time and resources spent by local officials developing and implementing their own solutions.*

Government as a Platform

<http://techcrunch.com/2012/06/02/how-to-cash-in-on-government-as-a-platform/>

Digital Government

<http://radar.oreilly.com/2012/05/white-house-launches-new-digit.html>

Trends

<http://tech.fortune.cnn.com/2012/08/21/mobile/>

Cloud

http://www.informationweek.com/government/policy/military-its-future-stresses-cloud-mobil/240006769?cid=RSSfeed_IWK_News

<http://readwrite.com/2011/07/07/the-rise-of-the-cloud-in-the-a>

Survey: Cloud migration slow but possibly more confident

<http://www.fierceregovernmentit.com/story/survey-cloud-migration-slow-possibly-more-confident/2012-09-10>

DoD outlines cloud strategy

<http://www.fierceregovernmentit.com/story/DoD-outlines-cloud-strategy/2012-07-16>

National security systems should move to cloud, says White House advisory committee

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SUBJECT: Building a 21st Century Digital Government

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Government Web Services

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Glossary

Term	Definition	Reference
AECOM	Architecture, Engineering, Construction, Operation, Maintenance	
API	Application Programming Interface	http://en.wikipedia.org/wiki/Api
BIM	Building Information Modeling	
BPie	Building Programming information exchange	http://www.buildingsmartalliance.org/index.php/projects/activeprojects/31
bSa	bSa - buildingSMART alliance	http://www.buildingsmartalliance.org
CDC	Core Data Center	
CMMS	Computerized maintenance management system	http://en.wikipedia.org/wiki/CMMS
COBie	Construction Operations Building Information Exchange	http://www.buildingsmartalliance.org/index.php/projects/activeprojects/25
COTS	Commercial of the Shelf	
DECCs	Defense Enterprise Computing Centers	
DIACAP	DoD Information Assurance Certification and Accreditation Process	
DMLSS	Defense Medical Logistics Standard Support	http://jtc.fhu.disa.mil/washops/dmlss.html
DMLSS FM	Defense Medical Logistics Standard Support Facility Management	https://facilities.health.mil/home/dmlss-fm

DoD	Department of Defense	http://www.defense.gov/
EO	Executive Order	
FIPS 199	Federal Information Processing Standard	http://csrc.nist.gov/publications/PubsFIPS.html
GOTS	Government Off-the-Shelf	
HBC	Healthcare BIM Consortium	http://www.buildingsmartalliance.org/index.php/projects/activeprojects/162
IFC	Industry Foundation Classes	http://www.buildingsmart.org/standards/ifc
IPN	Installation Processing Node	
IT	Information Technology	
IWMS	Integrated workplace management system	http://en.wikipedia.org/wiki/IWMS
JSN	Joint Schedule Number	
MIL STD 1691	Military Standard 1691	https://facilities.health.mil/home/MILSTD1691
OGC	Open Geospatial Consortium	http://www.opengeospatial.org/
OSCRE	Open Standards Consortium for Real Estate	http://oscre.org
PACES	Parametric Cost Engineering System	
PFD	Program for Design	

PPMD	Portfolio Planning and Management Division	https://facilities.health.mil/home/ppmd
PRC	Project Room Contents	
RMF	Risk Management Framework	
RPILM	Real Property and Installations Lifecycle Management	
SEPS	Space and Equipment Planning System	https://facilities.health.mil/home/SEPS
SEPS 3.0	Space and Equipment Planning System V3.0	
SPie	Specifiers' Properties Information Exchange	http://www.buildingsmartalliance.org/index.php/projects/activeprojects/32
TMA	TRICARE Management Activity	http://www.tricare.mil/ http://www.health.mil/
TPN	Tactical/Mobile Processing Node	
DVA	Department of Veterans Affairs	
W3C	World Wide Web Consortium	