

Independent Review

Unemployment Insurance Modernization (UIM) Project

For the
State of Vermont Department of Labor and Department of Information and Innovation

Submitted to the
State of Vermont, Office of the CIO
By

Strategic Technology Services

8/9/2016

Attachments:

1. Project Costing Spreadsheet (FINAL-REVIEW-SOV-VDOL-UIM-STS_Cost_Detail_FINAL.xlsx)
2. Risk Register (FINAL-REVIEW-SOV-VDOL-UIM-STS_Risk_Register_FINAL.pdf)
3. iUS Licensing Agreement (iUS_LicensingAgreement.pdf)
4. iUS Team Playbook – Project Strategies and Structures (iUS_TeamPlaybook.docx)

Table of Contents

TABLE OF CONTENTS.....	2
1. EXECUTIVE SUMMARY	3
<i>Project Summary.....</i>	<i>3</i>
<i>Vendor Profile</i>	<i>6</i>
1.1 <i>Cost Summary</i>	<i>7</i>
1.2 <i>Disposition of Independent Review Deliverables</i>	<i>9</i>
1.3 <i>Identified High Impact &/or High Likelihood of Occurrence Risks.....</i>	<i>9</i>
1.4 <i>Other Key Issues.....</i>	<i>9</i>
1.5 <i>Recommendation.....</i>	<i>10</i>
1.6 <i>Certification.....</i>	<i>11</i>
1.7 <i>Report Acceptance</i>	<i>11</i>
2. SCOPE OF THIS INDEPENDENT REVIEW	12
2.1 <i>In-Scope.....</i>	<i>12</i>
2.2 <i>Out-of-Scope</i>	<i>12</i>
3. SOURCES OF INFORMATION.....	13
3.1 <i>Independent Review Participants.....</i>	<i>13</i>
3.2 <i>Independent Review Documentation.....</i>	<i>14</i>
4. PROJECT INFORMATION	17
4.1 <i>Historical Background.....</i>	<i>17</i>
4.2 <i>Project Goal.....</i>	<i>18</i>
4.3 <i>Project Scope.....</i>	<i>20</i>
4.4 <i>Project Phases, Milestones and Schedule.....</i>	<i>28</i>
5. ACQUISITION COST ASSESSMENT	30
5.1 <i>Cost Validation.....</i>	<i>32</i>
5.2 <i>Cost Comparison</i>	<i>34</i>
5.3 <i>Cost Assessment.....</i>	<i>34</i>
6. TECHNOLOGY ARCHITECTURE REVIEW	35
7. ASSESSMENT OF IMPLEMENTATION PLAN	40
7.1 <i>Implementation Readiness.....</i>	<i>40</i>
7.2 <i>Risk Assessment & Risk Register</i>	<i>50</i>
8. COST BENEFIT ANALYSIS	51
9. IMPACT ANALYSIS ON NET OPERATING COSTS	55
APPENDIX 1A - SYSTEM INTEGRATION	57
APPENDIX 1B – DATA MIGRATION	63
APPENDIX 2 - RISK REGISTER.....	64
APPENDIX 3 – LIFECYCLE COSTS AND CHANGE IN OPERATING COSTS.....	64
APPENDIX 4 – TECHNOLOGY INFRASTRUCTURE.....	65

1. Executive Summary

Provide an introduction that includes a brief overview of the technology project and selected vendor(s).

Project Summary

1. Parties:

- a. The contemplated contract is between State of Idaho, by and through the Idaho Department of Labor ("IDOL") and the State of Vermont, by and through the Vermont Department of Labor ("VDOL").

2. Term:

- a. The original term of this project was intended to be 2/1/2016 – 12/31/2017. Contract terms are being finalized at the time of the writing of this Independent Review, and is expected to more likely have a start date of 8/1/2016 and a completion date of 6/30/2018.

3. Solution and Cost:

- a. Software Licensing: VDOL wishes to license an instance of IDOL's Internet Unemployment System ("iUS"), which was developed by IDOL to support Idaho's statewide unemployment insurance processes; Software is provided at no cost **\$0**
- b. Internal staffing: There are other costs associated with the project, including internal staffing costs, external project management and business analyst costs, and anticipated external software development costs, as outlined in the attached project cost spreadsheet. **\$3.1M**
- c. Implementation Services: **\$9.4M**
 - i. IDOL: **\$3.5M** over a 2 year period
 - ii. Contingency: **\$1M**
 - iii. Mathtech: **\$5M**
- d. Total Costs (10 years): **\$13M**

4. Approach:

- a. IDOL: Development Services related to customizations and modifications for the iUS Core software will be done by IDOL.
- b. Member States: Responsible for the funding, documentation, testing, maintenance, upgrading, security and operation of their State-Specific Instance after its initial deployment, and of their data repository. In addition, unless contracted to IDOL pursuant to a separate agreement each Member State shall be responsible for the following activities for its respective state: Development, maintenance, security and support for its State Specific Interfaces and data center (the Consortium will coordinate national interfaces- ICON), Data conversion; Testing; Test Scenarios; Test Scripts (manual); Test Scripts (automatic); Test tracking; Application Training; Statewide implementation; Hosting the State-Specific Instance and database; and Post-production maintenance, security and support for its iUS Instance (unless contracted out to IDOL).
 - i. In fulfilling their responsibilities relating to the Project, the Parties shall use the standards published in the iUS Team Playbook.
- c. Internal VDOL staff supporting the project
- d. Project Management, Business Analysis, and Software Development services contracted by VDOL with Mathtech
- e. On-going collaboration with other iUS users to support their desire to form a **consortium** to share technical and financial resources, and to enter into non-exclusive, perpetual licensing agreements with IDOL for iUS and derivatives created and to address future modifications,

upgrades and maintenance of the common elements of their iUS Instances. Currently, Idaho, Vermont, and Iowa are expected to be the initial parties (members) of the consortium.

- f. The Consortium and its direction and activities shall be governed by a three-member board of directors, with each state having one member.
- g. A Consortium Project Committee ("CPC"), which, subject to the direction and control of the Board, and supervision by the CPC Executive Director, shall be responsible for the day-to-day activities and operations of the Consortium, including successful completion of the Project. Each Party shall designate three (3) persons to sit on the CPC on its behalf, two (2) of whom shall have technical expertise, and one (1) of whom shall have business expertise. Each Party, in its sole and exclusive discretion, may change its CPC representatives based on the phase of the project, subject matter needed in that phase, or other considerations. In addition to the nine members described above, IDOL's iUS Project Team Administrator shall serve as CPC's Executive Director.
- h. Application expected to be hosted internally at VDOL Data Center
- i. Before and after summary:

	BEFORE iUS	AFTER IUS Implementation
Application(s)	CATS, VABS, VITWS, misc spreadsheets	iUSCore, iUS State Specific Modules
Hosting	Mainframe and Spreadsheets	New VMWare environment hosted at DOL Data Center with DR site at National Life
Sys Admin	VDOL	VDOL
Application Management	VDOL	VDOL (including Governance Board, Idaho and Iowa, Mathtech)
Service Bus-Messaging	N/A	iUS Core

5. Key Metrics

Type	Number – Vermont	Number – Idaho
Active Tax Accounts	Taxable Accounts = 21,222 Reimbursable Accounts = 827	50,716
Active Benefit Accounts	There were roughly 4,244 pay orders for the week ending July 9. This includes initial claims, additional claims, and continued week claims.	12,756*
Average Number of Tax Accounts Added Annually (if average, include time period that is used to derive average)	2,664 annually (The four quarters in 2015 averaged 666 added tax accounts, per quarter.)	13,544**
Average Number of Tax Accounts Deleted Annually (if average, include time period that is used to derive average)	2,408 annually (The four quarters in 2015 averaged 602 accounts made inactive (not necessarily deleted), per quarter.)	6,816***
Average Number of Benefit Accounts Added Annually (if average, include time period that is used to derive average)	Average of the last three complete years: New claims opened = 25,890 Additional/reopened claims = 24,788 Payments = 273,377	36,195
Average Number of Benefit Accounts Deleted Annually (if average, include time period that is used to derive average)	Accounts are not deleted from the system	58,252****

Idaho-related information:

- Weekly filed certifications, June 2016 6,100/week
 - 3 years ago June 13,500/week
- Monthly payments made, June 2016 21,000/month
 - 3 years ago June 50,000/month
- Total Workforce 2016 1st quarter 670,000

Averages are over the last 3 full calendar years, 2013, 2014 and 2015.

*Active accounts is based on customer logins within the last month. This is the number of benefit accounts being actively used, not the number receiving payments.

**Tax accounts added – roughly 5000 accounts/year never complete processing. The number of new accounts that complete processing is about 8866/year

***Tax accounts are not necessarily deleted, but they are marked inactive.

****Idaho doesn't necessarily delete accounts, and doesn't necessarily flag them as inactive. There is a formula for determining activity, but this average is based on the BenefitYearEnding date.

6. **Management:** Senior Business Leadership, Technical Leadership, and Subject Matter Expertise are aligned to complete solution implementation. See Section 7.1 for a description on Project Governance.

Vendor Profile

1. State of Idaho – Idaho Department of Labor (IDOL)

- a. IDOL developed iUS, completing the initial implementation in 2014, using internal resources and external contracted resources through a Boise, ID based firm now called Netacent.

Idaho is the lead state in the iUS Consortium. iUS Project Office was responsible for the current Unemployment Insurance modernization project. iUS will make necessary modifications to the current system and build state specific requirements to accommodate the differences in each State's program.

The first iteration of iUS was developed over 2 ½ years and successfully implemented in September 2014. Using SCRUM methodology and a dedicated team of 20 or more, the project started in early January 2012. Idaho has been using the SCRUM approach for implementing iUS enhancements as well as other related applications under the management of the iUS Team.

The second iteration, iUS 2.0, will incorporate a revised architecture that will be friendlier to specific state requirements and isolate features/functions to support isolated change management.

- b. Mark Mayfield is Executive Director for the iUS Project Office, supervising both IT and Business Project Management, and is the main point of contact at IDOL for VDOL.
- c. See <https://labor.idaho.gov> for more information.

2. Mathtech

- a. Mathtech is a strategy and consulting services firm with offices in New Jersey, Virginia, and Arizona. Mathtech was originally formed as the Strategy and Consulting arm of Princeton-based professional services firm Mathematica, Inc. in 1959 and has been employee-owned since 1986. Mathtech is a woman-owned ESOP firm. See www.mathtechinc.com for more information.
- b. This IR is not evaluating Mathtech as a vendor on this project, as Mathtech is being utilized in a staff augmentation role, and will be considered as if they are internal Vermont staff. Costs for Mathtech, however, are considered.

1.1 Cost Summary

IT Activity Lifecycle:	10 Years
Total Lifecycle Costs:	\$ 13M
PROJECT COSTS:	\$11M
Software Costs:	\$0
Hardware Costs:	\$3K
Implementation Services:	\$9.4M
<i>Contracting with Idaho:</i>	<i>\$4.5M (\$3.5M plus \$1M contingency)</i>
<i>Contracted Project Management Services:</i>	<i>\$1.3M</i>
<i>Contracted Business Analyst Services:</i>	<i>\$960K</i>
<i>Contracted Programming Services:</i>	<i>\$2.6M</i>
Travel:	\$128K
Internal Staffing Costs:	\$1.1M
OPERATING COSTS:	\$2M
Programming Resources:	\$0
Hardware Costs:	\$32K
Internal Staffing Costs:	\$2M
CURRENT OPERATING COSTS:	\$7M
Difference Between Current and New Operating Costs:	\$5M
Funding Source(s) and Percentage Breakdown if Multiple Sources:	See table below

Funding Source(s) and Percentage Breakdown if Multiple Sources:

FUNDING SOURCE	% of TOTAL	FUNDING SOURCE DESCRIPTIONS	FUNDING APPLIED TO (Implementation or Operations)	FUNDING AMOUNT
FEDERAL FUNDING: UI Modernization Grants Funds from 2010;	57.47%	ARRA Funds; Fund #Section 903(f) of SSA ARRA of 2009 Public Law 111-5; 100% Federal UI Modernization Funds; Original amount: \$9,278,599. To date only \$7,412.76 in expenditures have been applied to this source.	Implementation	\$7,573,982
FEDERAL FUNDING: Federal Grant Funds (Unemployment Insurance Program Letter 2413 (MD/WV) - Original: \$6M; Retained \$2.26M for Implementation (MathTech)	16.89%	Fund#: UI239241355A50 / UI239240J0; Specific to UI Consortium Funds. Funds are Obligated to MathTech Services (PM, BA and Developers)	Implementation	\$2,226,110
FEDERAL FUNDING: Federal Grant Funds (Unemployment Insurance Program Letter 1314 - \$1.25M - Implementation)	9.48%	Fund #: UI264261460A50 / UI26426SZ0; UI Modernization Consortium Activities. All but \$342,030 in funds are Obligated to MathTech Services (PM, BA and Developers). The remaining funds support inhouse expenses (software, hardware, staff, etc).	Implementation	\$1,250,000
FEDERAL FUNDING: UI Administration Grant for Operations (Staff, Software Maintenance, etc.) – \$7.3M in FY2016	16.15%	Fund#: UI280091655A50 / UI280093K0 (F16); Funds cover all UI operation and maintenance expenditures (including line staff and IT cost).	Operations	\$2,128,640
TOTAL:	100.00%			\$13,178,732

1.2 Disposition of Independent Review Deliverables

Deliverable	Highlights from the Review <i>Include explanations of any significant concerns</i>
Acquisition Cost Assessment	Rates for stated hourly rates and derived hourly rates are comparable , while comparisons to projects of similar scope point to a lack of funding, as this project has a much lower budget than comparable projects. Other bids were not available to be assessed. See Cost Comparison in Section 5.2 .
Technology Architecture Review	The underlying Technology Architecture is sound. See <i>Technology Architecture (Section 6)</i> for details.
Implementation Plan Assessment	The approach to solution implementation appears sound. See <i>Assessment of Implementation Plan (Section 7)</i> for details.
Cost Analysis and Model for Benefit Analysis	Cost analysis provides accurate annual cost. No monetary benefits defined. See Cost Benefit (Section 8) for detail.
Impact Analysis on Net Operating Costs	Decrease in Operating Costs per cost spreadsheet detail.

1.3 Identified High Impact &/or High Likelihood of Occurrence Risks

Risk Description	State's Planned Risk Response	Reviewer's Assessment of Planned Response
See Risk Register		

1.4 Other Key Issues

Recap any key issues or concerns identified in the body of the report.

1. No other issues identified.

1.5 Recommendation

Provide your independent review recommendation on whether or not to proceed with this technology project and vendor(s).

The following recommendations are made relative to this pending project. Please note the timing of each, as these recommendations are grouped so as to facilitate the project being timely while also limiting risk:

BEFORE CONTRACT EXECUTION:

1. Develop clear Service Level Agreement (SLA) contract language with Idaho related to Bug Fixes (i.e. timing of response based on impact of bug). As a fall back, it was mentioned by VDOL that the iUS Consortium will define this SLA. If that is the case, include contract language that indicates as such, and that Idaho will accept the iUS Consortium Bug Fix SLA terms.
2. Develop contingency plan contract language should iUS V2 be incomplete at the end of contract term.
3. Develop contract language allowing Vermont to conduct vulnerability assessment on the iUS system along with terms indicating timing by which Idaho will address issues found, before placing solution into production.
4. There is a Phase titled "User Acceptance Testing" in the Contract, which also has a \$750K payment associated with it. In that Phase, there is a term called "Reconcile bugs". Further define this term to say "remedy bugs" or "fix bugs".
5. When the above items are adequately addressed, initiate execution of the project.

DURING PROJECT EXECUTION:

Due to inadequate time before the project is initiated to address the items listed below, the recommendations in this section are intended to move the project forward in the best possible way, given the tight schedule and lack of project resources noted in this report:

6. VDOL commits to diligently address the remaining high risk items identified in the Risk Register.
7. DII takes an active Project Oversight role on the project, and VDOL agrees to respond to all concerns and issues identified by Project Oversight staff in a timely, diligent, and high priority fashion.
8. Consider adjusting working hours to align with IDOL working hours, which are 8am-5pm, Mountain Time. This will maximize the working hours the partners have to work together, otherwise, VDOL stands to lose 2 hours daily, and up to 5 hours daily for workers on alternative schedules (i.e. 7am-3pm).

1.6 Certification

I certify that this Independent Review Report is an independent and unbiased assessment of the proposed solution's acquisition costs, technical architecture, implementation plan, cost-benefit analysis, and impact on net operating costs, based on the information made available to me by the State.

e-Signed by David Gadway
on 2016-08-10 10:19:53 GMT

Signature

August 10, 2016

Date

1.7 Report Acceptance

The electronic signatures below represent the acceptance of this document as the final completed Independent Review Report.

e-Signed by Tim Holland
on 2016-08-10 11:24:14 GMT

DII Oversight Project Manager

August 10, 2016

Date

e-Signed by Richard Boes
on 2016-08-10 13:18:06 GMT

State of Vermont Chief Information Officer

August 10, 2016

Date

2. Scope of this Independent Review

Add or change this section as applicable.

2.1 In-Scope

The scope of this document is fulfilling the requirements of Vermont Statute, Title 3, Chapter 45, §2222(g):

The Secretary of Administration shall obtain independent expert review of any recommendation for any information technology initiated after July 1, 1996, as information technology activity is defined by subdivision (a)(10), when its total cost is \$1,000,000 or greater or when required by the State Chief Information Officer.

The independent review report includes:

- An acquisition cost assessment
- A technology architecture review
- An implementation plan assessment
- A cost analysis and model for benefit analysis
- An impact analysis on net operating costs for the agency carrying out the activity
- A procurement negotiation advisory services contract (as needed)

2.2 Out-of-Scope

If applicable, describe any limits of this review and any area of the project or proposal that you did not review.

- Procurement Advisory Services.
- Review of work related to Mathtech services.

3. Sources of Information

3.1 Independent Review Participants

List the individuals that participated in this Independent Review.

Name	Employer and Title	Participation Topic(s)
Cameron Wood	VDOL Unemployment Insurance Director; Project Director	IR Project kickoff and desired outcomes
Tracy Phillips	VDOL Employee (former VDOL Unemployment Director)	Discussed project history, details of what brought VDOL to this point, desired outcomes, project management, budget, and staffing
Tom Tomasi	VDOL IT	Discussed technical architecture, hosting plans, BC/DR, data migration
Will Sipsey	VDOL IT	Discussed technical architecture, hosting plans, BC/DR, data migration, application security
John Senk	Project Manager, Mathtech Vendor	Discussed desired outcomes, project management, risk management, and staffing
Tim Holland	SOV; DII Oversight Project Manager	Project Management Oversight
Seamus Loftus	SOV; DII Enterprise Architect	Discussed technology architecture
Jack Green, Glenn Schoonover	SOV; DII Security Office	Discussed application security
Mark Mayfield	Executive Director Internet Unemployment System Idaho Department of Labor	Discussed roles, responsibilities, pricing model, comparable projects, ability to meet security requirements, technical architecture, PM Approach, Implementation Approach, Risk Management Approach

3.2 Independent Review Documentation

Complete the chart below to list the documentation utilized to compile this independent review.

*All document sources are the Project SharePoint site unless otherwise noted

Document Name	Description	Source*
20160129 Draft IDOL contract.pdf	Draft contract with State of Idaho Department of Labor (IDOL)	
VDOL UIM PM and BA Services Contract 28324.pdf	Contract with Mathtech for BA and PM Services	
MATHTECH AMENDED CONTRACT SIGNED.pdf	Amended contract with Mathtech for BA and PM Services, adding Data and Testing Services This contract, while executed (signed), has yet to be carried out in any fashion. Another amendment is in process to add Programmers vs. Data and Testing Services with associated increase in cost.	
iUS Mou - Final 12-21-2015.pdf	Memo of Understanding between Idaho, Iowa, and Vermont creating consortium	
VMW MOU Final Signed 3-17-14.pdf	Memo of Understanding between Maryland, West Virginia, and Vermont creating VMW consortium	
iUSBusinessStandards-Consortium.docx	Consortium Business Standards Overview defining how to go about defining System Requirements Documentation, Workflows, and Communication	
iUSTeamPlaybook.docx	Consortium Technical Standards Overview	
Glossary.iqy	Definition of key terms	
ABC_VDOL_UIM iUS_20160406_F.pdf	IT ABC Form signed 12/21/15	
ABC_VDOL_UIM iUS_20160406_Final_Signed.docx	IT ABC Form signed 12/21/15 Word version	
VMWDOL-UI-IT-ABC-FormApril2014.pdf	VMW IT ABC form reviewed for context	
ClaimantPortalUserGuide.pdf	iUS Documentation	
Employer Portal Staff User Guide.pdf	iUS Documentation	
Employer Portal User Guide.pdf	iUS Documentation	
iUS Demo Data.xlsx	iUS Documentation	
iUS Infrastructure v2.pdf	iUS Documentation	
iUS User Guide-Benefits.pdf	iUS Documentation	
iUS User Guide-Tax.pdf	iUS Documentation	
iUSBusinessStandards-Consortium.docx	iUS Documentation	
iUS_MainModel.jpg	iUS Documentation	
ReportingUserGuide.pdf	iUS Documentation	
iUS_Architecture_Assessment_Current.xlsx	DII EA Architecture Assessment	
Vermont EA iUS Concerns - DOL Response.docx	DII EA Architecture Assessment Findings and Recommendations	
401-VTUI-PMO-PRO Integrated Change Management Process V3 - iUS.pptx	Change Management Plan for iUS	
401-VTUI-PMO-PRO Integrated Change Mgmt Process V3.pptx	Change Management Plan for Mathtech	
20160610 Change Management Plan v3.docx	Change Management Plan	
403-VTUI-PMO-PRO Risk Management Process V3 - iUS.pptx	Risk Management Plan for iUS	
403-VTUI-PMO-PRO Risk Management Process V3.pptx	Change Management Plan for Mathtech	
404-VTUI-PMO-PRO Issue Management Process V3.ppt	Issue Management Plan	
406-VTUI-PMO-PRO Schedule Management Process v3.pptx	Schedule Management Plan for	

408-VTUI-PMO-PRO Deliverable Review and Acceptance Process V3 - iUS.pptx	Deliverable Review and Acceptance Plan for iUS	
408-VTUI-PMO-PRO Deliverable Review and Acceptance Process V3 - Mathtech .pptx	Deliverable Review and Acceptance Plan for Mathtech	
408-VTUI-PMO-PRO Deliverable Review and Acceptance Process V3 - Vermont.pptx	Deliverable Review and Acceptance Plan for Vermont Modules of iUS	
20160610 Deliverable Review and Acceptance Management Plan v3.docx	Deliverable Review and Acceptance Plan	
412-VTUI-PMO-PRO Scope Management Process V3.pptx	Scope Management Plan	
DoIT Quad Chart Draft 2015_02_04 v1.pptx	VMW Project Status report (viewed for Context)	
20151231 Vermont UIM - iUS v1.xlsx	Project Budget as of 12/31/2015	
20160516 Vermont UIM - iUS v1.xlsx	Project Budget as of 5/16/2016	
20150824 Organizational Change Readiness Survey v3.docx	Organizational Change Readiness Survey	
20150831 Organizational Change Assessment v7.docx	Organizational Change Assessment	
ChangeOrder.iqy	Change Order List	
20150324 VT_Project_Charter_v9.doc	Project Charter as of 3/24/2015 (VMW project)	
20160116 Final Approved Project Charter v1.pdf	Project Charter as of 12/9/2015 (Idaho project)	
20160610 Project Charter - ABC.pdf	Project Charter and IT ABC Form as of 6/10/2016 (Idaho project)	
01292015 Communications Matrix.xlsx	Communications Matrix (Audience, Schedule, Method, etc) as of 1/29/2015	
20160610 Communications Plan v4.docx	Communications Management Plan as of 1/19/2016	
20160610 Governance v2. docx	Governance Plan as of 12/9/2015	
20160610 Issue Plan v3.docx	Issue Management Plan as of 1/19/2016	
20151209 VT Project Management Plan v3.doc	Project Management Plan as of 12/9/2015	
20160610 VT Project Management Plan v4.docx	Project Management Plan as of 6/10/2016	
20160610 WBS v4.docx	Work Breakdown Structure as of 6/10/2016 - defines the project's deliverables and/or those components needed to manage the VT component of the UIM project	
01152015 RACI Template v2.xlsx	RACI Matrix as of 1/15/2015	
20151022 RACI Chart.xlsx	RACI Matrix as of 10/22/2015	
20160610 Staff Management Plan v4.docx	Staff Management Plan as of 6/10/2016	
VMW_Staffing_Resource_Allocation.xlsx	Staffing Allocation for VMW project	
20160610 Risk Plan v3.docx	Risk Management Plan as of 1/19/2016	
Risks.iqy	A snapshot of risk at a point in time (3 identified)	
VMW Risk Register - 2015_02_03.xlsx	A snapshot of risk as of 2/3/2015 (8 identified)	
20160610 Schedule Management Plan v3.docx	Schedule Management Plan as of 1/19/2016	
VMW_UIM_Integrated_Master_Schedule_20150204 (2).pdf	Project Gantt chart as of 2/4/2015 of VMW project	
20160208 Mathtech Schedule v1.mpp	Project Gantt chart as of 2/8/2016 of iUS project	
20160606 Mathtech Schedule v1.mpp	Project Gantt chart as of 2/8/2016 of iUS project	
20160613 Mathtech Schedule v1.mpp	Project Gantt chart as of 6/13/2016 of iUS project	
20150310 Project Scope Statement v2.docx	Project Scope as of 3/10/2015 of VMW project	
20160610 Project Scope Statement v5.docx	Project Scope as of 6/10/2016 of iUS project	
20160610 Scope Management Plan v4.docx	Scope Management Plan as of 1/19/2016 of iUS project	
20160610 Stakeholder Management Plan v3.docx	Scope Management Plan as of 1/19/2016 of iUS project	
20140428 Project Assessment.docx	Project Assessment of the VMW Project as of 4/28/15	

20150518 Summary_Status_Report v1.docx	Project Status report as of 5/18/2015 (VMW)	
20151221 Summary_Status_Report v1.docx	Project Status report as of 12/21/2015 (iUS)	
20160404 Summary_Status_Report v1.docx	Project Status report as of 4/4/2016 (iUS)	
20160502 Summary_Status_Report v1.docx	Project Status report as of 5/2/2016 (iUS)	
20160613 Summary_Status_Report v1.docx	Project Status report as of 6/13/2016 (iUS)	
Appeals Transaction model 08242015v1.pdf	Appeals process flow/Transaction Model	
20150519 Multiple Perspectives - Claim v4.docx	Multiple Perspective Study – Claims	
20150320 Claims Session 1.docx	Claims Use Cases from 3/20/2014	
20150324 Claims Session 2.docx	Claims Use Cases from 3/24/2014	
20150327 Claims Session 3 and 4.docx	Claims Use Cases from 3/26/2014 and 3/27/2014	
05202015_Benefits E2E_Set 1.pdf	Benefits process flows Set 1//Transaction Model	
Benefits E2E_Final_Draft_Set 2.pdf	Benefits process flows Set 2//Transaction Model	
20151028 iUSgaps V2.xlsx	iUS Gap Analysis as of 10/28/2015	
iUS Demo Data.xlsx	Demo data	
iUS Infrastructure v2.pdf	Dev, Test, Staging, Prod Infrastructure Diagram	
iUSgaps.xlsx	iUS Gap Analysis	
iUS_MainModel.jpg	iUS Data Model	
Unemployment Insurance Differences Between Idaho and Vermont.docx	Unemployment Insurance Differences Between Idaho and Vermont	
RTM.iqy	Non-Functional Requirements	
20150803_TaxE2E.pdf	Tax process flow/Transaction Model	
Tax Transaction model 07152015.pdf	Tax process flow/Transaction Model	
UI.iqy	Listing of specific functions/systems and how to be supported by iUS	
UCS APPEAL 010 File Lower Appeal.docx	File Lower Appeal Use Case	
UCS APPEAL 020 Prepare Lower Appeal Case.docx	Prepare Lower Appeal Use Case	
UCS APPEAL 030 Update Lower Appeal Case.docx	Update Lower Appeal Use Case	
20160210 CATS Data Dictionary v1.xlsx	CATS Data Dictionary Contribution and Tax System (DOL uses CATS to process Employer and related Tax information)	
20160223 VITWS Data Dictionary v1.xlsx	VITWS Data Dictionary Vermont Internet Tax and Wage System (Used by Employers to report employee wages and healthcare contributions)	
20160427 VABS Data Dictionary v11 (1).xlsx	VABS Data Dictionary Vermont Automated Benefits System (DOL uses VABS to process unemployment insurance claims)	
VMW DDI RFP 02_03.docx	VMW RFP	
20160519 State Modules - Interfaces- Conversion Scope v6.xlsx	Data Conversion Scope of Work	

4. Project Information

4.1 Historical Background

Provide any relevant background that has resulted in this project.

Vermont's current UI IT systems are standalone - mainframe-based and developed in the 1980s and 1990s using existing standards and products (e.g. COBOL). These systems are becoming difficult to maintain due to lapsed Vendor support and the increasing scarcity of IT workers trained to support older mainframe systems. Additionally, in recent years the federal government has made numerous changes to the UI program that states are required to implement. These changes are often difficult and time consuming to implement with mainframe systems.

In addition to the core mainframe functions (e.g. Benefits – VABS (*Vermont Automated Benefits System (DOL uses VABS to process unemployment insurance claims)*), Tax – CATS (*Contribution and Tax System (DOL uses CATS to process Employer and related Tax information)*), and Appeals – CATS/VABS), Vermont has a number of web based functions (e.g. weekly certification, enrolling for direct deposits, employer registration, etc.) that integrate to the core mainframe functions through overnight batch processes/interfaces. This architectural approach and the batch overnight update process increases the probability of out-of-sync data situations and manual intervention to coordinate transaction process.

A number of business processes also rely on transcribing and tracking data through Excel spreadsheets.

A modern UI system that integrates these primary functions, integrates and provides real-time web functions, improved ad-hoc reporting capabilities, and tracking data through the unified system instead of spreadsheets will improve overall department operational efficiency, increase the accuracy of the system, and significantly improve customer satisfaction.

Towards that end, Vermont is joining Idaho and Iowa in the **iUS consortium** to replace its legacy Unemployment Insurance (UI) systems. The consortium will enhance the CORE iUS system to incorporate additional UI Benefit features, integrate Idaho's AIMS Tax system into CORE iUS, develop State Specific Modules (i.e. Vermont: Domestic Violence, Healthcare contributions, etc.), and State Specific Interfaces (interfaces between the CORE iUS product and State specific modules for Vermont, Idaho, and Iowa).

The consortium's approach is to build a multi-user CORE iUS product. This approach will allow other States to use the CORE iUS system and like Idaho, Iowa, and Vermont, integrate specific state modules and interfaces to the CORE iUS system.

Idaho built the CORE iUS (Benefits) system in 2012-2013 and it went into production in 2014. Idaho developed iUS using the same Microsoft tools (.Net) that VDOL uses for its current web facing functions.

The consortium will use an AGILE development methodology for the design, development, and testing of the CORE iUS system. Because the member States are responsible for specific software, interfaces, data conversion, training, and implementation, Vermont will complete their activities using an iterative approach similar to Agile.

4.2 Project Goal

Explain why the project is being undertaken.

The primary impetus for undertaking this project is to provide program and economic support to Vermonters who are unemployed or seeking new career options which will be measured by:

- Decrease unemployment duration for Vermonters through job training, job development and placement; reduce by 2 weeks per year during period of 2013- 2015, provided that the state's unemployment rate is below 4.5%
- Decrease unemployment among employment challenged populations by 5% each year 2013-2015
- Increase utilization of VDOL training programs by 5% each year during period 2013-2015

The objectives of the project are outlined in the table below:

Objective	Detailed Objectives	Measurements
One Integrated System	Develop a system that includes the adjudication and appeals processes as part of a single, integrated system (Benefit + Tax + Appeal)	100% of all benefit, tax, adjudication, and appeal processing is in the single UI system and uses a single integrated database
	TPS+ BAM + Data Validation are all in one place – electronic documents – automated	100% of all benefit, tax, adjudication, and appeal processing is in the single UI system and uses a single integrated database
	Tax – Misclassifications integrated with the rest of the tax information (currently housed in excel)	100% of all benefit, tax, adjudication, and appeal processing is in the single UI system and uses a single integrated database
	Integrated data across the system	100% of all benefit, tax, adjudication, and appeal processing is in the single UI system and uses a single integrated database
	Integrated case management system	100% of all benefit, tax, adjudication, and appeal processing is in the single UI system and uses a single integrated database
	Integrated and seamless system for employers	100% of all benefit, tax, adjudication, and appeal processing is in the single UI system and uses a single integrated database
Improved Data Mining/Reporting Capabilities	Ability to data mine and create ad hoc reports (e.g. how many FairPoint workers live in Chittenden County)	95% of all ad hoc reports do not involve help/intervention from IT
	Produce financial reports automatically	100% of all financial reports are created automatically
	Better capacity data mine around the demographics of claimants, profiling data so as to be a stronger partner for the Workforce Development	The database maintains demographic data for 100% of all claimants
	Automated management reports	100% of all management reports are created automatically by the system
Easier System Maintenance	Automated Federal Reports	100% of all Federal Reports are created automatically by the system
	Easier changing of business rules	Business Administrators can change up to 80% of the business rules in the system without IT intervention (iUS or VT)
	Ability to customize – federal and state changes	Business Administrators can change up to 80% of the business rules in the system without IT intervention (iUS or VT)
	Longevity of system	100% of the system is built using a modular approach

	Vermont has a full copy of the software and a working development environment (after implementation in Vermont)	100% of the system software and a development environment is provided to Vermont
Greater System Functionality	Less error reports – Internal issue error system – System cannot handle certain scenarios, kicks out error reports for manual review handling	95% reduction in system related (no system functionality available) error reports
	Less steps within the tax system	50% reduction in screens/processing in the tax system
	Workload – Automatic case assignment, run management reports	100% of all eligible work flows are automated in the new system
	Knowledge and data collection from clients from the onset	100% of all client data is collected in the client profile process
	Automated triggers to workflow	System automates 100% of all triggers needed to initiate/continue a transaction through the workflow capabilities in the system
Increase program integrity	Less improper payments/overpayments	Reduced Improper payments/ overpayments to 1% lower than the annual USDOL Improper Payment Rate Target
	Less improper system access	Reduce Improper access to system to 0%
	Reduce number of manual validations by greater information collection at the onset	Reduce manual validations by 95%
	Ease of access for employers should lead to higher employer response rate, less phone calls and less questions	Reduce number of employer calls related to system issues by 90%
	Increased Interface with other agencies automatically for validation	Make other agency validations 100% automatic
Improved Fraud Analytics	Decrease Fraud	Reduce Fraud to 1% lower than the annual USDOL Fraud Rate Target
	Institute Real time cross match - hiring/earnings/other state earnings	100% of all cross match interfaces are run real time and trigger the appropriate workflow transaction
	Timely wage information	99% of all wage information is entered to the system by the deadline
System is easier to use	Employers perceive that the new system is easier (or no worse) than the current system to use	80% of Employer Feedback/surveys indicate that they feel the new system is easier to use
	Claimants perceive that the new system is easier (or no worse) than the current system to use	80% of Client Feedback/surveys indicate that they feel the new system is easier to use
	Less training time	50% reduction in time needed to fully train a new employee
	Less functionality related requests	50% reduction requests regarding functionality
	Less phone calls and shorter hold times	30% reduction in general phone calls; 60% reduction in employer phone calls
	Less IT enhancement requests	90% reduction in IT enhancement requests
	CSR able to provide more accurate answers - Less repeat calls from same customer	90% reduction in repeat calls from the same customer on the same claim
	Increased self service	30% reduction in general phone calls; 60% reduction in employer phone calls
Exceed Federal Standards	All 1st payments are provided in 14-21 days	87% of 1st payments are provided in 14-21 days

4.3 Project Scope

Describe the project scope and list the major deliverables. Add or delete lines as needed.

Overall Scope: The development of iUS 2.0 is focused on the implementation and utilization of loosely coupled features/functions. The objective is to establish a set of interfaces and standardize communication using web services. Using the infrastructure provided by Core 1.0; cross-platform support, built in Dependency Injection, and incorporating Entity Framework, iUS 2.0 will be a composite of micro-applications. The interface architecture will support base product functionality while enabling the individual states to implement specific state requirements. Migrating to this architecture will isolate changes at the micro-application level, allow for specific state implementation when necessary, and keep the Consortium code base as small as necessary.

The following lists the iUS Project Team's Scope per the Contract draft dated 7/14/2016:

- Provide Project Management for the design, development, and testing enhancements to the existing iUS system
- Design, develop, unit and integrate test all common UI functions. These includes benefits, taxation, appeals, field audits, accounting, program integrity, communication to interested parties, workflow, case management, reporting (federal, common state reports, management, standard and ad hoc), system access, system security, error handling, system audits, content management, configuration/rules management, identity management, access management, the iUS database, and system help.
- Design, develop, unit and integrate test the iUS database
- Design, develop, unit and integrate test all common UI interfaces (e.g. ICON)
- Design, develop, unit and integrate test interface capability between the iUS CORE system and State Specific Modules, Interfacing iUS modules modified by State, and State Specific Interfaces
- Design, develop and provide system technical and training documentation
- Support User Acceptance testing
- Support implementation of iUS
- Provide knowledge transfer
- Provide system documentation for training
- Support State's state-wide implementation
- Resolve all material functional and operational deficiencies known prior to deployment that are not the result of actions of the State or that related to its State Specific Modules, Interfacing iUS modules modified by State or State Specific Interfaces

The following lists Vermont Specific iUS Scope per the Contract draft dated 7/14/2016:

- Assist the Contractor in the design, development, unit and integration testing of the iUS system
- Manage the design, development, testing, and implementation of the State Specific Modules, State Specific Interfaces, State Data Conversion, State Testing, State Training, and State Implementation
- Manage the design, development, testing, and implementation of modifications to the iUS interfacing application components to meet State's needs
- Arrange for hosting the iUS system
- Convert and load all State data to the various State hosted environments
- Design, develop, unit, integrate test, and implement the State Specific Modules. These include software developed/modified for unique State functions (including but not limited to the IVR, healthcare contribution processing, etc.)
- Design, develop, unit, integrate test, and implement the Interfacing iUS modules modified by State. These include but are not limited to customer portal, employer portal, wage reporting, etc.).
- Design, develop, unit and integrate test the State Specific Interfaces
- Design, develop, unit and integrate test modifications to the iUS interfacing application components

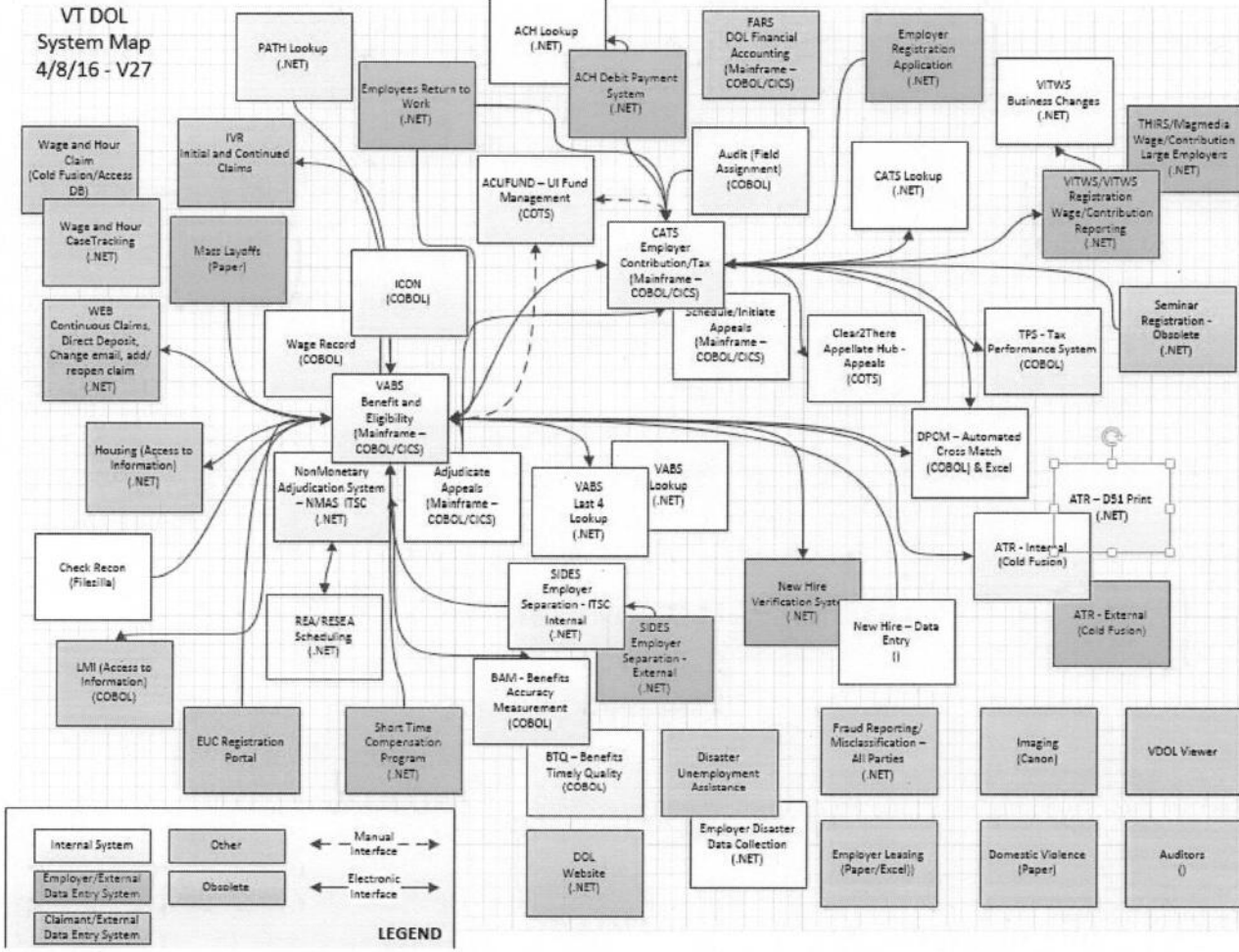
- Coordinate testing of the State Specific Modules, Interfacing iUS modules modified by State and State Specific Interfaces with the Contractor
- Conduct User Acceptance Testing
- Implement iUS
- Train State staff
- Arrange and provide for post implementation Maintenance and Operations and resolve to the extent all functional and operational deficiencies that are the result of actions of the State

The iUS UI Modernization **functional requirements** fall into four categories: Benefits, Taxes, Appeals, and Other.

The iUS UI Modernization **non-functional requirements** fall into four categories: Non-Functional Requirements, System Requirements, System Development Life Cycle (SDLC), and Project Management Requirements.

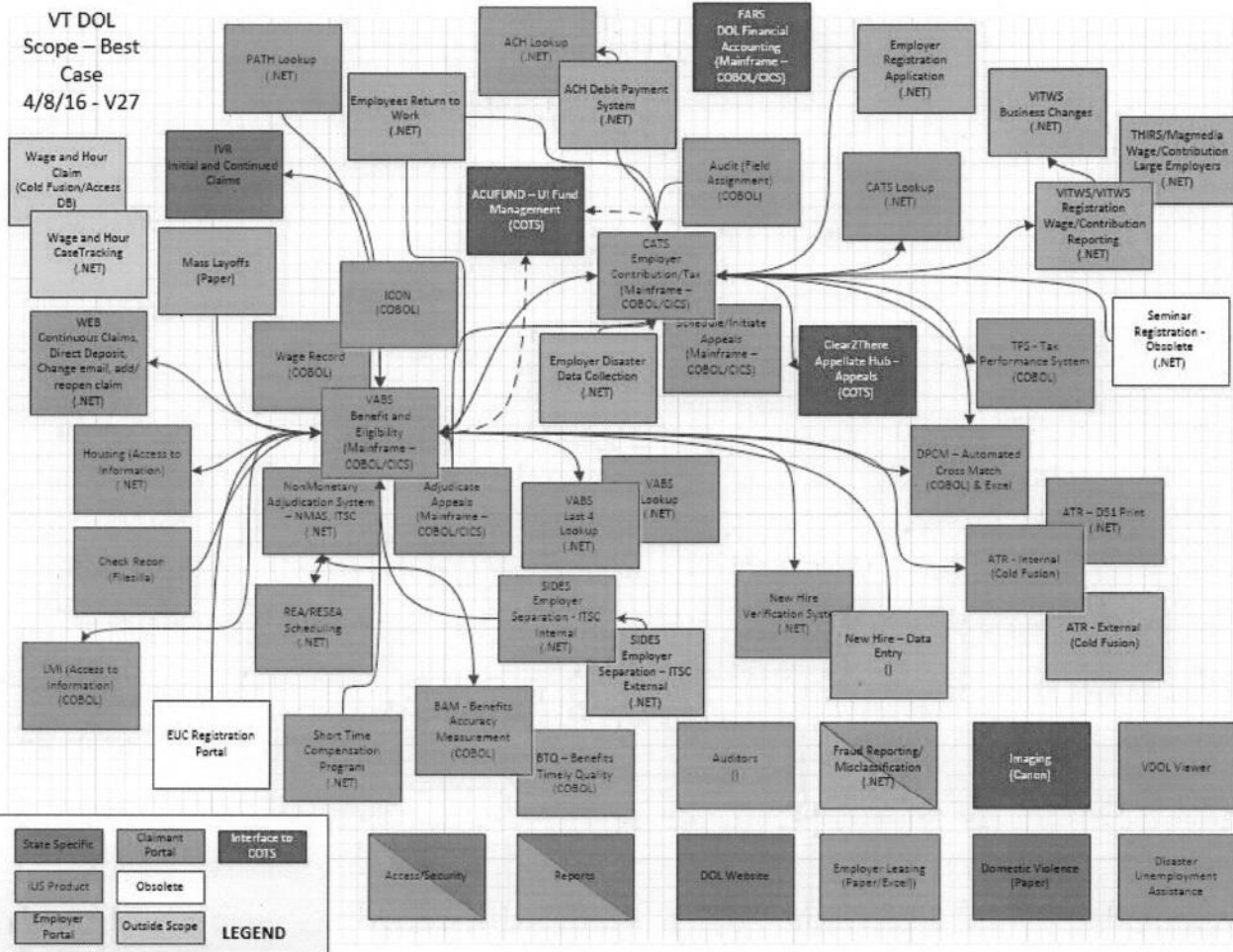
Current As-Is:

VT DOL
System Map
4/8/16 - V27



Proposed To-Be (Purpose is to show how equivalent functions are to be provided):

VT DOL
Scope – Best
Case
4/8/16 - V27



Scope: Employer

iUS System Functions – Employer/Tax/Others 4/8/16 V26

<p>Appeals (DOL Internal) Schedule an Appeal Prepare Exhibit Hold Hearing Adjudicate Appeal</p>	<p>Employer Portal Create and manage a Profile Register Business with UI Voluntary Elect Report Separations Report New Hires Respond to request for wages information File Quarterly Wage Reports (one system for both size employers) Amend Report Set up and maintain ACH (Access idaho) Pay tax, interest, and penalties Change method of payment Submit Mass Layoffs File an Appeal View Appeal status View and Print Benefit Charges Report Return to Work Register Third Party Providers Third Party making one payment split into multiple accounts Register Power of Attorneys Request FUTA certification Report transfer of business Report Fraud View/display and Print Statement Request Waivers Request Termination of Coverage Request a refund of a Credit Request a duplicate successor letter Request a duplicate liability letter Request Short Time Compensation Set up and maintain payment plan Generate 1322B (Good Standing) Reactivate Account View payment transactions View liens, assessments, penalty View and print liability letter Penalty and interest Calculator View tax and wages information Request a duplicate rate notice Secure message to staff Attach documents to Messages e-Signature Healthcare Contribution entry</p>	<p>Employer Tax/Wages (DOL Internal) Create Employer Account (Business Registration App) Determine employer liability (Business Registration) Manage SUTA dumping Manage acquisitions and mergers Rate Determination and Assessment Experience Rating Process Changes to Employer Account View Benefit Charges (use screens from Employer Portal) Calculate fees, interest and penalties Process Waivers (part of Accounting - Employer in ID) Process Termination of Coverage (Workflow) Enter and Process payments Enter and Process transfer of business Process amended reports (Wages and Accounting - Employer) Process supplementary report (Wages and Accounting - Employer) Make wage report adjustments (Wages and Accounting - Employer) Refund taxes Legal actions on past due monies Reactivate an account (Employer info creation and maintenance) FUTA certification Maintain employer profile (Employer info creation and maintenance) Maintain employer account Employee leasing Refund taxes Generate Credit Statements Inactivate Accounts Calculate interest rate Change interest rate Generate 1322B certificate Pending/non-Subject Accounts Process Credit Statements Auto Collection Billings Cost Reimbursement Master/client accounts Corporate Officer Opt out Healthcare Contribution and Tracking</p>	<p>Program Integrity (DOL Internal) Maintain Delinquent Emp Acct (E) Create Estimated reports (E) Employer Collections (E) Separate price & post Bankruptcy (E) Maintain Lien Information (E) Wage Garnishment (E/C) State and Federal tax intercept (E/C) Generate Assessment (E) Setup/maintain payment plan (E/C) Revoke Licenses (E) Set up Recovery and Collections (E/C) Tracking/Determine Fraud (E/C) Suspend Accounting (E) Legal Action (E/C) Track and investigate Fraud (E/C) Process TOP (E/C)</p>
<p>Reports (DOL Internal) Federal and State Management Ad hoc LMI</p>	<p>Workflow (BUS Internal) Set up and resolve issues Record Notes Create and Send Correspondence Alerts Supervisors assign work (Tasks)</p>	<p>Performance/Compliance (DOL Internal) BTC DV BAM TPS</p>	<p>Case Management (DOL Internal) Set up and maintain Cases (e.g. Fraud)</p>
<p>Federal and National Interfaces Electronic Fund Transfer</p>	<p>Finance (DOL Internal) Set up and maintain AOH Pay claims Collect fees, Penalties and interest Refunds Overpayment Manage Trust Fund Check reconciliation Maintain General ledger Stop Payments Process returned checks Process NSF Write-offs</p>		
<p>Search (IUS Internal) Search on Claimants Search on Employer Search on Claim # Search on Appeal Other</p>	<p>Correspondence, Notices and Alerts Create, modify Templates Process returned mail Track contacts with claimants and employers</p>		
<p>Audit (DOL Internal) Schedule, conduct, process field audits (Manage Regions) Investigate and manage SUTA dumping Process Monies Received Wage Record Crossmatch Process State/National New Hire Crossmatch Create and conduct Employer Audits Claimant investigation Process Overpayments Process Underpayments Internal Audit Audit Trail</p>	<p>LEGEND Existing ID only Not Defined VT/ID VT only VT Historical Additions</p>		

Scope: Benefits

iUS System Functions – Claimant/Benefits/Others 4/8/16 V27

<p>Claimant Portal (Idaho's Customer Portal – not part of iUS CORE)</p> <ul style="list-style-type: none"> Create and manage a Profile File Initial Claim all types File weekly certification Add or Reopen a claim Set up Direct Deposit Debit card request Check processing Report Fraud Report Misclassification (Wage and Hour) File an Appeal View transaction details Return to Work View claim status View all upcoming appointments Document preferred communication method Document language preference (English or Spanish) Answer questionnaires (part of weekly certification) Record work search Correct 1099 Print 1099 Update tax information (Fed only, VT needs Fed and State) View balance owed Review penalty work status: (VT needs to see by week, ID does end date) View determinations made Allow claimant to attach documents View payments received View weeks filed and reported wages View deductions from entitlement Correct earnings (Claimant can view, DOL Staff corrects) View messages Confirmation on claims and form submission Make confirmation notices and messages Let claimants pick scheduled meeting times Track and view correspondence Set up payment plans Request to withdraw a claim Submit forms View appeal status View adjudication status 	<p>Benefits Processing</p> <ul style="list-style-type: none"> File all claim types File weekly certification Add/reopen Claim Process all claim types including special UI programs (DUA, EUC, etc.) Process extensions Determine Eligibility Record Work History Process deductions Record and track labor disputes Multi-Claimant adjudication Perform Monetary Adjudication Perform Non-Monetary Adjudication Determine chargeability Process Mass Separation Process Short Time Compensation Process TRA Adjust Charges and Benefits REA/RESEA Schedule and Maintenance Benefit charging Update Initial Claim and Weekly Cert. certification Process claim changes Process effective date, SSN changes Maintain the Claimant profile Process effective date changes Withdraw a claim Capability to initiate and track fact finding Ending Wage cancellation View audit status Claim snapshot Move Claims 	<p>Appeals (DOL Internal)</p> <ul style="list-style-type: none"> Schedule an Appeal Prepare Exhibit Hold Hearing Adjudicate Appeal 	<p>Correspondence, Notices and Alerts</p> <ul style="list-style-type: none"> Create, modify Templates Process returned mail Track contacts with claimants and employers
		<p>Program Integrity (DOL Internal)</p> <ul style="list-style-type: none"> Maintain bankruptcy information/ Offset (C) Wage Garnishment (E/C) State and Federal tax intercept (E/C) Setup/maintain payment plan (E/C) Out of state collections - JROBA (C) Enter/monitor/Determine Overpayments (C - Non Mon, BAM cases, appeals, Earnings, Monetaries) Set up Recovery and Collections (E/C) Tracking/Determine Fraud (E/C) Legal Action (E/C) Fact Finding (C) <ul style="list-style-type: none"> Wheeler Predetermination Correct earnings (C) - Claimant can view, DOL Staff corrects Track and investigate Fraud (E/C) Process TOP (E/C) Cash Entry (C) Track incarcerated/probation claimants (C) 	<p>Federal and National Interfaces</p> <ul style="list-style-type: none"> ICON, etc.
		<p>Finance (DOL Internal)</p> <ul style="list-style-type: none"> Set up and maintain AQH Pay claims Collect fees, Penalties and interest Refunds Overpayments Manage Trust Fund Check reconciliation Maintain General ledger Stop Payments Process returned checks Process NSF Write-offs 	<p>DOL User Homepage (DOL Internal)</p> <ul style="list-style-type: none"> Tie to Workflow View and process assigned work
			<p>Search (iUS Internal)</p> <ul style="list-style-type: none"> Search on Claimants Search on Employer Search on Claim # Search on Appeal Other
			<p>Help (iUS Internal)</p> <ul style="list-style-type: none"> Display help
			<p>Workflow (iUS Internal)</p> <ul style="list-style-type: none"> Set up and resolve issues Record Notes Create and Send Correspondence Alerts Supervisors assign work
			<p>Validation (iUS Internal)</p> <ul style="list-style-type: none"> Identity Eligibility Other
			<p>Case Management (DOL Internal)</p> <ul style="list-style-type: none"> Set up and maintain Cases (e.g. Fraud)
			<p>Access Control (iUS Internal)</p> <ul style="list-style-type: none"> Role based security
			<p>Performance/Compliance (DOL Internal)</p> <ul style="list-style-type: none"> BTQ DV BAM TPS
			<p>Reports (DOL Internal)</p> <ul style="list-style-type: none"> Federal and State Management Ad hoc LMI

Existing
VT/D
VT Potential Available
ID only
Not Defined
LEGEND

The disposition of the items in RED above (the "VT POTENTIAL ADDITIONS") represent functionality that is missing in an EMPLOYER PORTAL or CLAIMANT PORTAL. It does NOT represent functionality missing from the core iUS application. Mr. Wood further indicated that the items listed below are not required by USDOL.

Using the sample function "REACTIVE ACCOUNT", Mr. Wood explained that "REACTIVATE ACCOUNT" functionality is available in the core software application, for use by VDOL employees.

What is considered a "VERMONT POTENTIAL ADDITION" is extending that functionality to an EMPLOYER PORTAL, such that an EMPLOYER would initiate a "REACTIVATE ACCOUNT" transaction directly, in a "self-service" model, vs. calling VDOL to carry out that transaction on the Employer's behalf.

FUNCTION: Employer/Tax/Others	iUS Core (Place an X next to each that is expected to be done in iUS Core)	iUS Vermont (Place an X next to each that is expected to be done in iUS Vermont)	iUS Component	Contingency Plan
Voluntary Elect		X	Employer Portal	Continue as a Manual Process
Change method of payment		X	Employer Portal	Continue as a Manual Process
Submit Mass Layoffs		X	Employer Portal	Continue as a Manual Process
File an Appeal		X	Employer Portal	Continue as a Manual Process
View Appeal status		X	Employer Portal	Continue as a Manual Process
Report Return to Work		X	Employer Portal	Continue as a Manual Process
Register Power of Attorneys		X	Employer Portal	Continue as a Manual Process
Request FUTA certification		X	Employer Portal	Continue as a Manual Process
Report transfer of business		X	Employer Portal	Continue as a Manual Process
Report Fraud		X	Employer Portal	Continue as a Manual Process
Request Waivers		X	Employer Portal	Continue as a Manual Process
Request Termination of Coverage		X	Employer Portal	Continue as a Manual Process
Request a refund of a Credit		X	Employer Portal	Continue as a Manual Process
Request a duplicate successor letter		X	Employer Portal	Continue as a Manual Process
Request a duplicate liability letter		X	Employer Portal	Continue as a Manual Process
Request Short Time Compensation	X			
Set up and maintain payment plan		X	Employer Portal	Continue as a Manual Process
Generate 1322B (Good Standing)		X	Employer Portal	Continue as a Manual Process
Reactivate Account		X	Employer Portal	Continue as a Manual Process
View payment transactions		X	Employer Portal	Does not exist today
View liens, assessments, penalty		X	Employer Portal	Does not exist today
View and print liability letter		X	Employer Portal	Continue as a Manual Process
View tax and wages information		X	Employer Portal	Does not exist today
Request a duplicate rate notice		X	Employer Portal	Continue as a Manual Process
e-Signature		X	Employer Portal	Does not exist today
Separate prior & post bankruptcy	X			

FUNCTION: Claimant/Benefits/Others	iUS Core (Place an X next to each that is expected to be done in iUS Core)	iUS Vermont (Place an X next to each that is expected to be done in iUS Vermont)	iUS Component	Contingency Plan
Check processing		X	Check Processing Module	Eliminate paying benefits by check, pay through direct deposit or debit card
Report Fraud		X	Claimant Portal	Continue as a Manual Process
Report Misclassification (Wage and Hour)		X	Claimant Portal	Continue as a Manual Process
File an Appeal		X	Claimant Portal	Continue as a Manual Process
View all upcoming appointments		X	Claimant Portal	Does not exist today
Correct 1099		X	Claimant Portal	Continue as a Manual Process
View determinations made		X	Claimant Portal	Does not exist today
Allow claimant to attach documents		X	Claimant Portal	Does not exist today
View messages		X	Claimant Portal	Continue as a Manual Process
Make confirmations notices and messages	X			
Let claimants pick scheduled meeting times		X	Claimant Portal	Does not exist today
Track and view correspondence		X	Claimant Portal	Does not exist today
Set up payment plans		X	Claimant Portal	Continue as a Manual Process
Request to withdraw a claim		X	Claimant Portal	Continue as a Manual Process
Submit forms		X	Claimant Portal	Continue as a Manual Process
View appeal status		X	Claimant Portal	Does not exist today
View adjudication status		X	Claimant Portal	Does not exist today
Fact Finding – Wheeler	X			

4.3.1 Major Deliverables

See Section 4.4 below.

4.4 Project Phases, Milestones and Schedule

Provide a list of the major project phases, milestones and high level schedule. You may elect to include it as an attachment to the report instead of within the body.

The milestones/deliverables of the project are outlined in the table below. **The dates are being finalized at the time of the writing of this IR report, and are anticipated to start by 8/1/16, sliding the entire schedule by 8 months from the original intended timeline.**

Milestone/Deliverable	Target Delivery Date or Range
Project Start Date	August, 2015
Signed MOU and contract	December, 2015 (anticipated 8/1/2016)
Requirements Definition/Gap Analysis/Planning	July, 2017
CORE iUS Benefit system components	December, 2017
CORE iUS Tax system components	February, 2018
State specific modules	February, 2018
Revised Idaho components	February, 2018
State specific interfaces	February, 2018
Converted Vermont Data	June, 2018
Vermont Training	May - June, 2018
Implementation	June, 2018
Project End Date	June, 2018

The chart below represents tasks and related payment amounts to IDOL.

PHASE (JUNE, 2016)	ESTIMATED DATES	PHASE DESCRIPTION	PAYMENT
Gap Analysis/Requirements Review/Scoping Sessions	7/2016 - 10/2016	<p>The members of the iUS consortium (member States and the Vendor) will as a team review the current iUS system in detail, document gaps, and identify iUS State Specific Modules, and State Specific Interfaces scope and requirements</p> <p>Vendor will align iUS modifications/additions into specific Sprints.</p> <p>The Vendor will facilitate and document these sessions</p>	\$0
Iterative Design/Development/Unit Testing	10/2016 – 8/2017	<p>The Vendor, using the Agile Methodology, will design/develop/unit test/integration test the modifications/additions to the iUS system.</p> <p>The Vendor will develop functionality that interfaces the State Specific Modules and Interfaces to the iUS system.</p>	<p>\$750,000 at beginning of iUS Core sprints</p> <p>\$750,000 in middle of iUS Core sprints, less \$100,000 holdback</p> <p>\$750,000 at end of iUS Core sprints, less \$100,000 holdback</p>
Integration Testing	9/2017 – 10/2017	<p>The Vendor and State will test/refine the iUS system and the integration with each State’s Specific Modules and State Specific Interfaces.</p> <p>Vendor will resolve all material functional and operational deficiencies known prior to deployment that are not the result of actions of the State or that relate to its State Specific Modules, <u>Interfacing iUS Modules</u>, or State Specific Interfaces.</p>	\$0
User Acceptance Testing	11/2017	<p>State (and the other States in the consortium) will conduct a User Acceptance Test of the entire iUS system including State Specific Modules and Interfaces. Reconcile bugs.</p> <p>Vendor supports State (and the other States in the consortium) with User Acceptance Testing (UAT)</p>	\$750,000
Implementation	12/2017 – 6/2018	<p>Vendor provides the completed iUS software to the State</p> <p>State conducts final data conversion</p> <p>State conducts training</p> <p>State Implement iUS system and State Specific Modules/Interfaces</p>	\$0
Post Deployment	7/2018 – 12/2018	Vermont reviews and provides Certificate of Acceptance with the reconciliation of all Defects during this period.	\$200,000 (money from hold back)
Contingency		<p>Optional Post-Deployment Support</p> <p>Vendor shall provide up to 4,160 hours @ \$120/hour of post-deployment support of the State’s iUS, State Specific Modules, Interfacing iUS Modules modified by State, and State Specific Interfaces upon the written request of the State on an as-needed basis.</p>	\$500,000
			TOTAL: \$3,500,000

5. Acquisition Cost Assessment

List all acquisition costs in the table below (i.e. the comprehensive list of the one-time costs to acquire the proposed system/service). Do not include any costs that reoccur during the system/service lifecycle. Add or delete lines as appropriate. Based on your assessment of Acquisition Costs, please answer the questions listed below in this section.

The following chart represents the **Acquisition Costs** for the stated project period. Detailed composition of these numbers are found in the attached project cost spreadsheet.

IT Activity Lifecycle:	10 Years
Total Lifecycle Costs:	\$ 13M
PROJECT COSTS:	\$11M
Software Costs:	\$0
Hardware Costs:	\$3K
Implementation Services:	\$9.4M
Contracting with Idaho:	\$4.5M (\$3.5M plus \$1M contingency)
Contracted Project Management Services:	\$1.3M
Contracted Business Analyst Services:	\$960K
Contracted Programming Services:	\$2.6M
Travel:	\$128K
Internal Staffing Costs:	\$1.1M
OPERATING COSTS:	\$2M
Programming Resources:	\$0
Hardware Costs:	\$32K
Internal Staffing Costs:	\$2M
CURRENT OPERATING COSTS:	\$7M
Difference Between Current and New Operating Costs:	\$5M
Funding Source(s) and Percentage Breakdown if Multiple Sources:	See table below

Funding Source(s) and Percentage Breakdown if Multiple Sources:

FUNDING SOURCE	% of TOTAL	FUNDING SOURCE DESCRIPTIONS	FUNDING APPLIED TO (Implementation or Operations)	FUNDING AMOUNT
FEDERAL FUNDING: UI Modernization Grants Funds from 2010;	57.47%	ARRA Funds; Fund #Section 903(f) of SSA ARRA of 2009 Public Law 111-5; 100% Federal UI Modernization Funds; Original amount: \$9,278,599. To date only \$7,412.76 in expenditures have been applied to this source.	Implementation	\$7,573,982
FEDERAL FUNDING: Federal Grant Funds (Unemployment Insurance Program Letter 2413 (MD/WV) - Original: \$6M; Retained \$2.26M for Implementation (MathTech)	16.89%	Fund#: UI239241355A50 / UI239240J0; Specific to UI Consortium Funds. Funds are Obligated to MathTech Services (PM, BA and Developers)	Implementation	\$2,226,110
FEDERAL FUNDING: Federal Grant Funds (Unemployment Insurance Program Letter 1314 - \$1.25M - Implementation)	9.48%	Fund #: UI264261460A50 / UI26426SZ0; UI Modernization Consortium Activities. All but \$342,030 in funds are Obligated to MathTech Services (PM, BA and Developers). The remaining funds support inhouse expenses (software, hardware, staff, etc).	Implementation	\$1,250,000
FEDERAL FUNDING: UI Administration Grant for Operations (Staff, Software Maintenance, etc.) – \$7.3M in FY2016	16.15%	Fund#: UI280091655A50 / UI280093K0 (F16); Funds cover all UI operation and maintenance expenditures (including line staff and IT cost).	Operations	\$2,128,640
TOTAL:	100.00%			\$13,178,732

5.1 Cost Validation

Describe how you validated the Acquisition Costs.

The Acquisition Costs were validated through the following methods:

1. Comparison of Hourly Rates of similar Services
2. Comparison with Projects of Similar Scope
3. Comparison with Other Bidders

1. Comparison of Hourly Rates of similar Services:

The proposed services are primarily a fixed price to deliver Release 2 of iUS and provide some related assistance to VDOL. As noted in the Risk section, the related assistance provided by Idaho to VT are not clear. In short, VDOL is paying Idaho for services to rewrite the iUS software to be "multi-state enabled".

The hourly rate to complete that work is comparable to market rates, and is calculated as follows:

Years	2
FTE allocated to this project by Idaho (expect 10 internal staff and 8 Vendors)	20
Hours/Year	2,080
Total Hours	83,200
Total Fee Paid to Idaho by VDOL	\$3,000,000
Effective Hourly Rate:	\$36
Assume all 3 states bear similar costs, multiple this rate by 3, yielding an effective hourly rate of:	\$108

Additionally, hourly rates for Mathtech, which range from \$90-\$160 based on service types, are comparable with standard market rates.

In seeking further information as to whether a firm named Netacent would have a role on this project (Netacent provided staff augmentation services to State of Idaho in their iUS Software Development project), IDOL indicated any Vendor costs are included in the fees above. As such, the effective hourly rate of any Vendors from Idaho are not assessed.

2. Comparison with Projects of Similar Scope:

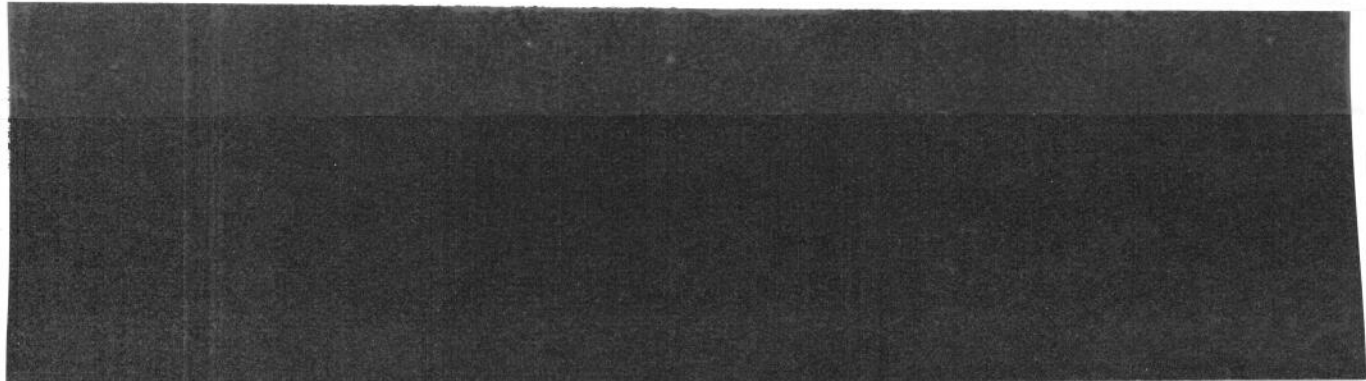
The UI market is small and fragmented. There were no other bids to compare to the costs of this project as this project was not put out to bid.

In conducting a market scan, the following players emerged as legitimate alternatives to the Idaho solution:

- Deloitte (use Acuity solution available in the open domain, versions of which are used in OH, KY, UT, MN, NH, and an attempted implementation in MA that did not go well)
- CapGemini (use Acuity solution available in the open domain, implementing in Indiana, Nevada, Southeast Consortium Unemployment Insurance Benefits Initiative (SCUBI: North Carolina, South Carolina, Georgia))
- Sagitec Solutions (implementing in MD and WV) – Many former Deloitte staff
- FastUI from Fast Enterprises (implementing in CA, MT, MI, WA)

In speaking with a long tenured software architect in the UI software space, who now works for CapGemini, his experience in implementing UI solutions in Indiana, Montana, North and South Carolina, points to a project of this scope requiring the following:

- A team of 20-25 people, comprised of ~8 State staff and ~12 professional services staff
- Mini-projects of small duration and scope, to keep delivering tangible results and assist with managing costs
- Data Conversion is always the long pole in the tent
- While consultants can do these projects in 2-3 years, States' can often only absorb these large projects at a certain rate, often pushing the project out to 5 years; This was further verified by a Deloitte RFI response to FLA



Additional information in the form of the consortium VT was formerly involved with (MD and WV, who are now contracting with Sagitec), shows a much higher project cost as per the chart below:

Time Period	Cost
10/1/2015 – 6/30/2020 (Base Period of 4 years, 8 months)	\$49,195,338 (Base Period)
7/1/2020 – 6/30/2021 (Option Period #1)	\$ 5,919,995 (Option Period #1)
7/1/2021 – 6/30/2022 (Option Period #2)	\$ 6,068,279 (Option Period #2)
7/1/2022 – 6/30/2023 (Option Period #3)	\$ 9,447,533 (Option Period #3)
Total	\$70,631,145

- See the following link for more information: <http://bpw.maryland.gov/MeetingDocs/2015-Sept-16-Agenda.pdf>

In comparison, this project is budgeted as follows:

- a. Implementation Services: \$9.4M
 - i. IDOL: **\$3.5M** over a 2 year period
 - ii. Contingency: **\$1M**
 - iii. Mathtech: **\$5M**

If we multiply that by \$9.4M by the 3 states, we get approximately \$30M, which is as much as ~60% lower than costs of similar projects.

We conclude that the data shows that the VT project costs are likely to be higher than budgeted.

3. Comparison with Other Bidders:

There were no other bids to compare to the costs of this project as this project was not put out to bid.

5.2 Cost Comparison

How do the above Acquisition Costs compare with others who have purchased similar solutions (i.e., is the State paying more, less or about the same)?

Point of Comparison	Measure
Hourly Rates:	Rates are comparable compared to market rates for the stated hourly rates as well as the effective rates for internal state staff.
Similarly Scoped Projects:	Data from similarly scoped projects show that insufficient schedule and budget have been allocated to this project.
Comparison with other bidders:	Cost data not available from other bidders as no other bids sought.

5.3 Cost Assessment

Are the Acquisition Costs valid and appropriate in your professional opinion? List any concerns or issues with the costs.

Rates for stated hourly rates and effective hourly rates are **comparable**, while comparisons to projects of similar scope demonstrate that the anticipated project duration does not account for what it will *actually* take to complete this project, therefore, **insufficient funding** is allocated to this project, as outlined in the Cost Comparison **Section 5.2**.

Additional Comments on Acquisition Costs:

None.

6. Technology Architecture Review

After performing an independent technology architecture review of the proposed solution, please respond to the following.

SUMMARY:

1. Implementation Services related to design, development, testing of iUS software by Idaho Department of Labor staff and their subcontractors
2. Hosting environment provided by internal VDOL data center
3. Contracted Project Management, Business Analyst, and Software Development staff supporting the project
4. Internal staffing supporting the project

See **Appendix 4** for detailed technology specifications.

1. State's IT Strategic Plan: Describe how the proposed solution aligns with each of the State's IT Strategic Principles:

- i. Leverage successes of others, learning best practices from outside Vermont.
- ii. Leverage shared services and cloud-based IT, taking advantage of IT economies of scale.
- iii. Adapt the Vermont workforce to the evolving needs of state government.
- iv. Apply enterprise architecture principles to drive digital transformation based on business needs.
- v. Couple IT with business process optimization, to improve overall productivity and customer service.
- vi. Optimize IT investments via sound Project Management.
- vii. Manage data commensurate with risk.
- viii. Incorporate metrics to measure outcomes.

b. The following describes how this project exploits these principles:

- i. Leverage successes of others, learning best practices from outside Vermont.
 1. *The iUS solution is proven and in use in Idaho. However, there are no other known instances of an organization assuming ownership of the iUS software and implementing it themselves.*
- ii. Leverage shared services and cloud-based IT, taking advantage of IT economies of scale.
 1. *This solution does not leverage cloud-based services in that, the application will be hosted in the VDOL data center.*
- iii. Adapt the Vermont workforce to the evolving needs of state government.
 1. *The proposed solution is expected to leverage best practices to streamline business processes. It is imperative that VDOL implement the solution to appropriately take advantage of these opportunities and not just automate current processes.*
- iv. Apply enterprise architecture principles to drive digital transformation based on business needs.
 1. *An Enterprise Architecture approach and toolset was used to develop V1 of iUS. It is expected that V2 will also leverage EA principles.*

- v. Couple IT with business process optimization, to improve overall productivity and customer service.
 - 1. *This project has not yet developed specific items that target business process optimization through technology, although the hope is that Idaho has provided such improvements in the software. VDOL will need to identify and implement those relevant to VDOL.*
- vi. Optimize IT investments via sound Project Management.
 - 1. *Both the vendor and SOV are expecting to provide sound Project Management services on this initiative.*
- vii. Manage data commensurate with risk.
 - 1. *The approach to Application and Data Security described above appears adequate. See Security section below for details.*
- viii. Incorporate metrics to measure outcomes.
 - 1. *See Section 4.2.*

2. Service Level(s): What is the desired service level for the proposed solution and is the technical architecture appropriate to meet it?

Service Levels are not yet defined either by IDOL or VDOL. See #10 below.

3. Sustainability: Comment on the sustainability of the solution's technical architecture (i.e., is it sustainable?).

A Windows Server/SQL Server based platform, built using the .NET development environment is expected to be sustainable.

4. License Model: What is the license model (e.g., perpetual license, etc.)?

The proposed solution consists of the following components:

- 1. **iUS Software:** Licensed from IDOL, as a non-exclusive, perpetual, nontransferable and nonassignable license:
 - (i) to use and modify the Source Code to create Derivative Products and
 - (ii) to use, reproduce, modify, install, and implement the Software, Source Code, and Derivative Products in development or public-facing production servers as one or more iUS Instances.

The terms of the license are set forth in the "iUS Licensing Agreement".
- 2. **SQL Server:** SQL Server 2014
- 3. **Miscellaneous 3rd party software:**
 - a. None

5. Security: Does the proposed solution have the appropriate level of security for the proposed activity it will perform (including any applicable State or Federal standards)? Please describe.

Security Architecture and Design: Describe the Vendor's proposed approach to support technical controls and technology solutions that must be secured to ensure the overall security of the System:

Application Security Model:

1. RBAC via Active Directory including restrictions on machines connecting to the system with privileged accounts.

Data Security Model:

1. NIST PII standards are encoded in the app.
2. Chain of custody destruction of physical media.

Static Code Review Findings:

None conducted.

Penetration Test Findings:

NMap port scanning, OpenVAS pen testing will be conducted. No results shows as of yet.

The approach to Application and Data Security described above appears adequate.

6. Hosting Environment

- a. The solution is expected to be hosted internally by VDOL in their data center on Green Mountain Drive in Montpelier, VT.
- b. See the **HOSTING** section in **Appendix 4** for details.

7. Compliance with the Section 508 Amendment to the Rehabilitation Act of 1973, as amended in 1998:

Comment on the solution's compliance with accessibility standards as outlined in this amendment.

Reference: <http://www.section508.gov/content/learn>

The solution is not compliant with this Act.

Other Compliance Requirements:

WORKFORCE INNOVATION AND OPPORTUNITY ACT (referred to as WIOA or the Opportunity Act): WIOA was signed into law on July 22, 2014. WIOA is designed to help job seekers access employment, education, training, and support services to succeed in the labor market and to match employers with the skilled workers they need to compete in the global economy. WIOA supersedes Titles I and II of the Workforce Investment Act of 1998 and amends the Wagner-Peyser Act and the Rehabilitation Act of 1973. WIOA guidance is informed by TRAINING AND EMPLOYMENT GUIDANCE LETTERS known as TEGs.

Guidance is informed by UNEMPLOYMENT INSURANCE PROGRAM LETTERS, known as UIPLs, to advise states of temporary changes to the permanent federal-state extended benefits (EB) program. Regulations include Unemployment Compensation Extension Act of 2008, Public Law 110-449; the Federal-State Extended Unemployment Compensation Act of 1970 ("EB law"), 26 U.S.C. 3304(a)(11) note; and 20 CFR Part 615.

- 8. Disaster Recovery:** What is your assessment of the proposed solution's disaster recovery plan; do you think it is adequate? How might it be improved? Are there specific actions that you would recommend to improve the plan?

National Life Data Center is BC/DR Site. RPO not yet defined. RTO of 20 hours. Please see DR/BC section described in **Appendix 4**.

We are unable to provide an overall assessment of the DR plan, as it is not yet completed. The DR plan is expected to be developed during the project timeline, which while not ideal because unknown items may arise which could impact scope/budget/timeline, it is reasonable to do this work during the project.

9. **Data Retention:** Describe the relevant data retention needs and how they will be satisfied for or by the proposed solution.

Not yet defined. Please see DR/BC section and specific Backup section described in **Appendix 4**.

We are unable to provide an overall assessment of the Data Retention plan, as it is not yet completed. The Data Retention plan is expected to be developed during the project timeline, which while not ideal because unknown items may arise which could impact scope/budget/timeline, it is reasonable to do this work during the project..

10. **Service Level Agreement:** What is your assessment of the service level agreement provisions that the proposed vendor will provide? Are they appropriate and adequate in your judgment?

There are no specific service level agreements defined. We are unable to provide an overall assessment of the Service Level Agreements, as they are not yet completed. The Service Level Agreements are expected to be developed during the project timeline.

Specific SLAs are described below:

1. **TECH SUPPORT - SERVICE LEVEL AGREEMENT:** 8:00 to 5:00 MT M-F for IDOL. TBD for VDOL.
2. **SYSTEM RESPONSE TIME - SERVICE LEVEL AGREEMENT:** TBD
3. **SYSTEM AVAILABILITY - SERVICE LEVEL AGREEMENT (3 9s, 4 9s?):** TBD
4. **BUG FIX – SERVICE LEVEL AGREEMENT:** TBD via iUS consortium
5. **HOSTING SERVICE LEVEL AGREEMENT:** N/A
6. **DR/BC DESCRIPTION AND SERVICE LEVEL AGREEMENT:** TBD

11. **System Integration:** Is the data export/reporting capability of the proposed solution consumable by the State? What data is exchanged and what systems will the solution integrate/interface with? **Please create a visual depiction** and include as **Appendix 1A** of this report. Will the solution be able to integrate with the State's Vision and financial systems (if applicable)?

See **Appendix 1A** for details on the *whats* and *hows* of data integration.

The methods used (flat files currently used by State) and Web Services are expected to be consumable.

Additional Comments on Architecture:

None.

7. Assessment of Implementation Plan

7.1 Implementation Readiness

After assessing the Implementation Plan, please comment on each of the following.

This section begins with a description of the Project Governance model in order to provide some background for the specific content provided in this section.

The iUS Governance Organizational Roles and the decisions that they make include:

- **Board of Directors (The Board)*:** The Board of Directors makes decisions that affect the overall iUS project. These decisions include scope, schedule, budget, contract, etc. The Board is ultimately responsible for all project decisions. Each Member State will designate one person to serve on the Board.
- **Consortium Project Committee (CPC)*:** The Consortium Project Committee ("CPC"), which is subject to the direction and control of the Board, and supervision by the CPC Executive Director, is responsible for the day-to-day activities and operations of the Consortium, including successful completion of the Project. Each State shall designate three (3) persons to sit on the CPC on its behalf, two (2) of whom shall have technical expertise, and one (1) of whom shall have business expertise. The CPC shall be responsible for carrying out the directives of the Board, assisting IDOL's iUS Project Team as requested in the modifications of the iUS Core to create iUS Instances, manage the schedules, create a system of accountability for the entire project team, develop and manage change order methodologies, develop strategies to educate and train state staff as appropriate regarding migration to iUS instances, and other tasks or responsibilities as directed by the Board. The CPC shall develop a proper organization for operation of that committee and shall present the organization to the Board for approval.
- **CPC Executive Director.** In addition to the nine members of the CPC (described above), IDOL's iUS Project Team Administrator shall serve as CPC's Executive Director. Except as limited by the unanimous vote of the Board, or other provisions herein, the CPC Executive Director shall have full authority to manage all employees, Vendors and agents of the Parties who are engaged in the Project, to call and preside over meetings of the CPC, and to manage the activities of the CPC.
- **State Director*:** The State Directors make decisions on State specific scope, schedule, budget, and resources. Any state specific decisions that will affect the iUS critical path or budget require that the State Director (or their designee) submit a Change Request to the Board.
- **State PM*:** The State PMs make recommendations for state specific scope, schedule, budget, project management processes and resources. Any state specific decisions that will affect the iUS critical path or budget require that the PM submit a Change Request to the CPC. The PMs also provide recommendations to the Board, CPC, Executive Director, and State Director. This plan anticipates that all State PMs will serve as members of the CPC.
- **Business Leads*:** The Business Leads from each state make decisions on business processes. They provide recommendations for project resources and deliverable acceptance.
- **SMEs*:** The Subject Matter Experts decide on requirement fulfillment (via testing) and user experience (screen design)

Project Governance Decision-Making Charts:

Governance Decision Making	Decisions						
	Functional Requirements	User Experience	Project Management Requirements	Technical Requirements	Execution Requirements	Business Process	Deliverable Acceptance
Board of Directors				D-IUS	D-IUS		D-IUS
Consortium Project Committee/Executive Director			D-IUS	D-IUS	D-IUS		D-IUS
State Director				D-State	D-State		D-State
State PM			D-State		R		R
Business Leads						D-IUS/State	R
SMEs	D-IUS/State	D-IUS/State				R	R
Decision Maker > \$5000 or one week							
Decision Maker < \$5000 or one week							
Recommendation Maker							

Governance Decision Making	Decisions						
	Change Requests	Policy and Procedure	Schedule	Budget	Training	Contract	Resources
Board of Directors	D-IUS	D-IUS	D-IUS	D-IUS	D-IUS	D-IUS	D-IUS
Consortium Project Committee/Executive Director	D-IUS	D-IUS	D-IUS	D-IUS	D-IUS	D-IUS	D-IUS
State Director	D-State	D-State	D-State	D-State	D-State	D-State	D-State
State PM		R	R		R		D
Business Leads		R			R		R
SMEs							
Decision Maker > \$5000 or one week							
Decision Maker < \$5000 or one week							
Recommendation Maker							

1. The reality of the implementation timetable

- a. The contract with Idaho contemplates a 24 month period (roughly 7/1/2016 through 6/30/2018).
- b. See **Section 4.3** for Deliverables.
- c. See **Section 4.4** for Milestones.
- d. This is an aggressive schedule given the number of unknowns, as the approach is an Agile method, and as such, the “we’ll cross that bridge when we get there” approach puts VDOL in a position of coming upon unanticipated volumes of work. Further, to be clear, there is not expected to be incremental deliverables placed into production as is often the case when Agile is used.

Milestone/Deliverable	Target Delivery Date or Range
Project Start Date	August, 2015
Signed MOU and contract	December, 2015 (anticipated 8/1/2016)
Requirements Definition/Gap Analysis/Planning	July, 2017
CORE iUS Benefit system components	December, 2017
CORE iUS Tax system components	February, 2018
State specific modules	February, 2018
Revised Idaho components	February, 2018
State specific interfaces	February, 2018
Converted Vermont Data	June, 2018
Vermont Training	May - June, 2018
Implementation	June, 2018
Project End Date	June, 2018

A more recent version of this in graphic form is outlined below, and is from a development team viewpoint, listing 4 development teams:

	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17
Dev 1	Benefits State Specific Modules						Appeals SSM			Reports SSM			Integration Testing	UAT	Implementation, Knowledge Transfer, Training			
Dev 2	Tax State Specific Modules									Fraud								
Dev 3	PI State Specific Modules						Finance SSM			Graphics/VDOL Web								
Dev 4	Data Conversion/State Specific Interfaces																	

2. Training of users in preparation for the implementation

VDOL will train their users. It is expected that much of the training material are the existing user guides/manuals developed by IDOL.

VDOL's approach is to utilize participants from the Sprints, Integration, and UAT to implement and execute a train-the-trainer approach. VDOL wants to conduct Just-In-Time training in the 2 months prior to implementation.

Any technical training will be done through WebEx, hands-on, and code reviews to share application knowledge and system architecture.

The Training Plan appears effective.

3. Do the milestones and deliverables proposed by the vendor provide enough detail to hold them accountable for meeting the Business needs in these areas:

- A. Project Management
- B. Training
- C. Testing
- D. Design
- E. Conversion (if applicable)
- F. Implementation planning
- G. Implementation

Please see Deliverables Section (**Section 4.3**) and Milestones Section (**Section 4.4**) for detail on Milestones and Deliverables.

The short answer is no, there is not enough detail to hold the vendor accountable. This is due to the approach expected to be used, which is an Agile SCRUM process. Using the SCRUM software development approach, the business analyst working with the product owners will establish a backlog of prioritized enhancements or changes. Each sprint will be assigned specific work to be developed.

There will be many interim deliverables through the design, development, and testing of the Project Backlog. As part of the SCRUM process, the Sprint teams identify acceptance criteria. As part of the testing process, the testers confirm that the completed Backlog item meets its acceptance criteria. The project teams identify and classify these interim deliverables and their associated acceptance criteria over the balance of the project.

Some work has been done to identify gaps between Idaho and VDOL required functionality, but an entire assessment has not been done, and therefore, the entire scope of work and definition of the deliverables to be completed has not been done.

4. Does the State have a resource lined up to be the Project Manager on the project? If so, does this person possess the skills and experience to be successful in this role in your judgement? Please explain.

- a. State of VT is well positioned regarding Project Management, both in terms of skill set as well as time allocation to this project:
 - i. The State has contracted with Mathtech for Project Management services. John Senk will fill that role and is assigned 100% of his time to this project.
 - ii. The team will use the PMI PMBOK model, and Mathtech Project Management Processes and Tools (based on PMI PMBOK) to manage the project.
 - iii. Mr. Senk has produced a solid Project Management plan for this project, which is represented by the following PM Plan documents reviewed during this Independent Review:
 - 1. Project Charter
 - 2. Work Breakdown Structure (defines the project’s deliverables and/or those components needed to manage the project)
 - 3. Governance Plan
 - 4. Deliverable Review and Acceptance Management Plan
 - 5. Change Management Plan
 - 6. Scope Management Plan
 - 7. Schedule Management Plan
 - 8. Issue Management Plan
 - 9. Risk Management Plan
 - 10. Staffing Management Plan
 - 11. Communications Management Plan
 - 12. Stakeholder Management Plan
 - 13. Quality Management Plan
- b. In summary, Project Management approach, resources, time allocation and skill set, are adequate.

5. Readiness of impacted divisions/departments to participate in this solution/project

- a. VDOL has assembled a team for this project as outlined below. This is the largest project undertaken by most of the people on this team.

Staff	Role	Experience	Similar Projects
Annie Noonan	Project Sponsor	6	X
Cameron Wood	Project Director /Vermont’s member of the iUS Consortium’s Board of Directors	2	X
Kris Murphy	Vermont Product Owner – Taxes	6	X
Darcy Hamlin	Vermont Product Owner - Budget	6	X
Robin Powers	Project Office Analyst – Program Integrity	6	X

Sheryl Stuart	Project Office Analyst – Performance and Compliance	6	X
Melissa Jenkins	Project Office Analyst – Finance	6	X
Heather Judd	Administration/Coordinator	2	X
DOL UI Staff	Subject Matter Experts	6	X
Tom Tomasi	IT Operations Lead	35+	UI Modernization Guide System Installation (VABS/CATS)
William Sipsey	Tech Lead	20+ years	X
John Senk	Project Manager/Scrum Master	30+ years	<ul style="list-style-type: none"> • ImmPACT (see above) • T-MSIS (see above) • VMW (see above) • NJ Success – NJ’s UI Modernization • NJ MATRX – NJ’s DMV Modernization
Sanchita Banerjee	Lead Business Analyst	8+ years	<ul style="list-style-type: none"> • MA Medicaid Modernization • CA – UI Modernization • VMW • Genworth – Medicare Modernization
4 FTE – Mathtech	Software Development	TBD	

The vendor team includes:

- a. Mark Mayfield - Executive Director, prior Adjudication Bureau Chief, iUS V1 Benefits Project Manager
- b. Joel Allen – IT Manager
- c. Technical development team is composed of 10 dedicated developers
- d. Don Arnold – Tax Project Manager – supervising 2 subject matter experts
- e. Nick Smith - Benefits Project Manager - supervising 2 subject matter experts
- f. Sarah McCarty – Technical Writer

- b. Mathtech developed and documented a draft survey and approach for assessing organizational change readiness, but VDOL asked that Mathtech defer the Organizational Change Readiness Survey and Assessment to a later point in the project.

Based on our experience conducting Independent Reviews, when comparing this project to other technology projects, VDOL does not appear to be fully prepared to undertake a project of this scope. It is not clear where internal leadership is placed, and as such, too much weight is placed on external resources to provide leadership and subject matter expertise in the form of Mathtech and State of Idaho.

6. Adequacy of design, development, migration/conversion, and implementation plans

This section describes vendor's approach to design and development.

The project team is using a SCRUM/Agile based development methodology. The project team will use Microsoft's Team Foundation Server to document requirements. Requirements are identified through Epics, Features, Backlog, and Tasks. Starting with an Epic requirement description, the team elaborates and moves to lower/more detailed descriptions by working through the Features, Backlog, and Task layers.

The detailed requirements are documented in the Requirements Review Workshop folder and include the Use Cases developed when working with the VMW consortium.

This section describes vendor's approach to System Integration.

VDOL is responsible for defining and executing the requirements and delivery of all interfaces between iUS (Core and State Modules) and external systems. See the systems as listed in **Appendix 1A**.

This section describes vendor's approach to Conversion/Migration.

VDOL is responsible for defining and executing the conversion/migration of all data from external sources into iUS (Core and State Modules). See the systems as listed in **Appendix 1B**.

Idaho recommends conducting as many rounds of conversion as possible to increase data accuracy. However, each State is responsible for this activity.

This section describes vendor's approach to Implementation.

In summary, the Implementation approach appears sound and adequate.

As noted above, the implementation approach to be used for this project is summarized as follows:

There will be many interim deliverables through the design, development, and testing of the Project Backlog. As part of the SCRUM process, the Sprint teams identify acceptance criteria. As part of the testing process, the testers confirm that the completed Backlog item meets its acceptance criteria. The project teams identify and classify these interim deliverables and their associated acceptance criteria over the balance of the project.

Additionally, there is a formal **Deliverable Review and Acceptance Management Plan** that describes the processes for identifying all project deliverables, identify acceptance criteria for each deliverable, define review times for different types of deliverables, accept or reject the deliverable, and on acceptance, provide documentation for payment. However, as noted, the Deliverables are not defined and are not in the contract.

There are three processes provided in this plan: Mathtech, Vermont iUS, and iUS CORE Deliverable Acceptance.

The Vermont's UI Director is responsible for reviewing and authorizing acceptance for Mathtech's deliverables. iUS deliverables require review by the Consortium Project Committee or the Board of Directors (depending on the deliverable).

As part of the approach to Implementation, a formal **Change Management Plan** is in place, and described below.

There are three variations to the Change Management Plan:

- **iUS CORE Project Changes** – Changes to the CORE component of the project
 - Any change to the project that affects the project's critical path by more than a week and/or increases project cost by \$5000 or more, requires the requestor complete the Change Order, a review of the Change Order by the **Consortium Project Committee/Executive Director**, and adjudication (approval or rejection) by the **Project Board**. The **Consortium Project Committee/Executive Director** can review and approve all changes that are less than \$5000 or do not affect the project's critical path by more than a week.

iUS CORE Change Management						
	Change Identification	Develop Change Requests	Change Assessment	Change Approval	Change Status Notification	Change Management Administration
iUS Board of Directors	R	R	I	A > \$5000	R	I
iUS Consortium Project Committee	R	R	R	A < \$5000	R	R
iUS Executive Director	R	R	R	C	C	R
iUS Project Team	R	R	I	I	I	I
Responsible						
Approver						
Contributor						
Informed						

- **Vermont iUS Project Changes** – Changes to the Vermont specific deliverables in the iUS Project (e.g. State Specific Modules, State Interfaces, Hosting, etc.)
 - Any change to Vermont's iUS project deliverables or Mathtech's deliverables or contract require submission of a Change Order by the State/Mathtech PM to VT's UI Director. The UI Director will decide whether to reject or approve the Change Request.

iUS Vermont Change Management		Change Identification	Develop Change Requests	Change Assessment	Change Approval	Change Status Notification	Change Management Administration
VT UI Director		R	R	I	A	R	I
State PM		R	R	R	I	I	R
State Project Team		R	R	I	I	I	I
	Responsible						
	Approver						
	Contributor						
	Informed						

- **Mathtech Project Changes** – Changes to Mathtech’s deliverables or to Mathtech’s contract
 - Ditto

Mathtech Change Management		Change Identification	Develop Change Requests	Change Assessment	Change Approval	Change Status Notification	Change Management Administration
VT UI Director		R	R	R	A	R	I
PM - Mathtech		R	R	C	I	I	R
BA - Mathtech		R	R	I	I	I	I
	Responsible						
	Approver						
	Contributor						
	Informed						

As core changes are approved, the base code will be made available to each state. However, each State will implement the solution based upon their specific time frames.

Further, while Idaho recommends 3 to 4 months for parallel testing, with completed conversion parallels at least every 2 weeks, it is ultimately up to each State.

7. Adequacy of support for design, development, conversion/migration, and implementation activities

a. DESIGN/DEVELOPMENT:

- i. The contract is not specific in defining vendor’s role in this area. Therefore, this area is inadequate.

b. CONVERSION/MIGRATION:

- i. VDOL is responsible for this activity. In speaking with a CapGemini UI consultant, this area is the ‘long pole in the tent’, and often takes several years for this area to be completed.

Given the staffing level and project plan, this area is inadequate.

c. IMPLEMENTATION:

- i. The contract is not specific in defining vendor's role in this area. Therefore, this area is inadequate.

8. Adequacy of agency and partner staff resources to provide management of the project and related contracts (i.e. vendor management capabilities)

- a. VDOL has assigned 100% of John Senk's time from Mathtech as Project Manager.
- b. IDOL is expected to assign 20 FTE for 2 years to this project (40 FTEs total).
- c. This is the largest project of its kinds, in terms of scope, budget, and subject matter (software development and implementation) undertaken by VDOL.
- d. In summary, VDOL has no demonstrable experience managing a project of this scope and complexity, and while Mathtech has some experience with projects of this size, it is imperative that VDOL have their hand on the rudder on this project, and not rely on Mathtech to be the driver.

9. Adequacy of testing plan/approach

Test plans and test cases will be developed by both IDOL and VDOL as follows:

- IDOL will develop test plans and conduct testing on iUS Core Modules. In version 1 and up to this time the current production system has upwards of 2,000 manual or automated test case scenarios which will be leveraged for common state functionality. Current test cases are scheduled to be incorporated during the development of iUS 2.0.
- VDOL will develop test plans and conduct testing on iUS State Specific Modules and owns overall responsibility for UAT (User Acceptance Testing).
- The team will use Team Foundation Server to support testing.

10. General acceptance/readiness of staff

There is an Organizational Change Readiness Survey and Organization Change Assessment document on the SharePoint site. As of the time of this writing, the results of those efforts have not been completed.

As noted, as this is the largest project undertaken by many of the project participants, and the team is understaffed from a resource standpoint, it appears the organizationally, VDOL is not prepared to undertake a project of this scope and duration.

Additional Comments on Implementation Plan:

None.

7.2 Risk Assessment & Risk Register

After performing a Risk assessment in conjunction with the Business, please create a **Risk Register** as an **Appendix 2** to this report that includes the following:

1. **Source of Risk:** Project, Proposed Solution, Vendor or Other
2. **Risk Description:** Provide a description of what the risk entails
3. **Risk ratings to indicate:** Likelihood and probability of risk occurrence; Impact should risk occur; and Overall risk rating (high, medium or low priority)
4. **State's Planned Risk Strategy:** Avoid, Mitigate, Transfer or Accept
5. **State's Planned Risk Response:** Describe what the State plans to do (if anything) to address the risk
6. **Timing of Risk Response:** Describe the planned timing for carrying out the risk response (e.g. prior to the start of the project, during the Planning Phase, prior to implementation, etc.)
7. **Reviewer's Assessment of State's Planned Response:** Indicate if the planned response is adequate/appropriate in your judgment and if not what would you recommend.

See Appendix 2.

Additional Comments on Risks:

None.

8. Cost Benefit Analysis

This section involves four tasks:

- 1) Perform an independent Cost Benefit Analysis.
- 2) **Create a Lifecycle Cost Benefit Analysis spreadsheet** as an **Appendix 3** to this report. A sample format is provided.
 - a) The cost component of the cost/benefit analysis will include all one-time acquisition costs, on-going operational costs (licensing, maintenance, refresh, etc.) plus internal costs of staffing and "other costs". "Other costs" include the cost of personnel or Vendors required for this solution, enhancements/upgrades planned for the lifecycle, consumables, costs associated with system interfaces, and any costs of upgrading the current environment to accept the proposed solution (new facilities, etc.).
 - b) The benefit side of the cost/benefit will include: 1. Intangible items for which an actual cost cannot be attributed. 2. Tangible savings/benefit such as actual savings in personnel, Vendors or operating expense associated with existing methods of accomplishing the work which will be performed by the proposed solution. Tangible benefits also include additional revenue which may result from the proposed solution
 - c) The cost benefit analysis will be for the IT activity's lifecycle.
 - d) The format will be a column spreadsheet with one column for each year in the lifecycle. The rows will contain the itemized costs with totals followed by the itemized benefits with totals.
 - e) Identify the source of funds (federal, state, one-time vs. ongoing). For example, implementation may be covered by federal dollars but operations will be paid by State funds.
- 3) Perform an analysis of the IT ABC form (Business Case/Cost Analysis) completed by the Business.
- 4) Respond to the questions/items listed below.

1. **Analysis Description:** Provide a narrative summary of the cost benefit analysis conducted: The approach used was to gather all costs associated with project for a 10 year period, identify revenue sources for the project, and identify tangible and intangible benefits that might also be used as revenue sources or expense reductions.
 - a. **COST COMPONENT:** See the attached spreadsheet referenced in **Appendix 3** to gain an understanding of:
 - i. Source of Funds
 - ii. Use of Funds
 - iii. Change in Operating Costs
 - b. **BENEFIT COMPONENT:**
 - i. See the Tangible and Intangible Benefits described below.
2. **Assumptions:** List any assumptions made in your analysis.
 - a. Staff reductions are not expected or contemplated through the implementation of this solution.
 - b. There is no revenue recovery anticipated.
 - c. Costs are segmented into **Project Cost** and **Operational Costs**
3. **Funding:** Provide the funding source(s). If multiple sources, indicate the percentage of each source for both Acquisition Costs and on-going Operational costs over the duration of the system/service lifecycle.
 - a. The primary source of funds include, the following, the detailed amount from which are specified in the attached Project Cost spreadsheet referenced in **Appendix 3:**

FUNDING SOURCE	% of TOTAL	FUNDING SOURCE DESCRIPTIONS	FUNDING APPLIED TO (Implementation or Operations)	FUNDING AMOUNT
FEDERAL FUNDING: UI Modernization Grants Funds from 2010;	57.47%	ARRA Funds; Fund #Section 903(f) of SSA ARRA of 2009 Public Law 111-5; 100% Federal UI Modernization Funds; Original amount: \$9,278,599. To date only \$7,412.76 in expenditures have been applied to this source.	Implementation	\$7,573,982
FEDERAL FUNDING: Federal Grant Funds (Unemployment Insurance Program Letter 2413 (MD/WV) - Original: \$6M; Retained \$2.26M for Implementation (MathTech)	16.89%	Fund#: UI239241355A50 / UI239240J0; Specific to UI Consortium Funds. Funds are Obligated to MathTech Services (PM, BA and Developers)	Implementation	\$2,226,110
FEDERAL FUNDING: Federal Grant Funds (Unemployment Insurance Program Letter 1314 - \$1.25M - Implementation)	9.48%	Fund #: UI264261460A50 / UI26426S20; UI Modernization Consortium Activities. All but \$342,030 in funds are Obligated to MathTech Services (PM, BA and Developers). The remaining funds support inhouse expenses (software, hardware, staff, etc).	Implementation	\$1,250,000
FEDERAL FUNDING: UI Administration Grant for Operations (Staff, Software Maintenance, etc.) – \$7.3M in FY2016	16.15%	Fund#: UI280091655A50 / UI280093K0 (F16); Funds cover all UI operation and maintenance expenditures (including line staff and IT cost).	Operations	\$2,128,640
TOTAL:	100.00%			\$13,178,732

Implementation Costs and Funding:	\$11,050,092
Operational Costs and Funding:	\$2,128,640
TOTAL:	\$13,178,732

4. **Tangible Benefits:** Provide a list and description of the tangible benefits of this project. Tangible benefits include specific dollar value that can be measured (examples include a reduction in expenses or reducing inventory, with supporting details).
- a. Annual Operating Costs are shown to decrease in the Project Cost spreadsheet. See the Project Cost Spreadsheet for detail.

5. **Intangible Benefits:** Provide a list and description of the intangible benefits of this project. Intangible benefits include cost avoidance, the value of benefits provided to other programs, the value of improved decision making, public benefit, and other factors that become known during the process of analysis. Intangible benefits must include a statement of the methodology or justification used to determine the value of the intangible benefit.
- a. Reduced Infrastructure Costs
 - b. Decreased Maintenance & Support Costs
 - i. Modernized applications that are easier to fix
 - ii. Technology - easy to find qualified staff or Vendors to assist with system rather than antiquated mainframe systems
 - c. Reduced Use of Paper and/or Other Supplies
 - d. Reduction in operation cost by the elimination of several manual processes
 - e. Improved Customer Service
 - f. Improved Communication with Customers &/or Partners
 - g. Meeting Federal Compliance
 - h. Eliminating Non-Value Added Activities
 - i. Increasing Employee and Process Productivity
 - j. Simplifying Processes and Workflow Steps
 - k. Improving Application/System Performance & System Utilization Rate
 - l. Increasing System Reliability
 - m. Strengthening Security (Application, Data &/or System)
6. **Costs vs. Benefits:** Do the benefits of this project (consider both tangible and intangible) outweigh the costs in your opinion? Please elaborate on your response.
- a. There are no tangible dollar benefits with this project.
 - b. There is no monetary value assigned to the intangible benefits.
 - c. We calculate an average annual savings of **\$480K** over an 8 year time span, showing an 8 year operating cost savings of **\$3.8M**.
 - d. While the monetary benefits outweigh the costs over the long term, it will take 27 years to break-even (\$13M cost divided by \$480K annual operating cost savings). As such, monetary benefits should not be the reason to pursue this project.

7. **IT ABC Form Review:** Review the IT ABC form (Business Case/Cost Analysis) created by the Business for this project. Is the information consistent with your independent review and analysis? If not, please describe.
- a. Reviewed the IT ABC Form (*ABC_VDOL_UIM iUS_20160406_F.pdf*) dated 12/21/2015 and related project cost spreadsheet.
 - b. It is a comprehensive and fairly detailed cost analysis. Both the Implementation and Operational cost totals were compared to the IR Project Cost Spreadsheet, and the numbers are comparable.

Additional Comments on the Cost Benefit Analysis:

No additional comments.

9. Impact Analysis on Net Operating Costs

- 1.) Perform a lifecycle cost impact analysis on net operating costs for the agency carrying out the activity, minimally including the following:
 - a) Estimated future-state ongoing annual operating costs, and estimated lifecycle operating costs. Consider also if the project will yield additional revenue generation that may offset any increase in operating costs.
 - b) Current-state annual operating costs; assess total current costs over span of new IT activity lifecycle
 - c) Provide a breakdown of funding sources (federal, state, one-time vs. ongoing)
- 2.) Create a table to illustrate the net operating cost impact.
- 3.) Respond to the items below.

As noted in **Section 1.1** above, the Cost Summary for this project is:

IT Activity Lifecycle:	10 Years
Total Lifecycle Costs:	\$ 13M
PROJECT COSTS:	\$11M
Software Costs:	\$0
Hardware Costs:	\$3K
Implementation Services:	\$9.4M
Contracting with Idaho:	\$4.5M (\$3.5M plus \$1M contingency)
Contracted Project Management Services:	\$1.3M
Contracted Business Analyst Services:	\$960K
Contracted Programming Services:	\$2.6M
Travel:	\$128K
Internal Staffing Costs:	\$1.1M
OPERATING COSTS:	\$2M
Programming Resources:	\$0
Hardware Costs:	\$32K
Internal Staffing Costs:	\$2M
CURRENT OPERATING COSTS:	\$7M
Difference Between Current and New Operating Costs:	\$5M
Funding Source(s) and Percentage Breakdown if Multiple Sources:	See table below

Funding Source(s) and Percentage Breakdown if Multiple Sources:

FUNDING SOURCE	% of TOTAL	FUNDING SOURCE DESCRIPTIONS	FUNDING APPLIED TO (Implementation or Operations)	FUNDING AMOUNT
FEDERAL FUNDING: UI Modernization Grants Funds from 2010;	57.47%	ARRA Funds; Fund #Section 903(f) of SSA ARRA of 2009 Public Law 111-5; 100% Federal UI Modernization Funds; Original amount: \$9,278,599. To date only \$7,412.76 in expenditures have been applied to this source.	Implementation	\$7,573,982
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FEDERAL FUNDING: UI Administration Grant for Operations (Staff, Software Maintenance, etc.) – \$7.3M in FY2016	16.15%	Fund#: UI280091655A50 / UI280093K0 (F16); Funds cover all UI operation and maintenance expenditures (including line staff and IT cost).	Operations	\$2,128,640
TOTAL:	100.00%			\$13,178,732

1. See the spreadsheet attached in **Appendix 3** to review impact to Operating Costs.
2. Provide a narrative summary of the analysis conducted and include a list of any assumptions.
 - a. The detailed spreadsheet provided with this analysis breaks out costs as follows:
 - i. Implementation (Project) Costs: Costs tied specifically to the Vendor. In other words, those costs that are incurred because we are undertaking the project.
 - ii. Operating Costs: Internal costs, consisting of staffing and telecommunication costs, and external costs consisting of contracted services and on-going use of the software and related hosting.
 - iii. Total Costs: Project Costs plus Operating Costs.
 - b. The TOTAL COSTS are broken out as **IMPLEMENTATION (Project) COSTS** and **OPERATING COSTS**.
3. Explain any net operating increases that will be covered by federal funding. Will this funding cover the entire lifecycle? If not, please provide the breakouts by year.
 - a. All costs are supported by Federal funding. Operating costs decrease.
4. What is the break-even point for this IT Activity (considering implementation and on-going operating costs)?
 - a. The break-even point is 27 years (\$13M cost divided by \$480K annual operating cost savings).

Appendix 1A - System Integration

SYSTEM INTEGRATION/INTERFACES

There are three types of data interfaces/exchanges in iUS:

1. iUS Core Interfaces: Typically, these are USDOL or other Federal interfaces common to all States. ICON (out of state wages) and SIDES (employee separation information) are typical interfaces in this category. The Consortium is responsible for these interfaces and all of these are in the current iUS product. **There are approximately 15 of these interfaces.**
2. iUS State Specific Interfaces: These are State Specific interfaces to external entities that provide data to the **iUS CORE components**. Vermont's interface to its bank (Peoples Bank) or to Vermont's DMV (identity verification) are examples of these interfaces. The current iUS product handles all of these today for Idaho. Vermont is responsible for providing the linking address information to these interfaces and working with the sending/receiving agency or organization to review and revise related file layouts so that they interface with the iUS CORE system. **There are approximately 20 of these interfaces.**
3. Vermont Data Exchanges: There are State Specific Interfaces/exchanges to external entities that largely received data from Unemployment Insurance. For example, Vermont HHS receives benefit information from DOL to determine monetary eligibility for HHS benefits. Vermont is responsible for these data exchanges. In large part, these are extracts from the iUS database. **There are approximately 18 of these interfaces**

Approach

Interfaces in scope or out of scope are determined by the Product Owner. For the most part they include all interfaces required to allow for existing systems to continue functioning when the previous application is retired.

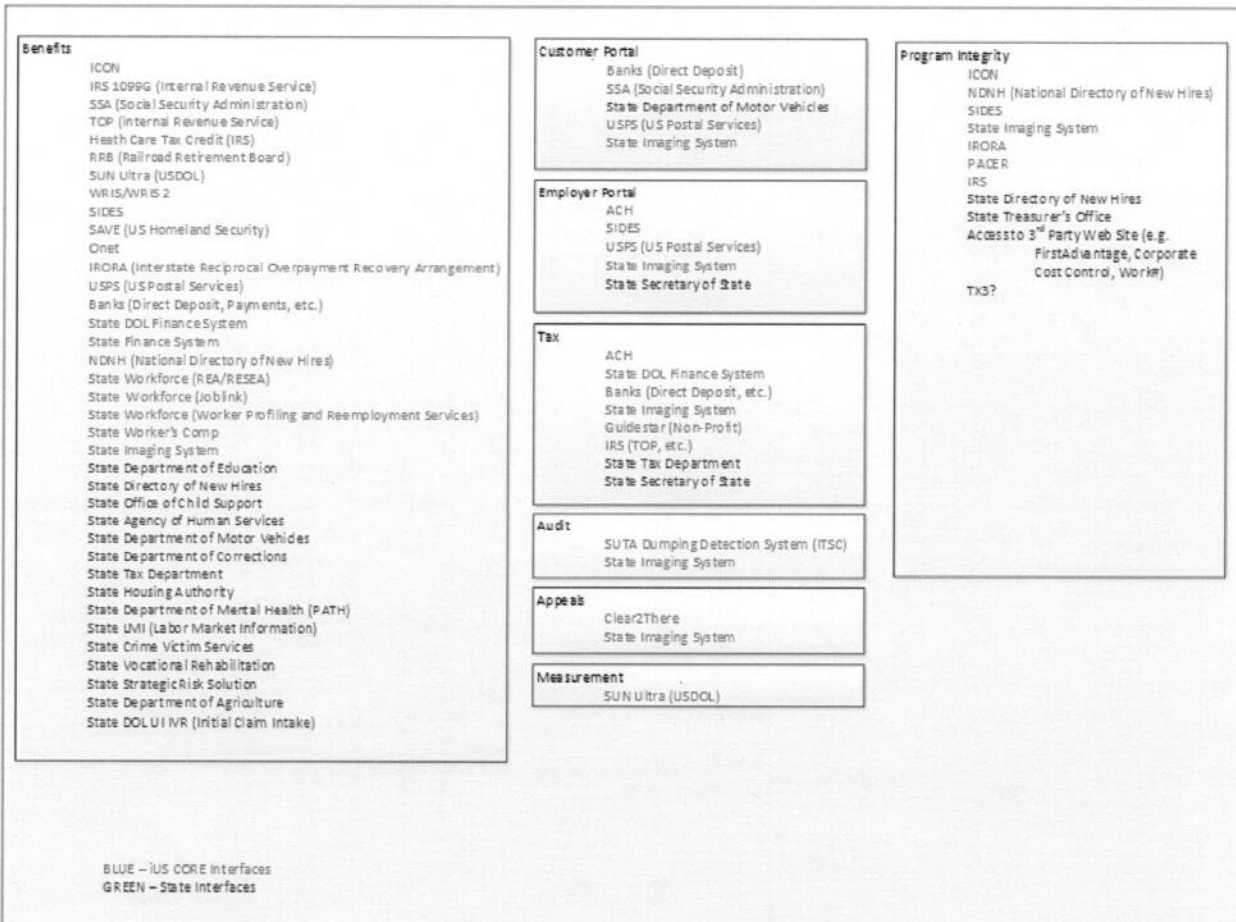
iUS will use Web Services to provide data. The goal is to maintain a standard interface for data exchange.

In addition to the Web Services already mentioned, Flat Files are another method, as well as the potential of an Enterprise Connector micro app.

Current interfaces are supported via reports that are used to generate flat files: Currently wage record data is transmitted to AHS/DCF/ISD ACCESS System via a report that is pulled from the mainframe and placed on a SFTP site. The report is parsed and data imported to their respective databases via an automated ETL (Extract/Transform/Load) step.

In addition, VDOL has opened a discussion with Iowa on their effort on a micro app interface to an Enterprise Integration/CRM system.

The chart below is a summary of systems to interface with:



The table below provides detail of the items in the chart above:

Type	Source	Interface	In iUS (CORE)	DOL Process Area	Description/Data Type
iUS	USDOL	Interstate Connection Network - ICON		Benefits	Wages
iUS	USDOL	LADT (Liable Agent Data Transfer) - ICON		Benefits	The Interstate Statistical Data Exchange (commonly called Liable/Agent Data Transfer (LADT)) supports the exchange of interstate initial claims and weeks claimed information by the liable state to the agent/residence state
iUS	USDOL	Combined Wage Claims - ICON		Benefits	Wages
iUS	USDOL	Interstate Benefits - ICON	In iUS	Benefits	Benefits
iUS	USDOL	IRORA (Interstate Reciprocal Overpayment Recovery Arrangement) - ICON	In iUS	Benefits/Program Integrity	Agreement among states to collect overpayments of unemployment benefits for each other
iUS	US Office of Child Support Enforcement (OCSE)	National Directory of New Hires (NDNH)	? Vermont does this through HHS and Child Support - does iUS does this directly or through a middleman	Benefits/Program Integrity	New Hire
iUS	US Internal Revenue Service	1099G (Internal Revenue Service -IRS)	? Idaho does not currently do this	Benefits	Tax withholding information
iUS	US Internal Revenue Service	Health Care Tax Credit (Internal Revenue Service -IRS)	? Idaho does not currently do this	Benefits	Health Care Tax Credit
iUS	NASWA (ITSC)	SUTA Dumping Detection System	?	Tax/Program Integrity	The SUTA Dumping Detection System (SDDS) is an automated system designed to help states detect employers who may be engaged in SUTA dumping
iUS	US Department of Treasury	Treasury Offset Program -TOP (Internal Revenue Service - IRS)	In iUS	Benefits	Benefit information to offset delinquent debts owed to federal agencies and states (including past-due child support)
iUS	US Railroad Retirement Board	Railroad Retirement Board (RRB)	In iUS	Benefits	File of data provided by the Railroad Retirement Board used for crossmatch purposes with the

					agency's UI benefit data.
iUS	USDOL	(Sun) Ultra system provided by the United States Department of Labor (USDOL) - for BAM	In iUS	Benefits/Measurement	Random samples from three separate sampling frames constructed from the universes of UC claims for which eligibility was denied for monetary, separation, or nonseparation reasons.
iUS	US Social Security Administration	Social Security Number Check (Social Security Administration -SSA)	? Idaho does not currently do this	Benefit/Customer Portal	SSN
iUS	USDOL	Wage Record Interchange System (WRIS) - Clearing House	In iUS	Benefit/Customer Portal	Wages
iUS	USDOL	Wage Record Interchange System 2 (WRIS 2) - Shares wage data in aggregate form with Third Party Entities (TPE)	In iUS	Benefit	Wages
iUS	NASWA (ITSC)	State Information Data Exchange System - SIDES (ITSC)	In iUS	Benefits/Employer Portal	Non-Monetary Separation Determinations, Non-Monetary Separation Revisions, Non-Monetary Non-Separation Determinations, Non-Monetary Non-Separation Redeterminations, Non-Monetary Separation Withdrawals, Lower Authority Appeal Decision, Higher Authority Appeal Decision
iUS	US Homeland Security	SAVE System (Systemic Alien Verification for Entitlements - US Department of Homeland Security)	In iUS	Benefits	Citizenship status
iUS	USDOL	ONet Autocoder System (ONet System)	In iUS	Benefits	Assigns SOC-O*NET occupational codes to jobs, resumes and UI claims
iUS	US Postal Service	USPS	In iUS	Benefits/Customer Portal/Employer Portal	Address and zip code verification
Vermont iUS	Vermont iUS	Bank		Benefits	Debits, Credits, Direct Deposits, Check Positive Pay File, Check Voids File, Check Recon File

Vermont iUS	Vermont iUS	DOL Finance System		Benefits/Tax	Trust Fund management/general UI accounting
Vermont iUS	Vermont iUS	State Finance System		Benefits/Tax	Trust Fund management/general UI accounting
Vermont iUS	Vermont iUS	State Workforce Joblink		Benefits	Link to Joblink
Vermont iUS	Vermont iUS	State Workforce (Worker Profiling and Reemployment Services - WPRS)		Benefits	Link to WPRS
Vermont iUS	Vermont iUS	State Worker's Compensation		Benefits	Link to Worker's Comp
Vermont iUS	Vermont iUS	IVR		Benefits	Link to DOL's IVR system
Vermont iUS	Vermont iUS	State Imaging System		All	Link to the State's Imaging System
Vermont iUS	Vermont iUS	Automated Clearing House (ACH)		Tax/Program Integrity	Link to the Automated Clearing House
Vermont iUS	Vermont iUS	Pacer		Tax/Program Integrity	Tracks Bankruptcy Information
Vermont iUS	Vermont iUS	Guidestar		Tax/Program Integrity	GuideStar USA, Inc. is an information service specializing in reporting on U.S. nonprofit companies
Vermont iUS	Vermont iUS	Clear2There Conference and Bridging System	in iUS	Appeals	Records Appeal Hearings
Vermont iUS	Vermont iUS	ACH Portal			
Vermont iUS	Vermont iUS	VDOL Workforce		VDOL	
Vermont iUS	Vermont iUS	Bank - Direct Deposit File		Peoples Bank	Payments
Vermont iUS	Vermont iUS	Bank - Check Voids File		Peoples Bank	Payments
Vermont iUS	Vermont iUS	Bank - Check Positive Pay File		Peoples Bank	Payments
Vermont iUS	Vermont iUS	Bank - Check Recon File		Peoples Bank	Payments
Vermont iUS	Vermont iUS	KUBRA -Tax Remittance System		Peoples Bank	ACH Payments
Vermont External	Vermont	Department of Education		Benefits	Wages
Vermont External	Vermont	State Directory of New Hires (SDNH)		Benefits/Program Integrity	Wage and Benefits/Quarterly
Vermont External	Vermont	Office of Child Support		Benefits	Benefits
Vermont External	Vermont	Agency of Human Services		Benefits	Benefits
Vermont External	Vermont	Department of Motor Vehicles Crossmatch		Benefits/Customer Portal	Benefits
Vermont External	Vermont	Department of Corrections		Benefits	Benefits
Vermont External	Vermont	Tax Department		Benefits/Tax	Wages and Benefits

Vermont External	Vermont	Housing Authority		Benefits	Benefits
Vermont External	Vermont	Mental Health Department		Benefits	Benefits
Vermont External	Vermont	Vermont Economic and Labor Market Information (LMI)		Benefits	Benefit and Wage information
Vermont External	Vermont	Employer Registration/Secretary of State		Tax	Employer
Vermont External	Vermont	PATH *Projects for Assistance in Transition from Homelessness			Wage - Monthly, Employer - Quarterly
Vermont External	Vermont	Crime Victim Services			Wage
Vermont External	Vermont	Vocational Rehab			Wage
Vermont External	Vermont	SRS - Strategic Risk Solutions			Wage
Vermont External	Vermont	State Treasurer's Office		Finance	Wages and Benefits
Vermont External	Vermont	3rd parties (FirstAdvantage, Corporate Cost Control, Equifax - the worknumber.com, etc.)		Program Integrity	Access to weekly wage information to conduct audits
Vermont External	Vermont	Department of Agriculture			Wage

Appendix 1B – Data Migration

There are approximate 30 system data sources that may require data conversion/migration (extract, transform, and load). Of these, most of the data (as much as 90%) will come from two mainframe systems/files: VABS – Benefits and CATS – Tax. In addition to the 30 system data sources, there are a number of spreadsheets used by DOL that will require conversion as the iUS system has automated DOL’s comparable manual process.

Systems from which data is to be converted/migrated:

System	Business Area
Appeals	All
Employee Return to Work	All
Fraud	All
Benefits Excel Spreadsheets	Benefits
Check Recon	Benefits
Domestic Violence	Benefits
EUC Registration Portal	Benefits
ICON	Benefits
IVR	Benefits
Mass Layoffs	Benefits
NMAS (adjudication)	Benefits
PATH Lookup	Benefits
RESEA	Benefits
Short Time Compensation	Benefits
SIDES	Benefits
VABS	Benefits
Wage Record	Benefits
WEB	Benefits
Acufund	Finance
FARS	Finance
Finance Excel Spreadsheets	Finance
BAM/BTQ	Performance/Compliance
P/C Excel Spreadsheets	Performance/Compliance
TPS (Tax Performance)	Performance/Compliance
ATR	Program Integrity
DPCM (Cross Match)	Program Integrity
PI Excel Spreadsheets	Program Integrity
ACH	Tax/Employer
Audit	Tax/Employer
CATS	Tax/Employer
Employer Disaster Data Collection	Tax/Employer
Employer Leasing	Tax/Employer
Employer Registration	Tax/Employer
New Hire	Tax/Employer
Tax Excel Spreadsheets	Tax/Employer
THIRS	Tax/Employer
VITWS	Tax/Employer
Administration	

Appendix 2 - Risk Register

See attached document: [FINAL-REVIEW-SOV-VDOL-UIM-STS Cost Detail FINAL.xlsx](#)

Appendix 3 – Lifecycle Costs and Change in Operating Costs

See attached document: [FINAL-REVIEW-SOV-VDOL-UIM-STS Risk Register FINAL.pdf](#)

- All servers are configured the same with the following IIS installed:
 - Application Server
 - Web Server
 - WCF – 4.5 Http activation
 - ASP.NET
 - .NET Extensibility
 - ISAPI Extensions & Filters
 - Application Initialization
 - Windows Authentication
 - Client Certificate Mapping Authentication
 - IIS Client Certificate Mapping Authentication
 - Request filtering
 - IP and Domain Restrictions

The following frameworks are installed:

- .NET Framework Version v4.0
- .NET Framework Version v4.0.1
- .NET Framework Version v4.0.2
- .NET Framework Version v4.0.3
- .NET Framework Version v4.5
- .NET Framework Version v4.5.1
- .NET Framework Version v4.5.2
- .NET Framework Version v4.5.3
- .NET Framework Version v4.6
- .NET Framework Version v4.6.1

STAGE and PRODUCTION:

Similar to DEV and TEST except 2 environments vs. 3, with more resources held in reserve (i.e. Disk space, Memory). SQL for Production and Stage will run on an existing physical machine.

SQL SERVER:

Development and Test:

- HyperV virtual server with a 2008R2 OS
- Using a XEON E5-2650 CPU at 2.00 GHz with 64GB RAM.
- 8 cores are dedicated to the server
- Both Development and TEST run on this virtual box with separate instances of SQL

DATABASE

- Microsoft Server 2012 R2 Standard running SQL 2014 R2

CLIENT

- Client workstation running Microsoft Internet Explorer used in Standard Mode with compatibility view off

STORAGE

- a. EMS storage – 150 terabytes

SOFTWARE DEVELOPMENT

- The current development environment is as follows:
 - Windows 7 Enterprise 64-bit
 - Visual Studio 2015
 - Team Foundation Server 2015 Power Tools
 - MVC 4 and MVC 5
 - SQL Server 2014 Management Tools
 - Labor.Services 1.2.0.0 are included in the project through NuGet references versus GAC installations
 - Connection Strings are located in the web.config and transforms are used to ensure the right strings are used for each environment.
- Team Foundation Server is used to track requirements: Epics, Features, Product Back Log, Bugs, and Tasks
- Team Foundation Test Manager is used to track Test Cases and User Acceptance Testing
- Internet browser is the agency's currently supported version of Internet Explorer used in Standard Mode with compatibility view off
- ASP.NET MVC 5 is used for user interfaces (iUS, Liens, Claimant Portal)
- Windows authentication is used for internal users (iUS, Liens, Claimant Portal)
- Forms authentication is used for external users (Claimant Portal)
- Role based authorization is used for controller methods - 'AccessControl ' application is used to add roles/users (Liens, Claimant Portal)
- Entity Framework is used for Object Relational Mapping (Liens, Claimant Portal)
- Microsoft Unit Testing library is used for unit testing with MOQ as the mocking framework (Liens, Claimant Portal)
- Unity is used for dependency injection with in the MVC project (Liens, Claimant Portal)
- Labor.Services dll is used on the existing servers to interface with department error logging and AccessControl methods (iUS, Liens, Claimant Portal)
- jQuery date picker is used for date entry and other places where applicable to provide user interface standardization (iUS, Liens, Claimant Portal)
- Windows Communication Foundation (WCF) is used for data services: service based communication to outside applications (iUS, Liens, Claimant Portal)
- N-Tier Architecture (multi-tier architecture) is used to keep presentation, application processing and data management functionality physically separated (iUS, Liens)
- Onion Architecture design pattern is used to isolate business logic and reduce tight coupling between application layers (Claimant Portal only)
- Domain-Driven Design was used to create a ubiquitous language with the business users and help break down problems into smaller contexts during the development of the Claimant Portal application.
- Change Management: Using best practices – Development, Testing, Staging, Production environments. Staging mirror production to allow user acceptance testing and review. Staging is locked at the end of the sprint to ensure integrity. Emergency changes are managed on a case by case issue with full review of the iUS team

CHANGE MANAGEMENT

- Separate development, test, and staging SQL Server instances have been established for developing and testing iUS solutions.
- A TFS Build server manages nightly builds and executes basic unit tests. The nightly and Constant Integration (CI) builds deploy the latest version to the development web server.
- Code promotion occurs as follows:
 - Developers actively develop and test on their own workstations
 - Code is moved to the Web Development server by a nightly build
 - Code is promoted to the Production and Staging environments through a standardized process using Microsoft's Release Manager
 - Code is promoted to the Production environment once approval is provided by the business owners.
 - Changes to data are managed and promoted along with code changes and promotion using a process that operates in parallel with the code promotion process.

HOSTING

The application is expected to be hosted at VDOL Data Center.

MONITORING TOOLS

Greylog, Nagios, Active Directory Audit (AD Audit), Microsoft System Configuration Manager for MS Updates, OpenSOC, OpenNMS.

DISASTER RECOVERY/BUSINESS CONTINUITY

National Life Data Center. Offsite replication of data at present. Full plan TBD as project progresses.

DATA BACKUP/RESTORE

Backup details:

1. Full Backups: TBD
2. Differential Backups: TBD
3. Retention: 6 months is standard
4. Recovery Point Objective (RPO): TBD
5. Recovery Time Objective (RTO): 20 hours

Restore Method:

1. Depending upon restore required, SQL would be from a data backup and apply transaction logs, virtual server would be a restore from a server snapshot backup. Full plan TBD as project progresses.

SOURCE OF FUNDS - START

Source	Year	Year 1 (FY13)	Year 2 (FY14)	Year 3 (FY15)	Year 4 (FY16)	Year 5 (FY17)	Year 6 (FY18)	Year 7 (FY19)	Year 8 (FY20)	Year 9 (FY21)	Year 10 (FY22)	Year 11 (FY23)	Year 12 (FY24)	Total
Source Year 1 and 2 are Implementation related, Years 3-4 are Operations related														
FEDERAL FUNDING: LI Administration Grants Funded from (200)	36.61%													\$0
FEDERAL FUNDING: Federal Grant Funds (Unemployment Insurance Program Letter 342) (MOW) - Original SBA	17.23%	\$0	\$2,500,761	\$2,006,418	\$3,154,724	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$7,311,902
FEDERAL FUNDING: Federal Grant Funds (Unemployment Insurance Program Letter 342) (MOW) - Original SBA - Reimbursed \$2,384 for Implementation	8.89%	\$0	\$1,118,055	\$1,118,055	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,236,110
FEDERAL FUNDING: LI Administration Grant for Operations Staff, Software Maintenance, etc.) - \$1,344 in FY2014	15.48%	\$1,250,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,250,000
		\$0	\$0	\$0	\$246,080	\$246,080	\$166,000	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$1,116,640
Total	100.00%	\$1,250,000	\$3,268,816	\$3,124,473	\$3,420,804	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$11,925,522

Summary by State and Federal:

State Funding:	\$0
Federal Funding:	\$12,916,652
Implementation Funds:	\$10,780,812 Pending Overages/Shortages
Implementation Costs:	\$10,780,812 (5)
Operational Funds:	\$2,135,840
Operational Costs:	\$2,135,840 (5)

SOURCE OF FUNDS - END

30 70 (548) (50.37)

PROJECT CASH FLOW - START

IMPLEMENTATION	Year	Year 1 (FY13)	Year 2 (FY14)	Year 3 (FY15)	Year 4 (FY16)	Year 5 (FY17)	Year 6 (FY18)	Year 7 (FY19)	Year 8 (FY20)	Year 9 (FY21)	Year 10 (FY22)	Year 11 (FY23)	Year 12 (FY24)	Total
Source		\$1,250,000	\$3,268,816	\$3,124,473	\$3,420,804	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$11,925,522
Net Cash by Fiscal Year		\$1,250,000	\$3,268,816	\$3,124,473	\$3,420,804	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$11,925,522
Total		\$1,250,000	\$3,268,816	\$3,124,473	\$3,420,804	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$246,080	\$11,925,522

CASH FLOW - END

NET CHANGE IN OPERATING COSTS - START

	Year 1 (2017)	Year 2 (2018)	Year 3 (2019)	Year 4 (2020)	Year 5 (2021)	Year 6 (2022)	Year 7 (2023)	Year 8 (2024)	Year 9 (2025)	Year 10 (2026)	Total		
Proposed Operating Costs:													
Total Operating Costs	\$0	\$0	\$294,280	\$294,280	\$294,280	\$294,280	\$294,280	\$294,280	\$294,280	\$294,280	\$2,942,800	\$2,942,800	
Costs Associated Operating Costs:													
Current Operating Costs:													
Staffing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
State Labor Hours													
	\$0	\$0	\$262,080	\$262,080	\$262,080	\$262,080	\$262,080	\$262,080	\$262,080	\$262,080	\$2,620,800	\$2,620,800	
Annual Maintenance of Current Solution:													
Maintenance - IBM & Verioux													
IBM Hardware Computers & Miscellaneous	\$265,364	\$265,364	\$181,480	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$546,844	\$546,844	ARC, H 3.3
IBM Software-SSFP Software	\$18,149	\$18,149	\$18,149	\$18,149	\$18,149	\$18,149	\$18,149	\$18,149	\$18,149	\$18,149	\$181,480	\$181,480	ARC, H 3.3
Supplies (Supplies, Office/Kit & Other)	\$32,839	\$32,839	\$32,839	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$128,156	\$128,156	ARC, H 3.3
Other Electricity, Insurance, Mail, Etc.	\$17,185	\$17,185	\$17,185	\$17,185	\$17,185	\$17,185	\$17,185	\$17,185	\$17,185	\$17,185	\$171,845	\$171,845	ARC, H 3.3
Hosting	\$126,903	\$126,903	\$126,903	\$126,903	\$126,903	\$126,903	\$126,903	\$126,903	\$126,903	\$126,903	\$1,269,030	\$1,269,030	ARC, H 3.3
Total Current Operating Costs	\$0	\$0	\$624,130	\$624,130	\$624,130	\$624,130	\$624,130	\$624,130	\$624,130	\$624,130	\$6,241,300	\$6,241,300	
Net Operating Cost Decrease/Increase	\$0	\$0	\$66,250	\$66,250	\$66,250	\$66,250	\$66,250	\$66,250	\$66,250	\$66,250	\$662,500	\$662,500	

NET CHANGE IN OPERATING COSTS - END

- NOTES / ASSUMPTIONS:**
- 1 Perpetual license of proposed solution; Unlimited users
 - 2 Staffing levels anticipated through this project are highlighted in light
 - 3 Funding Sources
 - 4 Net Operating Costs are NOT expected to decrease.

	Year One	Year 2	Ongoing
Sys Dev III	1.5	1.5	2.5
Client	1	1	0
IT Manager I	0.5	0.5	0.5
Project Director	0.5	0.5	0
Sys Admin II	0.5	1.5	0.5
Firm			
Tommasi/Annie	0.25	0.25	0
Morgan	1	0	0
DIJ Security CA	0	0.25	0
Total	6.25	6.5	3.5
Hourly/Annually	2080	2080	2080
Hourly Rate	\$36	\$36	\$36
TOTAL COST	\$468,000	\$502,800	\$762,000

VDOL Unemployment Insurance Modernization Project

RISK REGISTER DESCRIPTION:

1. **Risk Description:** Provide a description of what the risk entails
2. **Source of Risk:** Project, Proposed Solution, Vendor or Other
3. **Risk Rating:** Risk ratings to indicate: Likelihood and probability of risk occurrence; Impact should risk occur; and Overall risk rating (high, medium or low priority)
4. **Risk Strategy:** State's Planned Risk Strategy: **Avoid, Mitigate, Transfer or Accept**
 - a. **Avoid:** Avoid the activity; activities with a high likelihood of loss and large impact.
 - b. **Mitigate:** Develop a plan to reduce risk to reduce the risk of potential loss; activities with a high likelihood of occurring, but impact is small.
 - c. **Transfer:** Outsource risk (or a portion of the risk - Share risk) to third party or parties that can manage the outcome; activities with low probability of occurring, but with a large impact. Often times this is transferred back to vendor.
 - d. **Accept:** Take the chance of negative impact, eventually budget the cost (i.e. a contingency budget line); activities where cost-benefit analysis determines the cost to mitigate risk is higher than cost to bear the risk, then the best response is to accept and continually monitor the risk.
5. **Timing of Risk Response:** Describes the suggested timing for carrying out the risk response (e.g. prior to the start of the project, during the Planning Phase, prior to implementation, etc.)
6. **State's Planned Risk Response:** Describe what the State plans to do (if anything) to address the risk (See Risk Response table)
7. **Reviewer's Assessment of State's Planned Response:** Indicate if the planned response is adequate/appropriate in your judgment and if not what would you recommend.

Department Action Step: Respond to the sections highlighted in yellow (Risk Strategy, State's Planned Risk Response) and send copy back to David Gadway for review

NOTE: Hyperlinks are used on the Risk ID. From the Risk Register, CTL-CLICK on a link to see the Risk Response, or from the Risk Response, CTL-CLICK on a link to go back to the Risk Register.

RISK REGISTER:

Risk #:	Risk Description	Source of Risk	Risk Rating: Impact	Risk Rating: Probability	Risk Rating: Overall Risk	State Risk Strategy Summary (Avoid, Mitigate, Transfer, Accept)	Timing of Response	Reviewer Assessment of Response
1a	<p><u>Budget/Funding:</u> Budget – It is not clear that adequate time and funding have been budgeted for this project. The project is scheduled to be a 2 year effort in terms of services provided by Idaho, but data shows UI Modernization projects are 4-5 year efforts when compared to other modernization projects.</p>	Project	Medium	Medium	Medium	Accept	Prior to contract	So long as VDOL manages the iron triangle of Budget/Scope/Timeline as indicated in the response, specifically if no budget or timeline, limit scope, or if there is money and time, expand scope, this risk response strategy is accepted.
1b	<p><u>Budget/Funding:</u> The project shows a decrease in operating costs. However, VDOL was unable to provide detailed breakdown of the current operating costs (i.e. what items comprise the suggested current costs). As such, current operating costs have not been validated so the Net Operating Cost cannot be considered to decrease.</p> <p>See Project Cost spreadsheet for detail.</p>	Project	Low	Low	Low	Accept	Prior to contract	This is no longer a risk as Operating Cost details have been provided.

2a	<p>Contract Item: The contract is a major component of the Procurement Advisory Services, and although Procurement Advisory Services has not been included in the Scope of the IR, there are a few contract-related items that warrant noting.</p> <p>The Software License Agreement contemplates payment for the <u>software</u>, to be paid in increments, while the Draft IDOL contract contemplates payments for <u>services</u>, paid at completion of Phases of work (i.e. Sprints). As such, it is not clear whether DOL is paying for software, services, or a combination of both.</p> <p>Further, if it turns out VDOL is paying for software, is there any provision in any grant funding that paid for iUS that would render iUS to be available in the public domain at no cost?</p> <p>If VDOL is paying for services, there is no definitive measure provided for the FTE equivalents or hours anticipated to be provided by Idaho that helps determine whether the \$3.5M is commensurate with the services being provided.</p>	Project	Medium	Medium	Medium	Accept	Prior to contract	So long as VDOL has an exit clause in the contract providing adequate protection, the risk response strategy accepted.
2b	<p>Contract Item: It is not clear whether the terms and conditions of the MOU are adequately tied to the Contract. This warrants further review and confirmation.</p>	Project	Medium	Medium	Medium	Accept	Prior to contract	So long as the contract-related risks are addressed via the contract, the risk response strategy accepted.
3a	<p>Vendor Risk: This will be the first time IDOL has undertaken a commercial software development project. While IDOL has demonstrated the ability to develop a solid software solution that meets Idaho's needs, there are two variables: New IDOL software development staff members and new external partners in VT and Iowa.</p>	Project	High	High	High	Mitigate	Prior to contract	The "first time" Risk remains. See Risk Response section.

4a	<p>SOV Service Level/Staffing: VDOL is understaffed to undertake this project, primarily from an experience standpoint, but also from a pure FTE standpoint.</p> <p>From an experience standpoint, this is by far the largest project of this type for most of the people on the project team.</p> <p>There is no clear VDOL Project Leadership as VDOL is relying too heavily on external partners for both leadership (Mathtech) and subject matter expertise (IDOL).</p> <p>Additionally, given that 6 FTE (PM, BA, and 4 Developers) are contractors, the core driver of the team is comprised of contractors.</p> <p>Finally, the UI Director stepped down from the Director position and a new Director has been hired. This risk is particularly acute.</p>	Project	High	High	High	Accept	Prior to contract	The Independent Reviewer remains concerned that this project is not staffed adequately to meet the Project Schedule. See Risk Response section.
4b	<p>SOV Service Level/Staffing: Service Level Agreements not yet defined.</p>	Project	Medium	Medium	Medium	Accept	During Project	Risk strategy accepted.
5a	<p>Project Management Staffing: No risk noted. It is expected that Mathtech has this adequately addressed with Mr. Senk in this role.</p>							
6a	<p>Project Schedule: Idaho is appropriately treating this as a 2 year effort, and is using a time box approach: prioritize the work, and what can get done in 2 years will be in Release 2 of iUS, which is the stated deliverable.</p> <p>Given VDOL's requirements, and expected time it will take to deliver the required functionality, it is anticipated that 2 years is not adequate. VDOL expected to leverage contracted software development staff to extend the solution beyond the 2 year mark/functionality delivered, but VDOL has not demonstrated the ability to develop software of this scope, and it is unclear that Mathtech has UI industry expertise.</p>	Project	Medium	Medium	Medium	Accept	Prior to contract	So long as VDOL manages the iron triangle of Budget/Scope/Timeline as indicated in the response, specifically if no budget or timeline, limit scope, or if there is money and time, expand scope, this risk response strategy is accepted.

7a	Infrastructure: Hardware Platform: There are several unanswered questions here that are expected to be addressed once the project starts. These include: 1. Backup Plan 2. Recovery Point Objective 3. Long Term Plan for Hosting – The short term plan is to host at VDOL Data Center, and that Data Center is in a known flood plain.	Project	Medium	Medium	Medium	Accept	Prior to placing solution into production	Risk strategy accepted. Please also review detailed written response.
7b	Infrastructure: Business Continuity/Disaster Recovery: The BC/DR plan is not yet developed. Further, we are not leveraging cloud-based services for this project, as per State’s Strategic IT Plan.	Project	High	Medium	Medium	Accept	Prior to placing solution into production	Risk strategy accepted. Please also review detailed written response.
8a	Scope/Functionality: It is not clear that adequate time and funding have been budgeted for a project of this scope. The project is scheduled to be a 2 year effort, but data shows UI Modernization projects are 4-5 year efforts. See Risk 1a. This creates a potential impact to schedule, budget and scope.	Project	High	High	High	Accept	Prior to contract	Risk Remains. See Risk Response section.
9a	Interoperability: No risk noted.							
10a	Compliance/Regulatory: The solution is not compliant with the Section 508 Amendment to the Rehabilitation Act of 1973, as amended in 1998. VDOL needs to assess whether this is an issue for usability/compliance within VDOL users and public users.	Project	Medium	Medium	Medium	Mitigate	Prior to placing solution into production	So long as the requirements of the Rehabilitation Act can be met outside of iUS functionality, this risk response strategy is accepted.
11a	Security: The full application and data security model is not yet defined and is expected to be further fleshed out during development.	Project	Medium	Medium	Medium	Accept	Prior to placing solution into production.	Risk strategy accepted, provided VDOL allocates \$50K to Vulnerability Assessment by 3 rd party prior to putting solution into production.

RISK RESPONSE:

Risk #:	State's Planned Risk Response and Reviewer's Assessment of State's Risk Response
1a	<p><u>STATE'S RISK RESPONSE:</u></p> <p>This project is substantially different than other UI Modernization projects. Other UI Modernization efforts solicited and hired a systems integrator to build a unique solution. This requires at least a four-year schedule to build a solution from scratch. This consortium is using an existing UI system already in production. Both states were Guide Cobol states with similar development and state of progression at modernization. The two-year schedule for this project will enable the consortium to enhance the existing system to accommodate Vermont and Iowa's business rules and data. We suspect less time and money based upon these characteristics. Furthermore, the scope of the project resources is not limited to the Idaho contract. The project plan also includes four .net programmers under the Mathtech contract, one current VDOL staff that is transitioning to the project, and a Technical Lead. VT, nor this project, compares well with average, and we should be proud of that.</p> <p><u>REVIEWER'S ASSESSMENT:</u></p> <p>With all due respect, this project is not different than the others. That VDOL believes that this project is different than all the others actually increases this risk. Like other projects, the VT project is hiring a vendor to develop a UI application. Most other projects did not build from scratch as claimed above. Some of the projects, such as Indiana, Nevada, and SCUBI, have used an open source/existing application (Acuity) as the basis upon which the specific State or Consortium application is built. WV and MD are using Sagitec, which is comprised of former Deloitte staff, who are thought to also have experience with the Acuity core solution from their time with Deloitte and as such, may be using Acuity there as well. In Vermont's case, VDOL is starting with the Idaho application, iUS V1, with IDOL conducting a near complete rewrite of that application to iUS V2. Considering the project plan of design, development, testing, etc., the VT project is very much like the other projects, and as such, the risk, as stated remains: There is not adequate time given the two year window to complete the project, and as such, an inadequate budget allocated to bring the project to completion. So yes, while the scope includes both work by Idaho as well as 4 .NET programmer, 2 years is inadequate.</p> <p>Said another way: Has any other state or consortium completed such a UI project in 2 years? Do we really think we can be the first to do this?</p> <p><u>STATE RISK RESPONSE V2:</u></p> <p>Two years is the timeframe that we have to work with. This is the timeframe that has been designated by the states in the consortium. Have other UI modernization consortiums been able to complete their projects in two years? No. Was Idaho able to build a functioning modernized UI system in two years? Yes. Does Vermont have other options for the development of a modernized UI system? No. This is the project that the VDOL has designated as our best opportunity to both get off the current unsupported system and to receive a working system in the fastest timeframe. This approach is embraced by the USDOL and federal SBR funding should be available. The VDOL is aware that this is an aggressive timeframe for a project of this scale. In order to mitigate this risk, the VDOL will work with the consortium to document and prioritize the scope of the project. This cannot be done in more detail until the VDOL receives a copy of all iUS software upon the signing of the contract. The VDOL will ensure that we have adequate and skilled staff as needed, including bringing on new staff if necessary. We intend to set aside supplemental funds for the project. Finally, we will work with the consortium to apply for federal SBR funding.</p> <p>The intention is to get as much done in the next two years, priority being a functioning modernized UI system. VT and the consortium will limit scope within this timeframe if necessary. With the assurance of future USDOL funding, enhancements to the system will be done in the future.</p> <p><u>REVIEWER'S ASSESSMENT V2:</u></p> <p>So long as VDOL manages the iron triangle of Budget/Scope/Timeline as indicated in the response, specifically if no budget or timeline, limit scope, or if there is money and time, expand scope, this <u>risk response strategy is accepted</u>.</p>

1b	<p>STATE'S RISK RESPONSE:</p> <p>The Department's financial systems provide a high level understanding of current costs. This was reflected by DII as recently as 2010, as well as in the ABC. The VDOL anticipates a decrease in operating costs with the implementation of the iUS system. Most of these factors will not become clear until later in the project. At a minimum, VDOL anticipates a reduction in staff expenditures. Since the current costs are covered under federal funding, it is hard to see why this is a risk to the project. Additionally, most benefits resulting from the project are intangible, including the ability to get off the current unsupported mainframe</p> <p>REVIEWER'S ASSESSMENT:</p> <p>Agreed. We cannot validate there are Operating Cost decreases at this time, and we will not know until some point in the future. The risk lies in whether future funding sources cover potentially increased operating costs.</p> <p>VDOL to identify which Operating Costs are sun-setting and when.</p> <p>STATE RISK RESPONSE V2:</p> <p>See Operational Cost detail provided in follow up question/answer document.</p> <p>REVIEWER'S ASSESSMENT V2:</p> <p>VDOL provided data and that is now represented in the project cost spreadsheet. This is no longer a risk.</p>
2a	<p>STATE'S RISK RESPONSE:</p> <p>Other estimates on replacing an entire UI system exceed the total development cost estimates by an order of magnitude. Clearly the cost is at least commensurate. As mentioned, Procurement Advisory Services is not included in the scope of this Independent Review. Therefore, VDOL asks that this risk be removed.</p> <p>REVIEWER'S ASSESSMENT:</p> <p>Risk not addressed.</p> <p>Further, if I understand the comment in the Risk Response, VDOL is agreeing that all other UI project costs are much higher than this project. We concur. That risk is noted in 1a.</p> <p>STATE RISK RESPONSE V2:</p> <p>The VDOL is paying for services. We are receiving software in return. There are no provisions, that we are aware of, that would render iUS available in the public domain, at this time. Originally, the iUS CORE was developed using state funds. VT does not have the leverage in this relationship. We are the first states in this consortium and without any prior contracts or similar consortium models, there is no way of knowing if this project cost is commensurate with the services being provided. As mentioned, in comparing the costs of this project with other consortiums, VT is getting a working product at an extremely diminished cost.</p> <p>REVIEWER'S ASSESSMENT V2:</p> <p>So long as VDOL has an exit clause in the contract providing adequate protection, the risk response strategy accepted.</p>
2b	<p>STATE'S RISK RESPONSE:</p> <p>The VDOL has developed the iUS MOU and contract in consultation with the VT Attorney General's office. The VDOL asks that this risk be removed.</p> <p>REVIEWER'S ASSESSMENT:</p> <p>Risk not addressed.</p> <p>STATE RISK RESPONSE V2:</p> <p>The concerns will be conveyed to the Attorney General's Office. We again ask this risk be removed.</p>

	<p>REVIEWER'S ASSESSMENT V2: So long as the contract-related risks are addressed via the contract, the risk response strategy accepted.</p>
3a	<p>STATE'S RISK RESPONSE: This is not a commercial software development project. Moreover, Idaho has a standing UI system in place that was developed using the same methodology. To mitigate the staffing components, the VDOL recently brought on a Technical Lead. Additionally, the VDOL will be bringing on four developers and expanding the Project Manager's responsibilities to manage the development efforts under the direction of the Technical Lead and Project Director. In working together, the consortium partners meet throughout the week. Both benefits and tax planning sessions meet twice a week. There are daily SCRUM meetings and a SPRINT planning meeting every Wednesday. There is a consortium status meeting every Monday and a Board of Directors meeting every other Wednesday. The iterative nature of SCRUM development makes functional failures unlikely.</p> <p>REVIEWER'S ASSESSMENT: The Risk Response does not address the facts laid out in the Risk: Change in IDOL personnel, and multiple players (Idaho, VT, and Iowa) vs. just one (Idaho) conducting an internal software development effort for their own use.</p> <p>While these SCRUM development steps reduce certain risks, this is a commercial software development effort: VDOL is paying a vendor to develop a critical line of business software application used in multiple organizations: The very definition of commercial software development.</p> <p>STATE RISK RESPONSE V2: There are new variables in additional staff and new external partners. The consortium has addressed this through establishing and implementing the iUS governance structure. Additionally, VDOL and Idaho have established consortium level project management basics and formal status reporting. The VT-ID contract makes this activity a requirement of the iUS Consortium Director.</p> <p>REVIEWER'S ASSESSMENT V2: While having a Project Governance Structure is a positive step, this remains the first time Idaho is developing software for users outside of their organization, and the first time these team members are working together. As such, the "first time" risk noted above remains.</p>
4a	<p>STATE'S RISK RESPONSE: Although this is the largest project for some on the VDOL team, the VDOL has key personnel in place to succeed. The VDOL recently hired a Technical Lead who has over twenty years of experience in IT, including leading projects of a larger magnitude. The VDOL has an IT Operations Lead who has 35 plus years of experience with the VDOL. The Operations Lead has eight years in UI Management prior to his time in IT Administration and was the project manager on the last VDOL UI Modernization (UI Labor Guide Installation). The VDOL has supplemented this with external experience. The Project Manager has over 25 years of experience, including experience with other UI Modernization projects. The Senior Business Analyst has eight years of experience, including three with UI Modernization. The VDOL intends to hire four developers with a minimum of three years of experience with iUS technologies. Idaho has the resources available down to the programmer level who actually worked on the transformation from Cobol to .net. The relationship between Idaho and Vermont is significant. This is contractual because it has to be. However, it is not strictly a client-vendor relationship. USDOL demands a consortium for UI Modernization funding, and the USDOL is the funding source for both entities. Idaho has a major stake in our success that exceeds contractual norms. Idaho's expertise, experience in the recent development (which, as mentioned, is similar to Vermont's development path), and federal funding source oversight makes all of their expertise our expertise. This is not a negative or a risk but a major plus for this project.</p> <p>REVIEWER'S ASSESSMENT: It is not clear what decision-making authority and associated leadership the Technical Lead have on this project. The Director is new to VDOL. As such, the Leadership risk remains. Further, it cannot be emphasized enough. Only the Technical Lead has done a UI project or any technology project of this magnitude. Said another way: Would you hire a builder who never built a house?</p>

	<p>Of critical importance: Consider Project Leadership staffing using a combination of subject matter experience, experience with projects of this size, and the percentage of time allocated to the project.</p> <p>STATE RISK RESPONSE V2: The VDOL is comfortable with the management structure we have in place, whether the former UI Director stays involved or not.</p> <p>REVIEWER'S ASSESSMENT V2: The Independent Reviewer remains concerned that this project is not staffed adequately to meet the Project Schedule. This concern is two-fold:</p> <ol style="list-style-type: none"> 1. Lack of key project staff availability allocated to the project due to that staff also being responsible for day to day line of business operations. An example of this unfolded in the time it took to follow up on responding to this Risk Register. The people who had this responsibility had day to day line of business responsibility that arose that precluded them from responding timely. In this case, the time took twice as long, or 100% as long to respond (4 days vs. the expected 2 days). 2. Lack of authority to make decisions on the project itself.
4b	<p>STATE'S RISK RESPONSE:</p> <p>The VDOL is responsible for hosting and defining SLA's with its business community. As the project moves forward, the VDOL will establish both its approach to Hosting and related SLAs.</p> <p>REVIEWER'S ASSESSMENT: Risk strategy accepted.</p>
5a	<p>STATE'S RISK RESPONSE: N/A. No risk noted</p>
6a	<p>STATE'S RISK RESPONSE: As stated, the current schedule is for a two-year period. As a mitigation strategy, the VDOL has built into both the consortium and Mathtech contracts provisions for extensions with funding set aside</p> <p>REVIEWER'S ASSESSMENT: There are mixed messages: Is this 2 years, or is it more than 2 years, given provisional extensions suggested. It is not clear where funding will come from as highlighted in Risk 1a beyond the 2 year mark.</p> <p>STATE RISK RESPONSE V2: See 1a. This is a two-year effort. The consortium will prioritize and limit scope as necessary to fit within this time frame. If available VT and the consortium will apply for federal SBR funding to help alleviate the project risks and the help fund the project within and beyond the two-year mark. The VDOL has built in optional contract extensions in both the VT-ID contract and the Mathtech contract. If funding is available, VT will utilize these contract extensions to further refine and enhance the product that is developed within the two-year timeframe.</p> <p>REVIEWER'S ASSESSMENT V2: So long as VDOL manages the iron triangle of Budget/Scope/Timeline as indicated in the response, specifically if no budget or timeline, limit scope, or if there is money and time, expand scope, this risk response strategy is accepted.</p>

7a	<p>STATE'S RISK RESPONSE: The VDOL site is at an assumed "secondary flood plain." The Data Center is not in a flood plain as it is in the SE corner of the building. Furthermore, the Data Center and all equipment is elevated above the line of the secondary flood plain. In the September 2011 flood, regarded as a 1,000-year flood event, water did not come near the VDOL building, let alone endanger the Data Center. While the expectation of certainty with regard to deployment related non-functional requirements, may be true of waterfall projects, the VDOL does not need a detailed design at this point. We have an outline of how hosting and BCP will be accomplished. These details were shared with the Independent Reviewer and DII</p> <p>REVIEWER'S ASSESSMENT: If by saying that "these details were shared with the Independent Reviewer and DII", you mean that these will be developed during the project, this approach makes sense, but please understand the budget implications of future costs that might come out of future plans that are not YET built into the budget. This risk response strategy yields a potential <u>budget</u> risk.</p> <p>The approach of addressing this during the project is an <u>acceptable risk response strategy</u>.</p>
7b	<p>STATE'S RISK RESPONSE: Because the BCP is not developed, it is unclear how the conclusion was reached that cloud will not be leveraged. As mentioned, the business requirements have not been gathered. A review of the State's Strategic Architectural principles would show that system design prior to the requirement gathering is a bad idea.</p> <p>REVIEWER'S ASSESSMENT: The solution architecture is already defined and is not expected to change, as it is based on iUS V1. As such, data center specifications and BC/DR plans <i>could</i> be developed now.</p> <p>However, the approach of addressing this during the project is an <u>acceptable risk response strategy</u>.</p>
8a	<p>STATE'S RISK RESPONSE: See answer to 1a. This project is substantially different than other UI Modernization projects, mainly that we are working with an existing UI system.</p> <p>REVIEWER'S ASSESSMENT: Need confirmation whether this is a substantial rewrite of iUS V1, as thought by the Independent Reviewer, or largely use of an existing application. If that latter, would like detail as to why then, this is a 2 year effort.</p> <p>STATE RISK RESPONSE V2: The current V 1.0 code is being reused. The method of the reuse is breaking the monolithic functionality into micro apps and refactoring the code. Only to the extent that "refactor" equals "re-write" the 90% may be accurate. It would be more accurate to say that 100% of the code is being exposed to a refactoring process and reorganization. None of that diminishes VDOL assertion that risk is low because the code currently works. To the contrary, the refactoring and reorganization will result in a more efficient and robust code base.</p> <p>REVIEWER'S ASSESSMENT V2: Given that this effort is largely a rewrite, <u>the risk remains</u>.</p>
9a	<p>STATE'S RISK RESPONSE: N/A. No risk noted</p>

10a

STATE'S RISK RESPONSE:

The VDOL will address this in its consortium planning.

REVIEWER'S ASSESSMENT:

Idaho has no intention of making this compliant with Section 508 Amendment to the Rehabilitation Act of 1973. Typically, when Federal Funding is involved, meeting this act is a requirement.

VDOL to ask US DOL for a ruling.

STATE RISK RESPONSE V2:

To the extent VT is in compliance now, through the call center and career resource centers, VT will be in compliance with the implementation of iUS. This is not an iUS CORE issue. This is an issue with the state specific instance. VT will ensure compliance if necessary.

REVIEWER'S ASSESSMENT V2:

So long as the requirements of the Rehabilitation Act can be met outside of iUS functionality, this **risk response strategy is accepted**.

11a

STATE'S RISK RESPONSE:

The iUS system has a data model. The VDOL will be provided a copy of this model and the iUS software upon acceptance of the VT-ID contract. The IRS and SSA are appraised of our intent to move to the iUS system and will consult to ensure Go Live deployment will meet or exceed all IRS/SSA security related non-functional requirements.

REVIEWER'S ASSESSMENT:

This **risk response strategy is accepted** if it is acceptable to DII and other key decision makers to push this to later in the project, and not allow the solution to go live until the data and application security models are fully defined to meet State of VT standards, which are based on NIST 800-53 at this time. Additionally, an application security assessment should be completed by an independent 3rd party prior to placing the solution into production.

**IUS LICENSING AGREEMENT
IDAHO-IOWA-VERMONT CONSORTIUM**

THIS LICENSING AGREEMENT ("Agreement") is made, entered into and effective as of the date of last signature below (the "Effective Date") between the State of Idaho, by and through the Idaho Department of Labor ("IDOL"), the State of Iowa, by and through the Iowa Workforce Development ("IWD"), and the State of Vermont, by and through the Vermont Department of Labor ("VTDOL"), referred to individually herein as a "Party" or a "Member State," and collectively as the "Parties" or "Member States."

WHEREAS, IDOL has developed and is the owner of the Software and Source Code as defined below;

WHEREAS, IDOL owns certain intellectual property, including copyrights, Service Marks and the corresponding registrations and applications for registration set forth below, trade secrets, and technical expertise related to the Software and Source Code;

WHEREAS, IWD and VTDOL (referred to individually herein as a "Licensee" and collectively as the "Licensees") desire to obtain from IDOL, and IDOL desires to grant to Licensees, a non-exclusive license to use the Software and Source Code solely in accordance with the terms and on the conditions set forth in this Agreement and pursuant to the Memorandum of Understanding ("MOU") of which this Agreement forms a part;

NOW WHEREFORE, in consideration of the mutual promises contained herein, the Parties agree to the following terms and conditions:

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1.1. "Documentation" means any and all manuals, instructions and other documents and materials that IDOL provides or makes available to Licensee in any form or medium which describe the functionality, components, features or requirements of the Software, including without limitation: Source Code, a list of the names of the modules included, instructions for building object code versions of the Software from the Source Code, command files used in constructing such object code, object code files as built by IDOL from Source Code, any other ancillary files and listings created in the course of building such object code files and any additional tools and subroutines required to build the Software that are not generally commercially available, and any aspect of the installation, configuration, integration, operation, use, support or maintenance thereof.

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1.3. "iUS Core" means the back-end processing for unemployment benefits, taxation, appeals and accounting functions, and any other components of iUS that will be common to the iUS Instances in the Member States.

1.4. "iUS Instance" means a test and production application that will operate as a separate, stand alone version of iUS, fully functional with the iUS Core, and that is deployed in the Member States.

1.5. "State-Specific Interfaces" means modules, components, interfaces and other elements developed by a Member State for use with its iUS Instance that are unique from the iUS Core, such as, by way of example and not limitation, external facing claimant and employer portals, state-specific accounting software and any other state-specific interfaces that are not part of the iUS Core.

1.6. "Software" and "Source Code" shall mean computer programs in the form of machine-readable object code or source code related to the iUS platform, including the iUS core, State-Specific Instances and other modules, components, interfaces or other elements developed by IDOL or its agents. The terms "Software" and "Source Code" include subsequent updates to the iUS Core, State-Specific Interfaces, and other modules, components, interfaces and Documentation provided by IDOL.

1.7. "Derivative Products" shall mean computer programs in the form of machine-readable object code or source code developed or otherwise acquired by Licensees which are a modification of, module or enhancement to, derived from or based upon the Software or Source Code.

1.8. "Service Marks" shall mean the iUS word mark and any iUS logos, including but not limited to the logo set forth in U.S. Trademark Registration Application Serial Number 86515979 ("iUS Logo") and the word mark set forth in U.S. Trademark Registration Application Serial Number 86516000 ("iUS Word Mark"), together with the goodwill connected with and symbolized by the Service Marks. A black and white representation of the iUS Logo is reproduced below:



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3. **Delivery.** Upon delivery of the iUS Instance to a Member State, IDOL shall provide a single copy of the Source Code to the Member State.

4. **Derivative Products.**

4.1. Title to and ownership of any portion of the Source Code incorporated into a Derivative Product shall at all times remain with IDOL, and Licensees shall not have any title or ownership interest therein.

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4.3. Notwithstanding the provisions of Subsections 4.1 or 4.2 above, (a) the license of a Member State hereunder shall remain effective in perpetuity and shall remain irrevocable, provided the Member State has paid in full its licensing fees pursuant to Subsection 5.1 below (early termination, or any other cause shall not affect the continued validity of the Member State's license hereunder); and (b) the Member States shall retain ownership of their State-Specific Interfaces pursuant to Section 10 of the MOU.

5. **License Fees And Payment.**

5.1. IWD and VTDOL shall each pay three million dollars (\$3,000,000) to IDOL. IWD's payments of said amount shall be in four installments of twenty-five percent (25%) of said amount, payable on or before each of the following dates:

5.1.1. January 8, 2016;

5.1.2. July 1, 2016;

5.1.3. January 1, 2017; and

5.1.4. July 1, 2017.

VTDOL shall pay three million dollars (\$3,000,000) to IDOL on terms mutually agreed in a separate agreement between IDOL and VTDOL.

5.2. Payments that are overdue shall bear interest calculated from the due date until payment is received at the rate of eight percent (8%) per annum or prime plus two percent (2%), whichever is higher.

5.3. All amounts payable hereunder by Licensees will be paid in United States dollars without deductions for taxes, assessments, fees or charges of any kind.

5.4. Checks are to be made payable to Idaho Department of Labor and sent by United States mail to:

Idaho Department of Labor
317 W. Main St.
Boise, Idaho 83735-0620

Licensees shall send any payment by check with a cover letter that references the title and Effective Date of the Agreement and describes the type of payment.

6. Confidentiality.

6.1. Licensees each hereby acknowledge and agree that the Software and Source Code constitute and contain valuable proprietary information and trade secrets of IDOL, embodying substantial creative efforts and confidential information, ideas and expressions. Accordingly, Licensees each agree to treat (and take precautions to ensure that their employees and agents treat) the Software and Source Code as confidential in accordance with the confidentiality requirements and conditions set forth below.

6.2. Each Party agrees to keep confidential all confidential information disclosed to it by the other party in accordance herewith, and to protect the confidentiality thereof in the same manner it protects the confidentiality of similar information and data of its own (at all times exercising at least a reasonable degree of care in the protection of confidential information); provided, however, that neither party shall have any such obligation with respect to use of disclosure to others not parties to this Agreement of such confidential information as can be established to: (a) have been known publicly; (b) have been known generally in the industry before communication by the disclosing party to the recipient; (c) have become known publicly, without fault on the part of the recipient, subsequent to disclosure by the disclosing party; (d) have been known otherwise by the recipient before communication by the disclosing party; or (e) have been received by the recipient without any obligation of confidentiality from a source (other than the disclosing party) lawfully having possession of such information.

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7.3. Each Licensee, by execution hereof, acknowledges, covenants and agrees that it has not been induced in any way by IDOL, or agents or employees thereof to enter into this Agreement, and further warrants and represents that (a) Each Licensee has conducted sufficient due diligence with respect to all items and issues pertaining to this Agreement; and (b) Each Licensee has adequate knowledge and

expertise, or has used knowledgeable and expert consultants, to adequately conduct such due diligence, and agrees to accept all risks inherent herein.

8. Hidden Code Prohibited. IDOL agrees that it shall not knowingly deliver to Licensee via electronic media or the internet, any Software, including any media upon which it is stored or delivered, that contains any type of software routine or other element which is designed to facilitate unauthorized access to or intrusion upon, or unrequested disabling or erasure of, or unauthorized interference with the operation of any hardware, software, data or peripheral equipment of or utilized by the State.

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9.3. The Licensees agree that IDOL has the right to exert quality control measures in connection with any usage of the Service Marks. At the discretion of IDOL, if any usage of the Service Mark(s), or any iUS instance(s) deployed by a Licensee is unsatisfactory to IDOL, IDOL may provide written notice to the Licensee detailing the particular condition(s) that are claimed to be unsatisfactory. After service of such written request, the Licensee shall have thirty (30) days to cure the unsatisfactory condition(s), and, failing to do so, IDOL may provide written notice that the license to use the Service Marks is revoked from the Licensee, whereupon the Licensee shall cease all usage of the Service Marks and must remove all appearance of the Service Marks from any and all advertising, promotional or sales literature, and all iUS instances under the control of the Licensee.

10. Revocation of License. Pursuant to the Memorandum of Understanding of which this Agreement forms a part, the term of this Agreement shall be from the Effective Date until December 31, 2017. Notwithstanding the foregoing, Licensees are granted a perpetual license to the Software, Source Code And Derivative Products pursuant to Article 2 of this Agreement, except that each Licensee's license granted hereunder shall be

revoked upon thirty (30) calendar days' written notice from IDOL that the Licensee is in default of the payment obligations set forth in Article 5 of this Agreement, unless, before the end of such thirty (30) calendar day notice period, Licensee has cured the default to IDOL's satisfaction, and so notifies IDOL, stating the manner of the cure.

11. Nonassignability. Licensees shall not assign this Agreement or its rights hereunder without the prior written authorization of IDOL. Licensees may not grant any sublicenses to the Software, Source Code or Derivative Products without the prior written authorization of IDOL. To the extent that each Licensee contracts with third parties to perform customization, installation or maintenance work on the Software, Source Code or Derivative Products, such third parties may not be granted a sublicense thereto.

12. Severability. In the event any provision of this Agreement or any part thereof shall be determined by any Court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions hereunder, or parts thereof, shall remain in full force and effect, and shall in no way be affected, impaired, or invalidated thereby, it being agreed that any remaining provisions shall be construed in a manner most closely approximating the intention of the parties with respect to any invalid, void or unenforceable provision.

13. Non-Waiver. The failure of a Party to insist upon strict performance of any of the terms and conditions of this Agreement or to exercise any remedy or option herein conferred in any one or all instances shall not be construed to be a waiver or relinquishment of any such term or condition, or remedy, but the same shall be and remain in full force and effect unless such waiver is evidenced by prior written consent of the Party.

14. Notices. All notices, demands or requests provided for in this Agreement shall be in writing and shall be deemed to have been properly given or served upon a Party on the date sent by facsimile or email, on the next day after sending by overnight delivery, and on the third day after the date of deposit into United States first class mail, postage prepaid, at the addresses as follows:

IDOL:

Jay Engstrom
Chief Operating Officer
Idaho Department of Labor
317 W. Main St.
Boise, Idaho 83735-0620
Facsimile: 208-334-6430
Email: jay.engstrom@labor.idaho.gov

IWD:

Ryan West
Administrator, Unemployment Insurance Division
Iowa Workforce Development
1000 East Grand Avenue
Des Moines, Iowa 50319-0209
Facsimile: 515-725-2978
Email: ryan.west@iwd.iowa.gov

VTDOL:

Tracy Phillips
UI & Wages Division Director
Vermont Department of Labor
5 Green Mountain Drive
PO Box 488
Montpelier, Vermont 05601-0488
Facsimile: 802-828-4046
Email: tracy.phillips@vermont.gov

By giving the other Parties written notice thereof, the Parties shall have the right at any time during the term of this Agreement to change their respective addresses and facsimile numbers.

16. Headings. Headings in this Agreement are for convenience only and shall not be used to interpret or construe their provisions.

17. No Presumption from Drafting. There shall be no presumption or rule of construction applied to this Agreement based upon the Party drafting the Agreement or any particular provision of the Agreement.

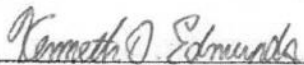
18. Counterparts. This Agreement may be executed in counterparts for the convenience of the Parties, all of which, when taken together and after execution by all Parties hereto, shall constitute one and the same agreement. A counterpart delivered by facsimile or email shall be deemed an original as if hand-delivered or mailed to the receiving Party.

19. Authority. The Parties each warrant and represent that their respective organizations have the authority to enter into this Agreement; that the individuals signing this Agreement on their behalf have the full authority to obligate their agencies financially and otherwise to meet the responsibilities and duties of this Agreement; and that except as may be expressly provided herein, no third-party approvals are required before the execution or performance of this Agreement.

END OF TEXT / SIGNATURE PAGE FOLLOWS

Signatures:

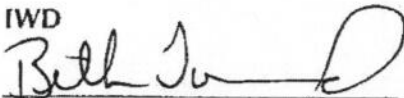
IDOL



Kenneth D. Edmunds
Director
Idaho Department of Labor

Date: 12/30/15

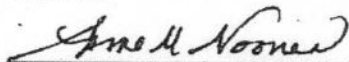
IWD



Beth Townsend
Director
Iowa Workforce Development

Date: 12/29/15

VTDOL



Anne M. Noonan
Commissioner
Vermont Department of Labor

Date: 12/21/15

iS Team Playbook

Project Strategies and Structures

Document Published Date: November 2015

TABLE OF CONTENTS

iUS Team Playbook Overview	4
Subject Matter Experts	4
Scrum Project Management Process	4
Sprint	4
Product Owner.....	4
Product Backlog.....	5
Requirements Process.....	5
Requirements.....	5
Design Decisions.....	5
Coding Process.....	6
Modifications to Existing Systems	6
Implementing the Relational Database.....	6
Implementing Presentation Layer Elements	6
Implementing Business Layer Elements	6
Implementing Data Layer Elements.....	6
Environment Management	7
Developer Environment Setup	7
Development and Test Environments	7
Deployment / Promotion Procedures	7
Managing Data.....	7
Interfaces to External Systems.....	8
Interfaces.....	8
Common Data Interface	8
Coding Standards.....	8
.NET Coding Standards.....	8
<i>Caching</i>	8
<i>Naming Standards</i>	8
<i>Accessing Data Entities</i>	9
<i>Reflecting the Data Model in Code</i>	9
<i>Lookup Classes</i>	9
<i>Managing Concurrency</i>	10
<i>Managing Web API / Web Services</i>	10
<i>Class Persistence</i>	10
MVC Standards	10
<i>Security - Model Binding on Post Back</i>	10
<i>Areas</i>	11
<i>Model vs. ViewModel</i>	11
<i>Viewbag vs. ViewModel</i>	11
<i>Use of @Html Helpers</i>	11
<i>Partial Page Usage</i>	12

Domain Driven Design	12
Onion Architecture	12
MS SQL Server Standards	13
<i>Naming Standards</i>	13
<i>Use of Data Types</i>	14
<i>Use of Constraints and Referential Integrity</i>	14
<i>Data Access</i>	14
<i>Use of Structured Query Language</i>	14
<i>Permission Standards</i>	15
User Interface Look and Feel Standards.....	15
<i>Web</i>	15
<i>Mobile Web</i>	15
Validation Standards	15
<i>Client Side Validation</i>	15
<i>Business Layer Validation</i>	15
<i>Data Layer Validation</i>	15
System Variable Standards	15
Transaction Management Standards	16
Concurrency Management Standards.....	16
Source Code Management.....	16
<i>Checking In and Checking Out Source Code</i>	16
<i>Creating and Managing Baselines (Labels)</i>	16
<i>Branching and Merging Strategy</i>	16
Automated Builds and Deployments	16
Quality Assurance and Testing Practices	17
Unit Testing.....	17
<i>Developing Automated Test Suites</i>	17
Integration Testing	18
<i>Developing Test Cases for Integration Testing</i>	18
<i>Managing Integration Test Environments / Data</i>	18
<i>External Interfaces for Integration Test Environment</i>	18
<i>Managing Defects</i>	18
Stress and Performance Testing.....	19
<i>Strategies for conducting Performance and Stress Testing</i>	19
<i>Managing Data</i>	19
Acceptance Testing.....	19
<i>Developing Test Cases for Acceptance Testing</i>	19
<i>Managing Acceptance Test Environments / Data</i>	19
<i>Managing Acceptance Test Issues / Defects</i>	19

IUS TEAM PLAYBOOK OVERVIEW

The iUS team has developed multiple Internet-based software applications for use by Idaho Department of Labor employees and external customers. As each project has completed, there have been lessons learned which have resulted in decisions made on how to better approach specific aspects of the next project worked on.

The iUS Team Playbook provides the current standards and approach used in each software development project. Included in the current playbook are details for Internet Unemployment System (iUS), Liens, and Claimant Portal applications.

SUBJECT MATTER EXPERTS

The iUS team consists of individuals in various specialized areas of work.

Product Owner	Tax and Benefit subject matter experts
SCRUM Master	Manage sprint meetings
Build Manager	Build the deploy to environment
Development Team	Technical development staff
Business Requirements Composer	Tax and Benefit business owners
Technical Writer	Manuals, Notifications, Web Pages

SCRUM PROJECT MANAGEMENT PROCESS

The Scrum agile development process is used to provide:

- Constant feedback on development progress
- Early recognition of problems
- Direct business expert and end user involvement.

Sprint

Each sprint begins with a planning meeting to identify work to be completed in the sprint.

During the 2-3 weeks of development activity in the sprint, daily scrum meetings are held to plan each day's development work and answer three basic questions:

1. What did I accomplish yesterday?
2. What will I accomplish today?
3. What obstacles are preventing progress?

Retrospective and Review meetings are held at the end of each sprint to facilitate continuous improvement and ensure effective team communication. Adjustments to the implementation process are then made to refine areas of concern brought up in the retrospective meeting.

Product Owner

The Product Owner plays a key role in the definition of each project's scope:

- Makes the initial determination about what is in and out of scope
- Considers whether to revise the project scope if other team members have concerns
- Documents each increase to scope in Appendix A of the playbook.

Product Backlog

The Product Backlog is the repository for all work expected to be completed during the project and during each sprint. The Product Owner outlines and prioritizes work for placement in each sprint. When the product backlog is groomed by the product owner and developers, each backlog item, task, or bug is given an estimated effort for completion.

Once worked on by a developer, backlog items are marked as *done* when the following criteria are met:

- Code is complete
- Functionality is implemented
- Unit tests succeed and data are correct
- Quality assurance work is done by business analysts
- Bugs are fixed as identified by business analysts
- User acceptance tests are complete.

REQUIREMENTS PROCESS

Requirements

When possible a complete requirement set should include a use case, user interface sketches to show general user interface requirements (when relevant), and data entity information. Ideally, each requirement would be complete before being put into a sprint backlog. Incomplete requirements can be placed on the product backlog and subsequently the development takes longer as requirements gathering must happen during development.

Design Decisions

Throughout development, design decisions have been made regarding the construction of each project. Development standards include:

- Internet browser is the agency's currently supported version of Internet Explorer used in Standards Mode with compatibility view off
- ASP.NET MVC 5 is used for user interfaces (iUS, Liens, Claimant Portal)
- Windows authentication is used for internal users (iUS, Liens, Claimant Portal)
- Forms authentication is used for external users (Claimant Portal)
- Role based authorization is used for controller methods – 'AccessControl' application is used to add roles/users (Liens, Claimant Portal)
- Entity Framework is used for Object Relational Mapping (Liens, Claimant Portal)
- Microsoft Unit Testing library is used for unit testing with MOQ as the mocking framework (Liens, Claimant Portal)
- Unity is used for dependency injection within the MVC project (Liens, Claimant Portal)
- Labor.Services.dll is used on the existing servers to interface with department error logging and AccessControl methods (iUS, Liens, Claimant Portal)
- jQuery date picker is used for date entry and other places where applicable to provide user interface standardization (iUS, Liens, Claimant Portal)

- Windows Communication Foundation (WCF) is used for data services: service based communication to outside applications (iUS, Liens, Claimant Portal)
- N-Tier Architecture (multi-tier architecture) is used to keep presentation, application processing and data management functionality physically separated (iUS, Liens)
- Onion Architecture design pattern is used to isolate business logic and reduce tight coupling between application layers (Claimant Portal only)
- Domain-Driven Design was used to create a ubiquitous language with the business users and help break down problems into smaller contexts during the development of the Claimant Portal application.

CODING PROCESS

Modifications to Existing Systems

Changes to existing systems are made as necessary to implement specific functionality required for iUS. Current standards and practices used in those systems are maintained when it is more efficient to do so.

Implementing the Relational Database

The relational database was constructed by reviewing the data entity information included as part of the requirements, refining and clarifying the data types, lengths, etc., completing a gap analysis with existing systems, then creating or modifying the logical data model. The logical data model makes it easier to communicate the data model to customers and developers.

Once the logical data model was updated and correct, the physical database was created.

Implementing Presentation Layer Elements

The presentation layer was implemented using MVC.

The sketches and storyboards provided as part of the requirements were used to understand the initial interface design and flow from screen to screen. Completed screens did not always look exactly like the sketches, but significant differences are discussed with the business customer.

Where possible, screens manage data for one object or closely related objects. Screen names are related to functionality on the screen.

Refer to the current standards document/project – iUSStandards.

Implementing Business Layer Elements

Business layer elements were constructed based on the class model and use cases. The class model was created in close cooperation with the logical data model.

Function Blocks were not directly implemented as assemblies or system components.

Implementing Data Layer Elements

Use the existing iUS ORM for adding new features or functionality.

ENVIRONMENT MANAGEMENT

Developer Environment Setup

The goal is for developers to use the most recent and stable version of libraries and tools. The current development environment is as follows:

- Windows 7 Enterprise 64-bit
- Visual Studio 2015
- Team Foundation Server 2015 Power Tools
- MVC 4 and MVC 5
- SQL Server 2014 Management Tools
- Labor.Services 1.2.0.0 are included in the project through NuGet references versus GAC installations
- Connection Strings are located in the web.config and transforms are used to ensure the right strings are used for each environment.

Development and Test Environments

Separate development, test, and staging SQL Server instances have been established for developing and testing iUS solutions.

The test web servers mirror production as much as possible. Access to deploy applications on staging web servers is limited to administrative staff.

A TFS Build server manages nightly builds and executes basic unit tests. The nightly and Constant Integration (CI) builds deploy the latest version to the development web server.

Variables to identify server location are stored in a configuration file at the server level. Connection strings are stored in this web.config file in the web application and transformations are used to manage changes as needed when going to development, test, staging, and production environments.

Deployment / Promotion Procedures

Code promotion occurs as follows:

- Developers actively develop and test on their own workstations
- Code is moved to the Web Development server by a nightly build
- Code is promoted to the Production and Staging environments through a standardized process using Microsoft's Release Manager
- Code is promoted to the Production environment once approval is provided by the business owners.

Managing Data

Changes to data are managed and promoted along with code changes and promotion using a process that operates in parallel with the code promotion process.

INTERFACES TO EXTERNAL SYSTEMS

Interfaces

The Product Owner determines what interfaces are in scope or out of scope. For the most part in-scope interfaces include all interfaces that are required to allow existing systems to continue functioning when the previous application is retired.

Common Data Interface

Build a service interface for other systems to access data using a higher-level interface application or web service.

CODING STANDARDS

.NET Coding Standards

Caching

Do not use the OutputCache directive. This can inadvertently expose one user's data to another user.

Naming Standards

Variables

- Private variables should be CamelCase, and should describe the data they hold without short abbreviations (e.g. firstName).
- Public variables, methods and enumerations should be PascalCase (e.g. FirstName).
- Don't use literal strings (aka "Magic Strings") or hard-coded values. Instead, put values in settings tables, or store lookup IDs in a constant on the lookup class.

Classes

Class names should be:

- PascalCase
- Descriptive of what you are modeling with no short abbreviations
- Singular.

Methods

Method names should be:

- PascalCase
- Descriptive of what you are returning or doing with no short abbreviations.

Interfaces

Interfaces should be:

- PascalCase
- Named after the object they represent, and the name should match the related concrete class where possible
- Start with an "I" (e.g. IClaimantAddress).

Dates

Use jQuery date picker for all dates entered by users.

Screen Resolution

1024 x 768 is the supported screen resolution.

Accessing Data Entities

Access to data entities occurs through data access classes. Any data manipulation of data entities should occur within the matching data access class.

Best Practices

1. You should have a class defined for each query result. If you have a query that is returning results combining multiple tables, or a subset of columns from one table, create a class to represent that chunk of data.
2. Name your classes and properties using terms that make the most sense. Do not worry about having your names match the table and column names exactly. You can use alias attributes to map these back to the data objects.
3. If your class will perform persistent data operations to SQL, inherit from `SqlDataEntity`.
4. By default, all CRUD data operations are disabled except for `GetByID`. As you need features (like store, getall, delete), add the appropriate attribute to your class. When you do this, it turns on automatic testing.
5. If your class will have tracing (modifiedby, createdby, createddate, modifieddate), add the tracing attribute to your class. This forces the framework to hydrate these properties after a store or a get operation.
6. If your class will perform relationship navigation (i.e. get parent item or get child items), add the foreign key attribute on the appropriate foreign key property in the child class. When you do this, it turns on automatic testing. Also, when using relationship navigation, do not use magic strings. Use the `DataEntityBase.GetPropertyname` function to pass the property name. This helps with refactoring, and makes the app less brittle.
7. By default, all `SqlDataEntity` derive classes use the `iUS` database and `iUS` schema for connections. If you need a different database or schema, use the class `SQL` connection attribute.
8. If your class will perform get by column custom operations, add the appropriate proc suffix constant to your class, and then add the get by custom constant attribute to enable get by. When you do this, it turns on automatic testing.
9. The `SqlDataEntity` base class manages connections strings for you for most operations. If you are doing a transactional store operation (calling the store operation and passing in a transaction), YOU WILL NEED TO MANAGE your transaction and connection string manually. MAKE SURE you close your own transaction and connection strings when doing this or they will stay open and cause application issues. Wrapping your connection and then transaction in a using statement and not returning out of that using statement will safely ensure your connection is managed properly.

Reflecting the Data Model in Code

Every table in the data model that will be consumed in our business layer corresponds to a matching class in the business layer. Properties should have a one to one match to those columns in the data model. Names can vary slightly, but should be close to those in the data model.

Lookup Classes

Lookup classes (classes that represent smaller sets of rarely changing data) have enumerations representing the ID and name of each item.

- Enumerations are typed to match the type of the ID.

- Most lookups use the short value type for the ID. This reduces data sizes and allows for plenty of range for these small data sets.
- Enumerations are named in the plural form of the class name (i.e. Language class would contain a Languages enumeration).
- Enumerations are in ID order to make table comparisons easier.

Managing Concurrency

Many database tables and application classes have a 'ModifiedDate' property. The property exists to manage concurrency between the database and edit forms in the application. Where applicable, application forms have a field that holds the 'ModifiedDate' value as it existed at the time that the record was read from the database to populate the edit form. When the form is posted back to the server, that value is used in the object that is going to get passed back for storage to the database. The store procedures in the database compare modified dates in the database with object to be stored and raise an error if the incoming object was not current with the last modifications stored in the database.

Sample code can be found in the MVC Standards and Playbook Samples project under MVC/ Security - Model Binding on Post Back.

Application classes may have a 'RowVersion' property of type 'byte' and carry the 'Timestamp' attribute. This property type and attribute provide a built in mechanism for Entity Framework to manage data concurrency.

Managing Web API / Web Services

Due to restrictions in the environment—primarily network and security related—Web API was deemed to not be a feasible option for inter-application communication. Instead, Windows Communication Foundation (WCF) services were used.

Class Persistence

Classes that represent data that is persisted follow these additional rules:

- Each class has a primary key property that is named after the class followed by ID. Example: UserID.
- Foreign keys are not used in the class. Instead, a navigation property is used that represents the foreign class type. Example: Claimant class may contain a Claims property representing a list of claims for that claimant. The Claim class may contain a Claimant property representing the claimant associated with the claim.
- Lookup classes aside, classes that are persisted contain the following properties to help track change: CreatedBy, CreatedDate, ModifiedBy, ModifiedDate.

MVC Standards

Security - Model Binding on Post Back

For security purposes, model binding on post back should never happen directly to a concrete class that will be directly stored in the database. This practice is susceptible to abuse by malicious users. When using automatic model binding features in MVC, follow these steps to ensure only the properties intended are stored for the object.

- Bind postback values to a viewmodel
- Read the object record from the database
- Fill the object from the database with the desired values from the ViewModel
- Store the object.

Sample code can be found in the MVC Standards and Playbook Samples project under MVC/ Security - Model Binding on Post Back.

(iUS, Liens, Claimant Portal)

Areas

To help with organization and provide more intuitive routing, areas are used. Each area contains applicable views/ViewModels/controllers.

Model vs. ViewModel

For all intents and purposes, when talking about the Model layer of the iUS project, a person is referring to the 'Business' project in the solution. The business class library manages data persistence and the various relationships between objects.

For all intents and purposes, when talking about the Model layer of the Liens project, a person is referring to the 'Liens.Core.Domain' namespace in the solution. The Liens.Core.Domain namespace manages classes where data persistence is expected and the various relationships between objects. The EntityFramework data context (LiensDataContext) is full of DbSetes of classes from Liens.Core.Domain.

ViewModels are custom classes designed to permit access to specific Model properties or to act as a container for many objects to be used by a corresponding view. These are in the 'ViewModels' folder of the MVC project (Liens, Claimant Portal).

As a general rule, it is okay to pass a Model object (or collection of them) to an MVC view for display purposes, but ViewModels are used to manage complex combinations of Model classes. This strategy is effective for easier maintenance, flexibility with form design, validation, and security.

Viewbag vs. ViewModel

Generally speaking, the iUS project does not use the 'ViewBag' to pass/hold objects and values to be used in a corresponding view. Use of the ViewBag does not give you the benefits of intellisense in your views and requires your string names to match in the controller and view. As an alternative, ViewModels should be used to hold objects and collections of object so views can be strongly-typed to the view model. By following this pattern, developers get the benefit of intellisense while writing code in the view and the possibility of run-time errors is reduced.

Sample code can be found in the MVC Standards and Playbook Samples project for the 'Validation' page.

Use of @Html Helpers

The @Html.EditorFor can be used and is not discouraged in general. However, there are drawbacks to using the @Html.EditorFor helper. The @Html.EditorFor does not allow assignment of classes and IDs to the element that is being created, which limits that element's ability to reliably work with javascript methods.

Sample code can be found in the MVC Standards and Playbook Samples project under MVC/ Use of @Html Helpers.

Partial Page Usage

Use of partial pages and dynamically loading as requested by the application improves performance, reduces traffic on the network, and results in smaller 'pages' that are easier to develop and maintain. Use of partial pages and dynamic application content is encouraged for iUS, Liens and Claimant Portal.

Several client-side methods have been developed to simplify and standardize the way partial pages are loaded using AJAX on jQuery. They are all included in the 'dialog.js' file that is part of the project template. (iUS)

Sample code can be found in the MVC Standards and Playbook Samples project under the Partial Pages link.

Domain Driven Design

Claimant Portal uses Domain Driven Design to help improve domain analysis and communication with the customer, as well as break problems down into more maintainable blocks. To achieve this, the following was done:

- Established a ubiquitous language.
- Domains are broken into subdomains. This reduces side affecting code, allows for lighter weight objects being passed around, and reduces code complexity.
- Data access is broken into bounded data contexts. This reduces cases where unused data is being passed around that would not be used in the current subdomain.

Onion Architecture

Onion architecture was used in the development of the Claimant Portal. This architectural pattern is used to manage the project dependencies by:

- The domain project has no dependencies on other projects. This allows the infrastructure to be modified without having adverse effects on the actual domain logic.
- Infrastructure projects (data, authentication, etc.) implement the domain layer by use of dependency injection. This allows the infrastructure implementations to be aware of the domain layer without affecting the domain directly.
- The MVC project uses injected infrastructure instances (services) to gain access to the domain models. This allows access to the domain models within the context of the infrastructure service.

MS SQL Server Standards

Naming Standards

(iUS only)

Schemas

- PascalCase
- Name indicates ownership or function
Example: iUS, Audit, Log, WIA, TNT
- Default schema are set to dbo. This will enforces consistent use of schema prefixes for disambiguation.

Tables

- PascalCase
- No Spaces or Underscores
- Singular
- Use Entity Names as much as possible
- Avoid using reserved words for column names.

Views

- PascalCase
- No Spaces or Underscores
- Singular
- Use Table name when possible
- Prefix with lowercase "v"
Example: vClaimant

Stored Procedures

- PascalCase
- Underscore after Table Name
Example: Claimant_Store
- Schema should always be called with stored procedures
Example: ius.Claimant_Store
- After the underscore, the stored procedure has to list the appropriate action followed by an identifier. Example: ius.Claimant_GetByID
- Approved Actions:
 - o Insert - Inserts one or more rows into a table
 - o Get - Selects data from a table
 - o Update - Updates one or more rows of data into a table
 - o Delete - Deletes row(s) from a table
 - o Store - Manages both inserts and updates to a table
 - o Export - Export to an external data source
 - o Import - Importing from an external data source
- If a reserved word is used for a column name, use brackets [] when addressing that column.

Functions

- PascalCase
- Prefix with lowercase "f"
Example: fClaimant
- Underscore after Table Name, if applicable
Example: fClaimant_GetByID

- Schema should always be called with functions

Example: ius.fClaimant_GetByID

Primary Keys

- Constraint name will be PK_TableName.
- Column name associated with the primary key will be TableNameID.

Default Values

- Constraint name will be DF_TableName_ColumnName.

Foreign Keys

- Constraint name will be FK_ChildTableName_ParentTableName.
- If duplicates exist, child column name will be added:
 - o FK_ChildTableName_ParentTableName_ChildColumnName

Use of Data Types

Nulls are used where they are meaningful. In general, Nulls should indicate unknown uninitialized data, and not blank or none.

Date instead of DateTime are used when time is not meaningful. For example, Benefit Year End is a date, but the time is not relevant. In this case, the Date data type should be used. If only the time is needed, use the Time data type.

Varchar() is used for most string data types unless another data type is specifically called for. Where possible, include enough space in the varchar to meet future needs.

Bits is used for on/off or true/false values.

TinyInts and Ints are used for numeric data instead of chars.

DateTime2(2) is used instead of DateTime and Timestamps.

Decimal is used instead of Money.

GUIDs are only used when expressly needed. BigInts are used for unique keys.

XML are used when expressly needed.

Use of Constraints and Referential Integrity

Referential integrity is enforced in the database wherever possible.

Constraints is used for Primary Keys, Unique Alternate Keys, and NULL/NOT NULL status.

Data Access

Data access is only allowed through stored procedures.

Use of Structured Query Language

SELECT * is strictly prohibited in SQL objects.

@@SCOPE_IDENTITY is used to return new identities.

All stored procedures start with BEGIN and finish with END.

Statements between the BEGIN/END are indented by one tab.

WITH (NOLOCK) is strictly prohibited. Snapshot Isolation (native functionality in SQL2008) is used to handle row locking.

Transaction scope is as small as possible. Remove any actions that are not absolutely necessary from within the scope of the transaction.

Permission Standards

Roles are used to manage all permissions.

All users are members of an Isolation role.

User Interface Look and Feel Standards

Web

Public-facing applications use a standard master layout based on the state of Idaho's standard layout and styling.

Internal applications use a standard master layout based on the iUS styling.

Development, Test, Staging and Production environments are very clearly identified.

Mobile Web

Mobile Web requirements are identified as part of each project and identified in the product back log as part of business requirements.

Validation Standards

Client Side Validation

Client side validation and server side validation is used to reduce unnecessary "round tripping". MVC's automatic client script validation is used through validation attributes on classes, and additional client script validation is used for more complex scenarios. This improves performance and user experience, but for security reasons, all validation is still done on the business layer as well. (iUS, Liens, Claimant Portal)

Business Layer Validation

Basic validation criteria are specified on classes using attributes. This allows the ability to take advantage of the automatic client side and server side validation logic provided by MVC. Advanced validation criteria is done through code in the business classes in case user turns off scripting. All validation—other than data layer specific validation—is done in this layer.

Data Layer Validation

The data model layer does not handle any validation. The persistent storage implements some core pieces of validation, including referential integrity, identity keys, unique constraints, and minimum/maximum data size requirements. (iUS)

System Variable Standards

Lookup tables in SQL are used, where appropriate. If the data is stored in the database, a lookup is used instead of an enumeration or other constant declaration type.

The SQL Application.Setting and iUS.Setting tables are used for values that may change more often, contain business content, or for values that are used in multiple systems. (iUS)

Transaction Management Standards

Transactions are initiated and committed by the .Net code using ADO.Net standard transaction management. Custom logic is not written to manage transactions.

EntityFramework manages that all database changes in a context are stored or rolled back with the SaveChanges method is called.

Concurrency Management Standards

For any entities where concurrency concerns are identified, the last modified date is used as a comparison in the stored procedure to either accept or reject the change. If the last modified date shows that the data has changed prior to the update, a standard error is returned from the stored procedure, which can be handled in the code.

EntityFramework manages concurrency on classes that have a property of type 'byte' and carry the 'Timestamp' attribute. For classes that need concurrency checks, EntityFramework's built-in capabilities are utilized.

The application notifies the user that the data needs to be refreshed, and the user must re-enter the changes. (iUS, Liens, Claimant Portal)

Source Code Management

Source code will be managed in TFS.

SQL changes are checked in to Source Control to ensure transparency during the sprint and to enable a smooth migration from development to test, staging, and finally production.

Checking In and Checking Out Source Code

Source code is checked in daily. All code that is checked in must compile. Adding a comment is required for each check-in. A work item is associated with each check-in to show which code changes are related to each task.

Creating and Managing Baselines (Labels)

Significant events, end-of-sprint, or code branching can be marked with a label as needed.

Branching and Merging Strategy

Branches are only created when specifically needed. Occasional research can often be accommodated through use of a shelveset.

Branching occurs when code needs to be changed separately from the mainline development activity.

Merging occurs when branched code needs to be merged back in to the mainline.

Automated Builds and Deployments

Continuous integration builds are scheduled to ensure the project code compiles for the entire iUS solution.

Automated tests run on each build to ensure the code has not regressed. Automated tests are deployed to the development server.

Each night, the nightly build runs to build the entire solution, run the automated tests to ensure the code has not regressed in the past day, and to deploy to the development server.

All developers on the team watch the build results and assist with fixes if the build breaks or tests fail.

QUALITY ASSURANCE AND TESTING PRACTICES

Each developer has the primary responsibility to ensure that unit tests work and the code meets the requirements. Additional QA staff and business users provide additional verification, but the primary responsibility for quality rests with each developer.

As each sprint proceeds, increments of work are presented to business users for initial validation to identify obvious problems such as misunderstood requirements.

When issues or defects are uncovered by testing, remediation occurs within the sprint if the issue is related to a current sprint backlog item. If the issue is related to an item that is not in the current sprint, a new bug is created to track the issue, and that bug is prioritized for a future sprint as needed.

Bugs are entered into TFS and prioritized along with other work items.

Unit Testing

Developing Automated Test Suites

Automated tests are focused on specific parts of the system that simply and helpfully expose regression. Automated tests are only created and supported where they are specifically useful.

Test Patterns / Practices (when possible):

- Use the most specific asserts possible for each test (ex: if testing that two values are equal, use the AreEqual assert vs the IsTrue assert).
- When using an AreEqual assert, the first parameter should be the expected value. This makes the error messages more intuitive.
- When possible, do not throw exceptions in the test. Instead applicable asserts to indicate there was an issue.
- Instead of safe casting and then checking for null, use the InstanceOfType assertion to verify that the type is correct.
- Keep tests specific. Test for a specific case per test vs multiple cases in a single test when possible.
- When testing validation rules, start with a valid model, and individually test each property for failure.
- When testing for failures, use the callback to capture the exception and ensure it is the expected exception, message is correct, etc. Also, put the exception into a local variable for easier debugging.
- Tests should focus on testing the end result, not the implementation. For example, test for a validation error, but not how the validation was implemented.

- Avoid magic strings as much as possible. If you need to put a lookup ID into a test, use the enumeration instead of hardcoding the string. This helps when refactoring to identify issues in tests.
- Avoid using default values when testing, otherwise you may get false positives. For example, when testing a Boolean form field, test for the true value instead of the false value.

Integration Testing

Integration testing occurs in each sprint to verify that newly completed PBI's integrate with all existing components. Any integration issues can then be identified as early as possible.

Developing Test Cases for Integration Testing

Test cases are created during each sprint to verify functionality and ensure that new components integrate correctly with existing components. Acceptance Criteria specified on the PBI's are used to identify what tests may be needed.

Managing Integration Test Environments / Data

Automated integration testing occurs on the Web Development server environment from daily builds, then manual integration testing occurs on the Web Test environment. Business users enter test cases in TFS to help manage and plan the testing that needs to be done. As the project progresses, currently assigned business users have more time for testing and shift their efforts toward quality assurance and testing.

External Interfaces for Integration Test Environment

When they are available, test interfaces are used for outside systems (ICON, NDNH, etc.).

Managing Defects

Within a sprint, the issues or defects which arise that are related to sprint backlog items are fixed within the sprint. For items that are not in the current sprint backlog, new backlog items are added for defects uncovered by integration testing.

When defects are identified, the tester enters a bug into the TFS system using either the Team Web Access interface or Visual Studio. Follow these guidelines when creating a new bug:

- Enter a Title that briefly describes, the problem
- Select Project and associated sprint iteration
- Enter Steps to Reproduce that will enable the developer to reproduce the bug and evaluate the problem
- Enter links or attachments that help identify the problem
- Set the Severity (Low/Medium/High/Critical)
- Select the Area
- Enter Acceptance Criteria describing what a successful outcome would be.

A member of the development team is assigned to evaluate bugs as they are identified. The product owner for that area determines whether it is more important to resolve the bug in the current sprint or move it to a future sprint; the bug is then moved into the appropriate sprint and worked on as part of that sprint backlog.

After a developer fixes a bug, the developer reassigns the bug back to the person who originally wrote the bug for verification. When the bug-writer verifies the bug is fixed, the bug-writer marks the bug as done.

Stress and Performance Testing

Strategies for conducting Performance and Stress Testing

Performance testing focuses on areas that are expected to see the highest volume from customers. For example, Continued Claims sees significant spikes in volume on Sundays. Performance testing ensures that not only will that application support the required volume, but also that the interfaces and related systems that process those claims can manage the volume as well.

Managing Data

Data is generated to fill the database to a level similar to what is expected when the system is in production so performance testing is realistic.

Data loaded into test databases can be sanitized to remove personally identifiable information.

Acceptance Testing

Developing Test Cases for Acceptance Testing

Business users create test cases for acceptance testing, typically based on the use cases and requirements they have written. Business users enter test cases in TFS to help manage and plan the testing that needs to be done.

Managing Acceptance Test Environments / Data

The Web Test environment is used for acceptance testing. It mirrors the production environment. Ideally, the test database would contain data of similar volume to what is expected in production so users will have a life-like experience when they interact with the system.

Managing Acceptance Test Issues / Defects

When issues or defects are identified that are outside of the current sprint, a new backlog item is created which can be prioritized for a future sprint as needed.