



OSEHRA

Open Source Electronic Health Record Alliance

Open Source Technical Support and Working Group Services for VA VistA

**Strengths, Weaknesses, Opportunities
and Threats (SWOT) Analysis**



Contract Number: VA118-16-C-0841

January 9, 2017

SLIN 0002AB



Table of Contents

Contents

- 1. INTRODUCTION 3**
 - 1.1. EXECUTIVE SUMMARY 3
 - 1.2. OVERVIEW 3
- 2. APPROACH 3**
- 3. ANALYSIS OF MENTAL HEALTH ESCREENING (MHE) 6**
 - 3.1. OSS CANDIDATE OVERVIEW 6
 - 3.2. STRENGTHS/WEAKNESSES 7
 - 3.3. OPPORTUNITIES/THREATS 8
 - 3.4. SWOT ANALYSIS SUMMARY 10
- 4. ANALYSIS OF CHEMOTHERAPY ORDERING MANAGEMENT SYSTEM (COMS) 11**
 - 4.1. OSS CANDIDATE OVERVIEW 11
 - 4.2. STRENGTHS/WEAKNESSES 12
 - 4.3. OPPORTUNITIES/THREATS 13
 - 4.4. SWOT ANALYSIS SUMMARY 14
- 5. ANALYSIS OF DISTRIBUTED TERMINOLOGY SYSTEM (DTS) 15**
 - 5.1. OSS CANDIDATE OVERVIEW 15
 - 5.2. STRENGTHS/WEAKNESSES 16
 - 5.3. OPPORTUNITIES/THREATS 17
 - 5.4. SWOT ANALYSIS SUMMARY 18
- 6. NEXT STEPS 19**

1. Introduction

1.1. Executive Summary

For the fourth quarter (Q4) deliverable cycle, a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis was performed for the following open source software (OSS) candidates, with the resulting intake recommendations:

- Mental Health eScreening (MHE) – Recommend proceeding with VA intake and OSEHRA Certification.
- Chemotherapy Ordering Management System (COMS) – Recommend proceeding with VA intake and OSEHRA certification to better position and potentially accelerate implementation through a funded project.
- Apelon Distributed Terminology System (DTS) – Hold until intake status of DTS as part of the Collaborative Terminology Tooling and Data Management (CTTDM) project is determined, then proceed with OSEHRA Certification and consideration for intake, if appropriate.

The candidates included in this document were the highest scoring candidates reviewed during the Q4 OSS and Product Selection Criteria analysis.

Next steps include developing the Prioritization Description Document for Q4 OSS candidates, which will incorporate additional candidate detail. The SWOT analysis for these candidates may be updated in subsequent quarters as additional information becomes available.

1.2. Overview

The purpose of this document is to provide a SWOT analysis to assess the strengths, weaknesses, opportunities, and threats to VA of OSS and products to be considered for VA VistA intake. The analysis includes an assessment of the candidates, with the highest functional strengths/opportunities and lowest weaknesses/threats in alignment to VistA 4 required functional Feature Sets.

Several factors are critical to the success of the OSS intake process. The emphasis must be on providing business value by filling functional and technical gaps, identifying applicable OSS, and working with VA to “lay the pathway” for integration of OSS into VistA to fill identified gaps.

2. Approach

To facilitate the SWOT analysis, evaluation criteria were established to objectively assess the strengths/weaknesses and opportunities/threats associated with each OSS candidate. Candidates are assessed as having either a high or low score within each analysis element, then key decisional elements for each candidate are identified. The

SWOT analysis table and summary findings for each candidate product are presented in this document.

OSS candidates are reviewed using the Strengths/Weaknesses Dimension Definitions presented in Table 1.

SWOT Dimension	High Score Strength (1-5 Scale, 5 is High)	Low Score Weakness (1-5 Scale, 1 is Low)
Functional Fit with Requirement	Function fills substantive functionality gap and is of value to users.	Function is not needed or is a duplicate of existing functionality.
Technical Fit - Data	Code is a strong fit with data structures in VistA. Implementation would be low-risk in regards to corrupting existing data.	Code is not a fit with data structures in VistA and would require re-architecting to implement.
Technical Fit - API	Code fits well with VistA API structures. Code would integrate with other VistA modules and would be easily callable.	Code is not a fit with API structures in VistA and would require re-architecting to implement.
Code Quality	Code is safe, compliant, and functional. Code is OSEHRA Level certified, fully tested, and highly reliable in providing function / feature. Test documentation is available for certification.	Code has bugs, limited or no documentation, or potentially unreliable. No test documentation is available.
VistA 4 Product Roadmap - Architectural Fit	Code will fit well into existing Roadmap plans and will continue to fit with anticipated evolution of VistA and the Roadmap.	Code will be quickly obsolete or will not work due to planned changes in the Roadmap.
Time-to-Value	Rapid, low-risk implementation. Use of code may be quicker and more valuable than internal development and implementation by VA.	Use will not improve time-to-value and may actually decrease time-to-value in VA overall due to implementation complexity / risk or other issues.

Table 1. Strengths/Weaknesses Dimension Definitions

OSS candidates are reviewed using the Opportunities/Threats Dimension Definitions presented in Table 2.

SWOT Dimension	High Score Opportunity (1-5 Scale, 5 is High)	Low Score Threat (1-5 Scale, 1 is Low)
Intellectual Property Rights / Copyright, Licensing Obligations	Use of code is free and clear with no IP / legal issue.	Use of code puts VA or open source community at risk of legal action.
Open Source Community Involvement	Use of code viewed as enhancing the value and engagement of the community.	Adoption of code could result in reduction of community involvement. Use of code not viewed as positive for the community.
Veteran Experience	Use of code will greatly enhance Veteran experience.	Use of code may damage Veteran experience.
Quality Risk	Code is high-quality; adoption provides the opportunity to add value from the open source community.	Code is of low or unproven quality, or is not an improvement over existing VA software quality, leaving VA vulnerable.
Political Risk	No political or competing concerns associated with adoption of open source code. If the code is already in limited use by VA, there is no known opposition to expansion of its use.	Political or competing concerns exist related to open source code. Other existing code already in use at VA. Could cause organizational issues for VA if open code is adopted.

Table 2. Opportunities/Threats Dimension Definitions

3. Analysis of Mental Health eScreening (MHE)

3.1. OSS Candidate Overview

The MHE application accelerates the process of enrolling Veterans into mental health care by introducing a web-based intake form for completing mental health assessments. MHE allows clinicians to perform patient-directed screening, real-time scoring and chart note generation, and individualized patient feedback. It provides a real-time push of clinical information to the VA electronic medical records system, and real-time alert to clinicians for evaluation and triage. Screens can be structured to include measures of posttraumatic stress disorder (PTSD), depression, traumatic brain injury (TBI), military sexual trauma, substance use, pain, and suicide risk.

VISN 22 and the VA San Diego Healthcare System (VASDHS) have the highest number of returning combat Veterans in the nation.¹ To address this growing population, the VA Center of Excellence for Stress and Mental Health (CESAMH) initiated the MHE project through the VA Center for Innovation (VACI). The application was developed by the Information Innovators Inc. Team (Triple-i). It was accepted by VA in its San Diego production environment on June 12, 2015. MHE is currently in use by the Operation Enduring Free/Operation Iraqi Freedom/Operation New Dawn (OEF/OIF/OND, or OOO) program locations, Mental Health Access Clinic (MHAC), and Primary Care clinics associated with the San Diego CESAMH. MHE code and documentation is available to the open source community on GitHub.

The primary benefit associated with intake of the MHE application is accelerated access to mental health care. Additionally, MHE may accelerate care for PTSD, suicide prevention, and prescription drug abuse if the e-screen is structured to include these measures. Mental health, PTSD, suicide prevention, and prescription drug abuse are high priority focus areas for both VHA and Congress^{2,3}.

The recommendation for MHE is to proceed with VA intake and OSEHRA Certification, most likely through a funded project.

¹ Department of Veterans Affairs/Veterans Affairs Center for Innovation. (2014). *Executive Summary: Mental Health eScreening System and Assessment Program (MHE, 20388)*. Retrieved December 1, 2016 from https://github.com/VHAINNOVATIONS/Mental-Health-eScreening/blob/master/Documentation/MHE_20388_Executive%20Summary_May2014.docx.

² Department of Veterans Affairs. (2016). VA Mental Health Care Fact Sheet. Retrieved December 21, 2016 from <http://www.va.gov/opa/publications/factsheets/April-2016-Mental-Health-Fact-Sheet.pdf>

³ The White House, Office of the Press Secretary. (2012). *Executive Order -- Improving Access to Mental Health Services for Veterans, Service Members, and Military Families* [Press Release]. Retrieved December 21, 2016 from <https://www.whitehouse.gov/the-press-office/2012/08/31/executive-order-improving-access-mental-health-services-veterans-service>

3.2. Strengths/Weaknesses

The Strengths and Weaknesses analysis elements for MHE are presented in Table 3, along with a score, evaluation comments, and decisional element indicator for each dimension.

SWOT Dimension	Score	Evaluation Comments
Functional Fit with Requirement	5*	Accelerates access to care by automating the laborious paper screening process for new and existing VA mental health patients and accelerating clinician and scheduler access to this information via mobile and web-based apps.
Technical Fit - Data	5*	No significant data-oriented issues are anticipated. MHE reads from VistA and CPRS and writes Veteran information back to VistA and CPRS. The current process requires Veterans to complete standardized paper screenings which are then manually scored and entered into CPRS and VistA for appropriate clinical documentation. MHE automates the scoring and data entry process.
Technical Fit - API	5	Code was developed through the VA Innovations program for use with VistA and CPRS. MHE allows Veterans to use tablets to report mental health symptoms in a VA clinic. The system has 2-way VistA/CPRS communication which assigns needed health screens and submits the information to CPRS to satisfy clinical reminders and generate a clinical note for review and signature.
Code Quality	4	The MHE application was accepted by VA in its San Diego production environment on 06/12/2015. MHE is currently in use by the OOO, MHAC, and Primary Care clinics associated with the San Diego CESAMH.
VistA 4 Product Roadmap - Architectural Fit	3	Generally aligns with the Feature Set 4 Specialty Clinical Areas requirement to support mental health workflows.
Time-to-Value	3	Adoption of code could provide immediate value to VA. MHE has completed a pilot phase at several VA facilities. Size and scope of application would require intake through a funded project, as implementation is likely too complex for intake through the Existing Product Intake Process (EPIP).

Legend: *Decisional element

Table 3. Strengths / Weaknesses Associated with MHE

3.3. Opportunities/Threats

The Opportunities and Threats analysis elements for MHE are presented in Table 4, along with a score, evaluation comments, and decisional element indicator for each dimension.

SWOT Dimension	Score	Evaluation Comments
Intellectual Property Rights / Copyright, Licensing Obligations	5	No licensing or copyright issues; Apache 2.0 license.
Open Source Community Involvement	4	OSEHRA certification package has been prepared and is ready for analysis upon request. Code is posted to GitHub and appears to be well documented. Documentation available on GitHub includes user training guide, clinical training materials, implementation plans, server manual, system administrator manual, and user acceptance test plans and procedures. Additionally, all deliverables produced by the vendor are available on the VA Cloud (https://vacloud.us/groups/20388/wiki/c3371/Deliverables.html).
Veteran Experience	5*	MHE improves delivery of mental health care. VA conducted a study in 2012-2013 comparing paper vs. e-screening which concluded that "e-screening was more satisfying, reduced overall screening burden, improved screening rates, and improved patient care." The most significant difference appeared to be in the time it took for Veterans to receive needed clinical follow-up care. ⁴ Same day access to clinical care and triage for urgent services was provided for 84% of Veterans who completed e-screening compared to 49% who were screened by paper. ⁵
Quality Risk	4	Results of pilot indicate the software is "ideal for high volume settings like primary care and mental health clinics to meet benchmarks for mental health screening while reducing Veteran burden and increasing breadth of clinical care." ⁶ MHE is currently in use by the OOO, MHAC, and Primary Care clinics associated with the San Diego CESAMH.

⁴ Pittman, J. O. E., Floto, E., Afari, N. (2015, January). The VA e-Screening Program: Technology to Improve Veteran Healthcare. Presented at the Society for Social Work and Research 19th Annual Conference, New Orleans, Louisiana. Abstract retrieved December 2, 2016 from <https://sswr.confex.com/sswr/2015/webprogram/Paper24204.html>

⁵ Afari, N., Pittman, J., Floto, E. VA Center of Excellence for Stress and Mental Health. (2015). *The VA eScreening Program: Technology to Improve Veteran Healthcare*. Retrieved December 5, 2016 from https://github.com/VHAINNOVATIONS/Mental-Health-eScreening/blob/master/eScreening%20overview-02-08-2015_w_screenshots.pdf

⁶Pittman, J., Floto, E., Afari, N., Lindamer, L. (2016, March). Implementation and Evaluation of eScreening at the VA San Diego Healthcare System. Presented at the Society of Behavioral Medicine 37th Annual Meeting, Washington, D.C. Retrieved December 2, 2016 from https://www.sbm.org/UserFiles/file/Symposium30_Pittman.pdf

SWOT Dimension	Score	Evaluation Comments
Political Risk	5*	Pilot resulted in an "overwhelmingly positive impact on clinical care and efficiencies," faster documentation of completed clinical reminders in CPRS (averaging 19 days less time than paper screening), reduced redundancy yielding an estimated savings of 6.5 provider hours and 4.4 Veteran hours for every 100 Veterans seen, and increased operational efficiencies yielding an estimated savings of \$100 for every 100 clinical reminders completed. ⁷

Legend: *Decisional element

Table 4. Opportunities / Threats Associated with MHE

⁷Afari, N., Pittman, J., Floto, E. VA Center of Excellence for Stress and Mental Health. (2015). *The VA eScreening Program: Technology to Improve Veteran Healthcare*. Retrieved December 5, 2016 from https://github.com/VHAINNOVATIONS/Mental-Health-eScreening/blob/master/eScreening%20overview-02-08-2015_w_screenshots.pdf

3.4. SWOT Analysis Summary

An overall summary of the MHE SWOT analysis decisional elements are presented in Table 5.

	Helpful to achieving time to value	Harmful to achieving time to value
VA Perspective (VistA Fit, Business Value)	<u>Strengths</u> <ul style="list-style-type: none"> • Accelerates access to mental health care • Code reads and writes from VistA and CPRS • Automates paper-based process 	<u>Weaknesses</u> <ul style="list-style-type: none"> • No currently identified weaknesses
External Impacts (Risks, Upside)	<u>Opportunities</u> <ul style="list-style-type: none"> • Significantly reduces the time it takes a Veteran to receive follow-up care • Substantial positive impact on clinical care and efficiency 	<u>Threats</u> <ul style="list-style-type: none"> • No currently identified threats

Table 5. SWOT Analysis Summary of MHE

4. Analysis of Chemotherapy Ordering Management System (COMS)


4.1. OSS Candidate Overview

COMS is a web-based application providing oncology teams with ordering, preparation, and documentation of chemotherapy treatment. COMS enhances the clinical environment and safety for oncology patients through the development and implementation of an automated ordering and management process within VHA's clinical practice setting. In either an outpatient or inpatient setting, the COMS application supports the unique needs of oncology healthcare teams with standardized capabilities to meet direct order entry, clinical documentation, and assessing the administration of chemotherapy. Oncology treatment plans often combine multiple chemotherapy drugs that work through different mechanisms to provide a synergistic effect when used together. A chemotherapy regimen defines the specific drugs to be used for treatment along with their dosage, frequency, and duration. COMS allows for the creation, customization, and use of chemotherapy regimens. Additionally, COMS provides interoperability with VHA's electronic health record, interfacing and interacting with existing applicable systems, modules, capabilities, and processes within CPRS and VistA.

The VHA supports one of the largest cancer populations in the country, and oncology patients are the fastest growing group of VHA patients. VHA's current oncology processes are a mix of paper-based and computer-based practices with minimal standardization and limited direct order entry of chemotherapy. The VHA Office of Health Information (OHI) Patient Safety Workgroup rated this issue as having a high level of patient safety risk.⁸ To address these concerns, the COMS application was developed through the VA Center for Innovation by CACI International, Inc. An alternate proprietary application, the VistA Chemotherapy Manager, has been developed by Document Storage Systems (DSS), Inc. and is currently in use at some VA facilities.

The primary benefits associated with intake of COMS are improved clinician efficiency and improved patient safety.

The recommendation is to proceed with VA intake and OSEHRA certification to better position and potentially accelerate COMS implementation through a funded project.



⁸ Department of Veterans Affairs. (2015). *Chemotherapy Order Management System (COMS): Technical Manual Version 2.2*. Retrieved December 1, 2016 from https://github.com/VHAINNOVATIONS/COMS/blob/master/COMS%20manuals%20COMS_Technical_Manual_2.2.pdf

4.2. Strengths/Weaknesses

The Strengths and Weaknesses analysis elements for COMS are presented in Table 6, along with a score, evaluation comments, and decisional element indicator for each dimension.

SWOT Dimension	Score	Evaluation Comments
Functional Fit with Requirement	4*	Stakeholders have identified a vision gap related to oncology and the need for functionality supporting chemotherapy regimens. Stakeholder discussions identified a number of detailed requirements. COMS satisfies several of these requirements, including the ability to create, modify, and download chemotherapy regimen templates.
Technical Fit - Data	3	[REDACTED] The lack of documentation creates uncertainty with regard to data fit.
Technical Fit - API	4*	Application has read/write interoperability with VistA. Also it interfaces and interacts with existing applicable VHA health care systems, modules, and processes with CPRS and VistA databases. The web-based application utilizes an interface via Hypertext Preprocessor (PHP), Java Script, Node.js, Simple Object Access Protocol (SOAP), and Representational state transfer (REST) web services, which are all commonly used within VA.
Code Quality	3	COMS completed prototype phases and pilot deployment at two VA locations (Durham, NC VAMC and Puget Sound Health Care System). Testing identified necessary functionality fixes. Additional enhancements were identified which must be completed in a future release of the software.
VistA 4 Product Roadmap - Architectural Fit	2	Oncology enhancements are not included in the Roadmap. Oncology has been identified by stakeholders as a VistA 4 functionality vision gap.
Time-to-Value	3	Development is complete, and a pilot phase was completed at two VA sites. COMS would not qualify for intake through EPIP, and would require a funded project. [REDACTED]

Legend: *Decisional element

Table 6. Strengths / Weaknesses Associated with COMS

4.3. Opportunities/Threats

The Opportunities and Threats analysis elements for COMS are presented in Table 7, along with a score, evaluation comments, and decisional element indicator for each dimension.

SWOT Dimension	Score	Evaluation Comments
Intellectual Property Rights / Copyright, Licensing Obligations	4	COMS is licensed as public domain vs. the preferred Apache 2.0 license.
Open Source Community Involvement	4	COMS was published in the OSEHRA technical journal, but is not yet reviewed or certified. ⁹ Code is posted to GitHub and appears to be well documented. Documentation available on GitHub includes technical manual, user manual, and installation guide.
Veteran Experience	5*	Due to limitations with the current system, the VHA Office of Health Information (OHI) Patient Safety Workgroup rated oncology as having a high level of patient safety risk. ¹⁰ COMS enhances the clinical environment and safety for oncology patients.
Quality Risk	3	COMS completed prototype phases and pilot deployment at two VA locations (Durham, NC VAMC and Puget Sound Health Care System). Testing identified necessary functionality fixes. Additional enhancements were identified which must be completed in a future release of the software. <div style="background-color: black; width: 100%; height: 20px; margin-top: 5px;"></div>
Political Risk	4	COMS supports compliance with Joint Commission standards. Expected advantages of implementation include increased efficiency, error reduction, effective knowledge transfer and sharing, useful clinical workflows, and reduced rework. The application would require training, and would likely have a significant impact on the effected users.

Legend: *Decisional element

Table 7. Opportunities / Threats Associated with COMS

⁹ Cassidy S., Barlow M., Gokulnath R., Ferrucci L. Department of Veterans Affairs. (2015, September). Chemotherapy Ordering Management System (COMS). *OSEHRA Technical Journal*. Retrieved December 1, 2016 from <http://hdl.handle.net/10909/10948>

¹⁰ Department of Veterans Affairs. (2015). *Chemotherapy Order Management System (COMS): Technical Manual Version 2.2*. Retrieved December 1, 2016 from https://github.com/VHAINNOVATIONS/COMS/blob/master/COMS%20manuals%20COMS_Technical_Manual_2.2.pdf

4.4. SWOT Analysis Summary

An overall summary of the COMS SWOT analysis decisional elements are presented in Table 8.

	Helpful to achieving time to value	Harmful to achieving time to value
VA Perspective (VistA Fit, Business Value)	<u>Strengths</u> <ul style="list-style-type: none"> • Fills a gap identified by stakeholders related to oncology and chemotherapy regimens • Read/write interoperability with VistA 	<u>Weaknesses</u> <ul style="list-style-type: none"> • No currently identified weaknesses
External Impacts (Risks, Upside)	<u>Opportunities</u> <ul style="list-style-type: none"> • Reduces existing patient safety risk associated with oncology 	<u>Threats</u> <ul style="list-style-type: none"> • No currently identified threats

Table 8. SWOT Analysis Summary of COMS

5. Analysis of Distributed Terminology System (DTS)

5.1. OSS Candidate Overview

Apelon DTS is an open source terminology management platform. It allows organizations to manage and cross-reference standard terminologies, such as ICD-10, SNOMED CT, and LOINC, as well as local terminologies. The system provides the ability to view, query, and browse across terminology versions across the terminology lifecycle. DTS supports data standardization and interoperability in Electronic Health Record (EHR) systems, Healthcare Information Exchanges (HIEs), and Clinical Decision Support (CDS) systems.

Apelon is a clinical informatics company focused on accelerating eHealth through data standardization and interoperability. Apelon made DTS open source in early 2007. Since then, the software has been downloaded by more than 3,500 informaticists and healthcare organizations worldwide.¹¹ The code and documentation for DTS are available through the Apelon website, which also hosts an active user community forum.

The primary benefit associated with intake of DTS is improved semantic interoperability, which is a VistA 4 Product Roadmap requirement that supports FY14 NDAA interoperability requirements.

The recommendation is to hold until the intake status of DTS as part of the Collaborative Terminology Tooling and Data Management (CTTDM) project is determined, then proceed with OSEHRA Certification and consideration for intake, if appropriate. [REDACTED]

¹¹ Bowie, J. (2012). *Apelon Introduces Distributed Terminology System 4.0* [Press Release]. Retrieved December 16, 2016 from <http://www.apelon.com/news/item/apelon-introduces-distributed-terminology-system-4-0>

5.2. Strengths/Weaknesses

The Strengths and Weaknesses analysis elements for DTS are presented in Table 9, along with a score, evaluation comments, and decisional element indicator for each dimension.

SWOT Dimension	Score	Evaluation Comments
Functional Fit with Requirement	5*	DTS supports FY14 NDAA interoperability requirements.
Technical Fit - Data	5*	No significant data-oriented constraints are anticipated. DTS supports semantic interoperability.
Technical Fit - API	4	No significant architectural constraints are anticipated. VA's Technical Reference Model (TRM) indicates that DTS is a mature and stable technology.
Code Quality	4	Code is viewed as high quality. TRM analysis indicates the code is mature and stable, with no known security vulnerabilities. Also, code is well documented.
VistA 4 Product Roadmap - Architectural Fit	5*	DTS supports the Feature Set 3 Interoperable EHR requirement for national standard terminology.
Time-to-Value	5**	This technology is mature and intake will bring immediate value to VA. [REDACTED]

Legend: *Decisional element, ** Additional analysis needed

Table 9. Strengths / Weaknesses Associated with DTS

5.3. Opportunities/Threats

The Opportunities and Threats analysis elements for DTS are presented in Table 10, along with a score, evaluation comments, and decisional element indicator for each dimension.

SWOT Dimension	Score	Evaluation Comments
Intellectual Property Rights / Copyright, Licensing Obligations	5	No licensing or copyright issues; Apache 2.0 license.
Open Source Community Involvement	5*	Code is high quality and is well documented. This is a mature and stable technology with an active user community. Periodic version updates are released on a regular basis. DTS v4.5 was released 12/02/16. Code is available through the Apelon DTS website (www.apelon.dts.org) as well as sourceforge.net, although the Apelon website is the most current. DTS has not been reviewed or certified by OSEHRA.
Veteran Experience	3	DTS is not user or Veteran facing, and it is unlikely the Veteran experience would be noticeably impacted by intake of this code. However, the translation of terminology can indirectly improve patient care by ensuring clear clinician terminology-based communications.
Quality Risk	4*	Code is viewed as high quality. TRM analysis indicates the code is mature, stable, and well documented.
Political Risk	4**	TRM analysis indicates that DTS is a well-documented product that also has a community forum and commercial support. It supports VA's open source initiative and there is no licensing fee affiliated with the product. Further analysis regarding the use of DTS was likely completed as part of the CTTDM project; additional analysis is needed to identify the results of that analysis and determine the extent of use within VHA.

Legend: *Decisional element, ** Additional analysis needed

Table 10. Opportunities / Threats Associated with DTS

5.4. SWOT Analysis Summary

An overall summary of the DTS SWOT analysis decisional elements are presented in Table 11.

	Helpful to achieving time to value	Harmful to achieving time to value
VA Perspective (Vista Fit, Business Value)	<u>Strengths</u> <ul style="list-style-type: none"> • Supports the Feature Set 3 Interoperable EHR requirement • Supports FY14 NDAA interoperability requirements • Supports semantic interoperability 	<u>Weaknesses</u> <ul style="list-style-type: none"> • No currently identified weaknesses
External Impacts (Risks, Upside)	<u>Opportunities</u> <ul style="list-style-type: none"> • Code is high quality • Active user community 	<u>Threats</u> <ul style="list-style-type: none"> • No currently identified threats

Table 11. SWOT Analysis Summary of DTS

6. Next Steps

The OSS candidates reviewed in this SWOT analysis will be included in the Q4 Prioritization Description Document, along with additional detail. Additionally, these candidates will be reviewed during the Q4 In Progress Review (IPR).

This SWOT analysis may be updated in subsequent quarters as additional information becomes available.