State of Washington

MODERNIZATION OF LEGACY IT SYSTEMS

A Report to the Legislature

Prepared pursuant to:
Section 7, Chapter 33, Laws of 2013, 2nd Special Session
(Engrossed Substitute Senate Bill 5891)

Office of the Chief Information Officer
November 2014

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Executive Summary

The Office of the Chief Information Officer (OCIO) was directed in Section 7, Chapter 33, Laws of 2013, 2nd Special Session (Engrossed Substitute Senate Bill 5891) to prepare a report that inventories legacy information technology systems of the executive branch, both enterprise-wide and agency specific, and develop a prioritized plan for the modernization and funding of these systems.

This report catalogs and analyzes the current state of the legacy system portfolio, and provides financial and qualitative analysis for updating and modernization. It then describes existing modernization initiatives. Finally, it will provide an OCIO road map for advancing the modernization of technology in the state of Washington in alignment with state technology goals and industry direction while also mitigating the ongoing risk introduced by legacy IT systems.

This report offers a comprehensive and holistic view into legacy IT systems in the executive branch and is designed to:

- Assist the Legislature and the Office of Financial Management to better understand the relationship of modernization/replacement efforts to explicit funding requests and current agency budget levels.
- Anticipate funding levels and where possible, funding sources across future biennia.
- Align modernization and replacement efforts with state strategic technology goals.
- Identify opportunities for savings and efficiencies in IT expenditures.
- Monitor ongoing financial performance of technology investments.

Defining and Identifying Legacy Systems

While "legacy" in the IT world is often misinterpreted as "old," this report takes a more rigorous approach. For this study, a system was determined to be legacy if it does not fully meet business needs for one or more of the following reasons:

- The system is not easily updateable due to complicated or indecipherable code, fragile interfaces or lack of useful documentation.
- Maintenance or modification of the system depends on expertise that is hard to find or prohibitively expensive.
- The system depends on software no longer supported by the vendor.
- Other risks identified by agencies, such as vendor instability, lack of alignment with enterprise architecture or lack of "bench depth."

Across the 44 executive branch agencies that spend more than $250,000 a year on IT (plus one other agency that volunteered to participate in this study), the OCIO cataloged 1,983 unique software systems. Of those, 619 (31 percent) were identified as legacy systems.

Despite their drawbacks, legacy systems remain in use due to the high cost of redesign/replacement or data migration to a modern equivalent. These systems burden the state's ability to be secure and to respond quickly to the customers and needs of the authorizing environment. Legacy systems are a burden on IT infrastructure and represent a significant opportunity cost of delivering value to the citizens.

It is critical to note that modernizing or replacing legacy IT systems is a moving target. A system that may not be considered legacy this year might become legacy next year due to the pace of technological change, shifting skill set availability and cost, and changing business needs.

Findings

Below are significant findings examined in the report:

1) A total of 619, or 31 percent, of the 1,983 systems reported are legacy IT systems.
2) Based on rough orders of magnitude, estimated cost to fund modernization or replacement of:
   - All legacy IT systems are estimated to cost $568 million to $2.8 billion
   - The 343 mission-critical legacy IT systems are estimated to cost $485 million to $2.4 billion
   - The 67 citizen-facing legacy IT systems are estimated to cost $37 million to $187 million
3) A total of 518, or 84 percent, of legacy systems have been developed in-house and are hosted by the state.
4) The three largest business capabilities impacted by the legacy systems are:
   - Financial management systems (131 systems, or 21 percent)
   - Agency-specific systems (123 systems, or 20 percent)
   - Licensing/permitting systems (96 systems, or 16 percent)
5) The functional areas of the budget most impacted by legacy IT are:
   - Human services (119 systems, or 19 percent, of all legacy systems, representing 40 percent of the cost)
   - Transportation (197 systems, or 32 percent, of all legacy systems, representing 23 percent of the cost)
   - Enterprise Resource Planning Project (ERP) (73 systems, or 12 percent, of all legacy systems, representing 17 percent of the cost)
   - Governmental operations (150 systems, or 24 percent, of all legacy systems, representing 16 percent of the cost)

Recommendations

The OCIO recommends the following steps to reduce the risk posed by the state's current legacy systems and prevent other systems from becoming legacy:

- Reduce the risk of system failure by improving documentation, capturing system information from departing staff, and incrementally rewriting or improving system code when possible.
- Provide agency code developers with tools and training to identify potentially high-risk systems and revise the current code, or develop new code, that is more secure.
- Use the new centralized IT security services provided by Consolidated Technology Services.
- Prevent current systems from becoming legacy by staying up-to-date on software versions.
- Build sound business cases for modernization efforts, when modernization is appropriate, to improve the likelihood of receiving funding.
- Use pace-layering to identify different types of systems and appropriate modernization strategies.
- Consider migrating to Software-as-a-Service (SaaS) or commercial-off-the-shelf (COTS) deployment models.
- Develop modernization projects that use an agile approach to deliver incremental value more quickly.
- Continue to identify, categorize and analyze the statewide application portfolio to guide future IT investment decisions.
- Identify opportunities to migrate from legacy systems to shared or enterprise services.
- Increase standardization across the enterprise when appropriate.
- Create a fund source for IT modernization and security improvements.

The OCIO also recommends continuing to maintain and analyze the system inventory to support other OCIO statutory responsibilities and in advancement of more open and transparent government. It is in the state's best interest to have an accurate and up-to-date inventory of systems in operation to serve as a foundational element in discussions with internal business executives, external stakeholders, the Office of Financial Management and the Legislature. The OCIO intends to mandate by policy that agencies regularly update this inventory, and will work with agencies to improve and refine both the process and the data quality over time.

Disclaimers

It is **critical** to note several disclaimers that apply broadly to this entire report:

1. **Any fiscal data on modernization cost is highly speculative**. For more accurate costs, much more detailed work would be required, and agencies are not in position to undertake that work for any efforts other than those currently underway or expected to be addressed in the near-term (inclusive of the 2015–17 biennial budget). Detailed cost estimation for work not anticipated to take place in the near-term would be of dubious value due to the pace of technological changes in the marketplace. **It would be risky to use the estimated modernization cost for anything more than attributing a high order of magnitude scale of modernization cost**. Because this survey includes projects that are already under development, in early stages of feasibility studies or market research, are of long duration and varied in terms of impact on business process, or are complete unknowns targeted for future biennia, rather than using a 4x variability, we settled upon a -50 percent and +150 percent variance as a broad rule. Variability in certain agency-specific efforts already in process or having undergone significant research from which to estimate costs (such as the Department of Enterprise Services' Time, Leave and Attendance project (TLA), the Department of Revenue's tax and licensing system replacement project or the Department of Licensing's modernization project) may be less pronounced.
2. **The cost estimates provided in this report are limited to the development or procurement of a new system only. Ongoing maintenance and operations costs are not included.** Once a legacy system has been modernized, an agency should be able to decommission the legacy system and will no longer incur those maintenance and operations costs. Therefore, there will be some new costs associated with the new system and some commensurate decrease in cost associated with decommissioning the old system. The savings incurred by decommissioning legacy systems, and cost of maintaining new ones, are not captured in this report.
3. School districts and higher education institutions were not included in this survey.
4. Some survey responses were incomplete to varying degrees. These include:
    - **The Military Department (MIL) is not included in this report**. MIL responded to the first set of survey questions but not to the second set. We excluded its initial inventory data because numerous agencies significantly revised their inventory in their second responses. Based on the initial inventory submitted by MIL, its inclusion would have little impact on the number, cost or percentages discussed in this report.
    - The Department of Natural Resources inventory response included only its legacy systems. As a result, its percentage of legacy systems appears high and slightly skews the aggregated results.
    - The Department of Agriculture inventory response also included only its legacy systems. Additionally, its response did not include distribution of cost-over-time data for modernization of its legacy systems. As a result, the midpoint of the estimated modernization cost range was selected for the best estimate, which may result in a less accurate anticipated modernization cost.
    - The Department of Fish and Wildlife (DFW) response did not include the distribution of cost-over-time data for modernization of its legacy systems. As a result, the midpoint of the estimated modernization cost range was selected for best estimate, which may result in a less accurate anticipated modernization cost. DFW did, however, indicate which of its systems would be replaced by the cross-agency efforts related to ERP or TLA implementation. This allowed OCIO to ensure that costs for these systems were not double-counted.
    - For specific systems, several other agencies elected not to provide distribution of cost-over-time information. For these systems, midpoint of estimated modernization cost range was selected for best estimate; this may result in a less accurate anticipated modernization cost.
5. The transportation-related functional area of the budget in this report includes the Department of Transportation, Department of Licensing, Washington State Patrol and County Road Administration

Board. Expenditure data for transportation-related agencies includes projects funded through both the operating and transportation budgets.

6. There are two efforts that cross agencies and budget functional areas called out separately in some charts and tables in this report. Both efforts will replace legacy and non-legacy systems, so using the project costs introduces "noise" in the cost estimates. Yet it is important to note that both projects will replace a significant number of legacy systems and represent a desired enterprise services approach to both improve operational efficiencies for back-office functions and allow agencies to focus more on core mission work. Most agency-provided estimates of modernization or replacement costs for systems replaced by the proposed ERP/One Washington effort (to replace core financial systems across the state) or by TLA (to build an enterprise service for time and leave management across the state) were not included. This decision was made to avoiding double-counting, but it comes with a different hazard. Until replaced, agencies will need to expand some effort in mitigating the ongoing problems of having the legacy systems slated for decommissioning at the end of ERP.
7. Costs to replace finance and procurement functionality are based on a report produced by Accenture as part of One Washington. The costs reflected in this report represent the planning and procurement, business process redesign and implementation for the highest-detail cost scenario. This was selected for the purpose of being conservative. The costs reflected in this report will not necessarily be the same as a decision package for the project.

Detailed Findings

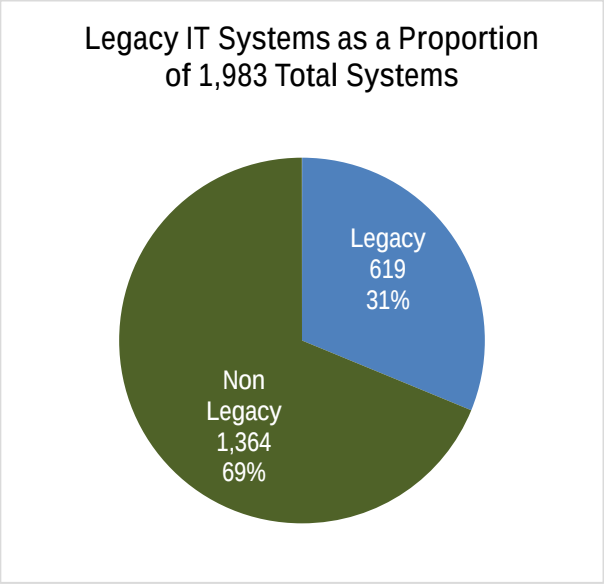
The section gives a comprehensive view of legacy systems in use across the enterprise. It starts with an overview, moves to a financial analysis of modernizing those systems, then closes with some non-fiscal insights. For each section, the report gives the relevant results of the survey and separately offers analysis of those results.

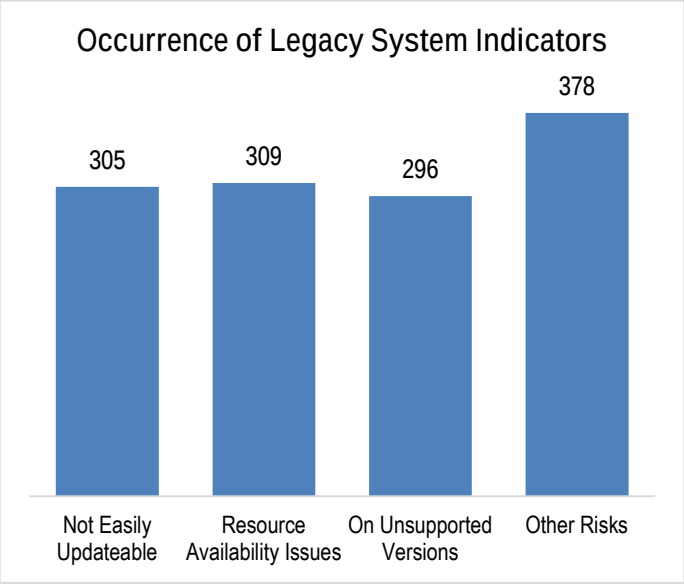
Legacy IT Systems Overview

Below is an overview of all the legacy systems, or applications, in the enterprise.

Results

Of the 1,983 total IT systems reported, 619, or 31 percent, are legacy systems and not meeting evolving business needs. A table of these legacy systems and several of their characteristics is provided in Appendix C: Legacy System Inventory. The chart below demonstrates the number of legacy IT systems that met each of the four indicators used by the OCIO to identify legacy systems. **A single system may be subject to more than one of these conditions.**





Analysis

Almost one-third of the state's systems qualify as legacy systems. The reasons are varied and the data do not suggest a root cause. More detail on the identified indicators for legacy systems includes:

- **Not easily updateable** includes a variety of things. In some cases, this is a reflection of what is sometimes known as "spaghetti code" or code that has been modified and patched so many times that the flow of logic through the system is hard to decipher. In other cases it means numerous or fragile interfaces with other systems, or simply a lack of useful documentation or institutional knowledge for understanding how the system works.
- **Resource availability issues** could be a reflection of a particularly hard to find, diminishing or costly skill set needed to support the system. It could also mean a lack of available institutional knowledge. More analysis is needed to assess whether cost, institutional knowledge or skill set (and if so, which skills) were identified and to what degree.
- **Unsupported version issues** are significant as this increases risk of unauthorized disclosure of records (data breach), theft or service disruption (e.g., denial-of-service attacks resulting in services not being available when needed). This is especially true for citizen-facing systems, as applications originally designed for use in a secure internal network are now being exposed over the Internet. The legacy

application may require that older versions of intermediary products such as Web hosting software and Internet browsers be used to support it, and these older intermediary products are themselves less secure than current versions. As a result, risk resulting from Internet exposure to an unsupported version of application software is compounded by the required use of Internet software products that do not provide the security controls necessary to mitigate application software vulnerabilities. This risk is particularly pronounced for legacy systems that contain confidential or restricted data.

- **Other risks** cited by agencies included lack of alignment with desired enterprise architecture, vendor instability and lack of bench depth. As with the resource availability question, additional research would be needed to better assess this segment.

Modernization Costs Analysis

The cost of modernization is complex and multi-factored, and a complete understanding would require significantly more analysis than is contained in this report. Further, any fiscal analysis of potential projects years away from starting would be highly speculative. For more accurate data, much more expensive and detailed work would be required. Detailed cost estimation for work not anticipated to take place in the near-term would be of little value due to the pace of technological changes in the marketplace as well. **It would be risky to use the estimated modernization cost for anything more than attributing a rough order of magnitude**.

The cost estimates provided in this report are limited to the development or procurement of a new system only. Ongoing maintenance and operations costs are not included.

Agencies were initially asked to provide cost ranges for modernization or replacement cost. They were later requested to estimate those costs across the multiple biennia in which they expected the cost to occur. Agencies attempted to provide us with these estimates for the bulk of their systems, but it is critical to note that these **estimates for both cost and time for efforts not currently underway or expected in the near-term are also highly speculative**.

Best estimated cost is a combination of:

1) Where agencies provided distribution of cost over time estimates for a given system, the sum of those costs were used as the expected total for that system.
2) Where agencies did not provide distribution of cost over time estimates for a given system:
    a. If the agency indicated that the system would be combined with another, and the distributed cost over time was provided for that system, the additional cost was $0.
    b. If the agency indicated that the expected cost to modernize (or decommission) the system was minimal or would balance out quickly within the current agency budget due to reduced or eliminated maintenance cost, the additional cost was $0.
    c. If the agency indicated it was unwilling or unable to estimate distribution of cost over time for the system, regardless of reason, the midpoint of the estimated replacement cost range was used[1].

An example is provided below.

Example: Agency X indicated in the initial data response that its total estimated modernization cost for System Y would fall in the range $1 million–$10 million.

1) If on the subsequent data response, Agency X had indicated that it anticipated spending $750,000 in 2015–17 and 2017–19 for a total of $1.5 million, the total was used in our "best estimate" scenario.

[1] In the case of DES legacy core financial systems, neither estimated cost range or cost distributed over time was provided as these estimates would be more accurate originating from the anticipated ERP decision package. At present, costs for these systems are not included in this report.

2) If on the subsequent data response, Agency X had not provided the distribution of cost over time for System Y because:
    a. System Y would be rolled into System Z, System Y was assumed to have no additional cost.
    b. Costs for modernizing System Y would approximately equal savings from no longer supporting the system in a given fiscal year or biennium, System Y was assumed to have no additional cost.
    c. The agency was unwilling or unable to estimate distribution of cost for System Y modernization, the cost was estimated at $5.5 million, which is the midpoint of the $1 million to $10 million range indicated by the agency.

These estimates are speculative and subject to change, especially for those projects not expected to occur until a later biennium, are very large or of long duration (spanning biennia). Caution in interpreting the estimates is advised. To provide the high- and low-cost estimates, a -50 percent and +150 percent variance[2] was applied to the best estimate cost for each legacy system. This was the case for all estimated costs, with the exception of debt servicing cost associated with the TLA project as debt costs are fixed.

One way to improve the accuracy of the estimate is to encourage and move toward projects of shorter duration, producing incremental value and return-on-investment more quickly. This will be discussed in more detail in the road map (strategy) section of this document.

The following sections of this report look at the fiscal analysis three ways:
1. Modernization costs for all legacy application, followed by modernization costs for only mission critical and citizen-facing subsets.
2. Modernization costs sorted by budget functional area and agency.
3. Modernization costs projected over time for the current and next three biennia and beyond, sorted by agency and budget functional area.

Modernization Costs Summary

Looking at the modernization costs for all legacy IT systems, the funding needs are significant. Providing a scenario of highest value achieved or return-on-investment (ROI) was highly desirable, but would have required additional quantification work on the part of agencies, which was not within scope of this effort. Consequently, two alternatives to modernizing all systems were analyzed: the costs for modernizing only systems that are mission critical and a separate scenario for modernizing only the systems that are customer facing.

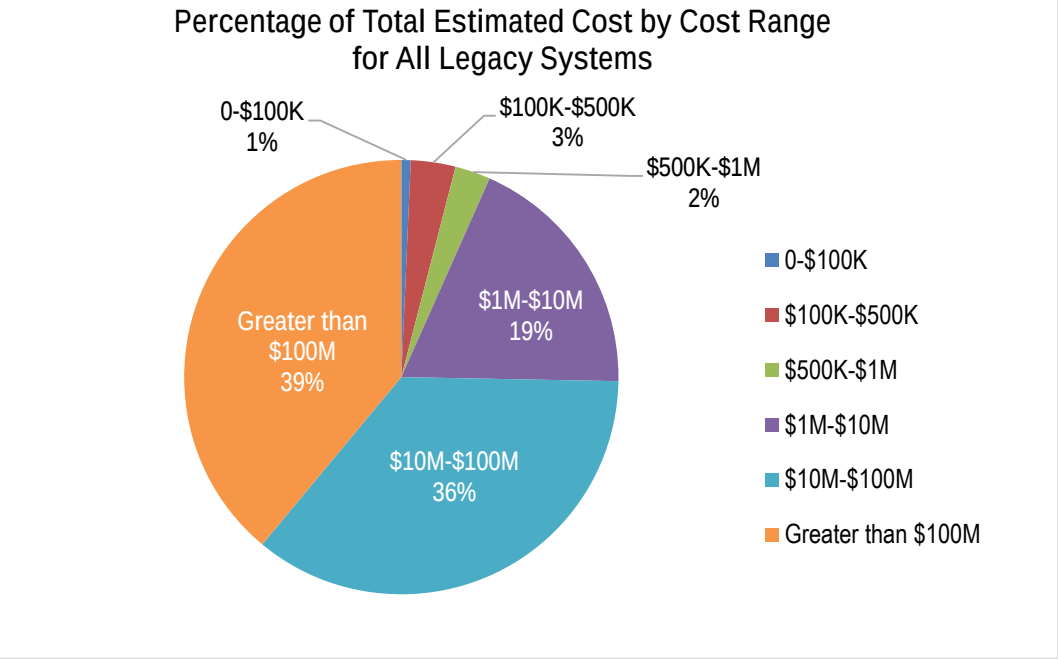
Modernization Costs: All Legacy IT systems

Below is the analysis assuming all legacy IT systems are modernized over time.

[2] This variance was selected after consultation with Gartner analyst Matthew Hotle Sept. 9, 2014, and reflects industry research on the difficulty of providing software development estimates by Roger Pressman (Software Engineering: A Practitioner's Approach, McGraw-Hill, Copyright/2001, 1997, 1992, 1987, 1982) and Steven C. McConnell (Software Estimation: Demystifying the Black Art, 2006). McConnell's work on the "Cone of Uncertainty" introduces a factor of 2x to 4x into estimates, dependent upon the specifics of the development effort known at the time the estimate is provided. "Certainty improves with knowledge, as do the accuracy of estimates." (Gartner: Matthew Hotle, "How Not to Play the AD Estimating Game," March 17, 2005). Because this survey includes projects that are already under development, in early stages of feasibility studies or market research, are of long duration and varied in terms of impact on business process, or are complete unknowns targeted for future biennia, rather than using a 4x variability, we settled upon +150 percent as a broad rule. Variability within certain agency specific efforts already in process or having undergone significant research from which to estimate costs may be less pronounced.

Result

Estimated cost to fund modernization or replacement of all legacy IT systems is approximately $1.12 billion, with a range of $568 million to $2.77 billion. For reference, the state spends approximately $1 billion per year on IT.



Legacy IT Systems (or Sets of Systems) by Estimated Modernization / Replacement Cost Range	Number of Legacy IT Systems	Percentage of Total Legacy Systems	Low End of Range (-50% Best Estimate)	Best Estimate Cost Provided	High End of Range (+150% Best Estimate)
0-$100K	167	27	$3,903,339	$7,806,677	$19,516,693
$100K-$500K	126	20	18,735,500	37,471,000	93,677,500
$500K-$1M	39	6	14,770,000	29,540,000	73,850,000
$1M-$10M	49	8	104,794,746	209,589,492	523,973,730
$10M-$100M	13	2	206,657,500	401,832,000	967,303,500
Greater than $100M	2	<1	218,950,000	437,900,000	$1,094,750,000
Included in Other Estimate	223	36	0	0	0
Total	619	100%	$567,811,085	$1,124,139,169	$2,773,071,423

Analysis

Though almost half (293 or 48 percent) of the legacy systems could be modernized or replaced for less than $500,000 each, the bulk of the modernization cost, as well as the largest variability within it, comes from 11 legacy IT systems (or set of systems) that individually range from $10 million to $100 million, and two systems (or sets of systems) estimated to cost more than $100 million each to replace. The two outliers are ERP, which will replace at least 73 legacy systems, and the DSHS Automated Client Eligibility (ACES) system. Between these two systems, there is an $876 million variability between low- and high-end estimates. These systems and comments on the estimates or current modernization plans for them are listed in Appendix D: Legacy IT Systems with Estimated Modernization Costs that Exceed $10 Million.

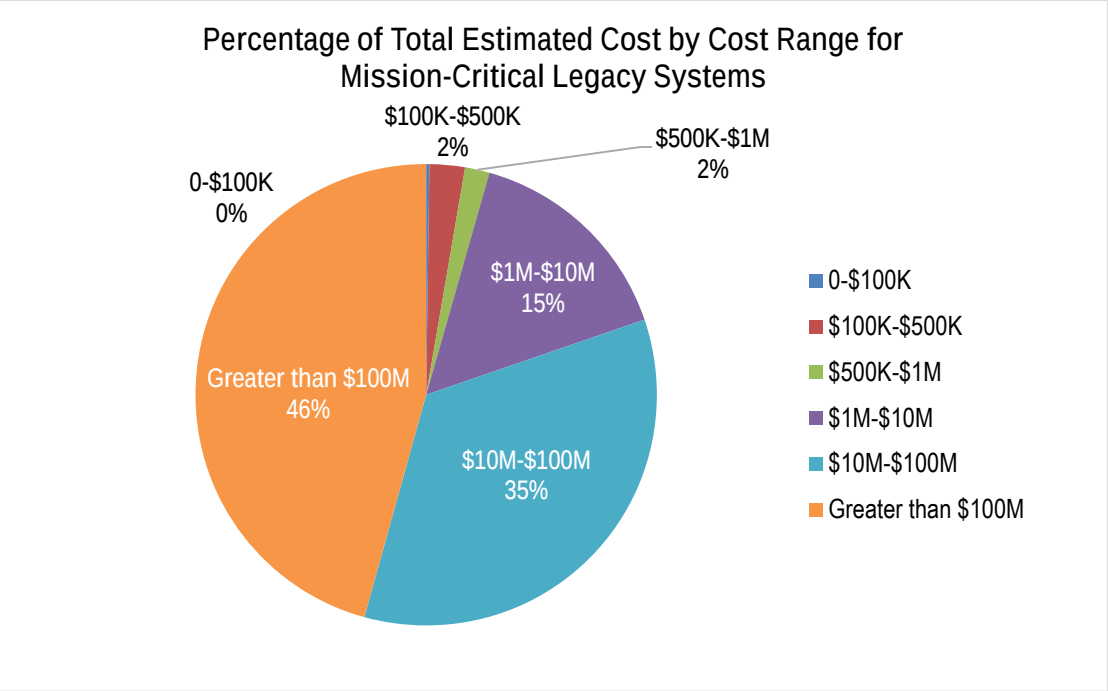
Modernization Costs: Mission Critical

Given the enormous cost of modernizing the entire portfolio, the OCIO tried to address the question of what would it cost to modernize only the mission critical systems, as identified by the agencies. The rationale for considering just the mission critical systems is that the risk of failure is so high and cost of that failure is enormous.

Results

A total of 343 of the total 1,983 IT systems reported (17 percent of all, or 55 percent of legacy) were identified by agencies as mission critical[3].

Estimated cost to fund modernization or replacement of all mission-critical legacy IT systems is approximately $958 million, with a range of $485 million to $2.36 billion.



Mission-Critical Legacy IT Systems (or Sets of Systems) by Estimated Modernization / Replacement Cost Range	Number of Legacy IT Systems	Percentage of Total Legacy Systems	Low End of Range (-50% Best Estimate)	Best Estimate Cost Provided	High End of Range (+150% Best Estimate)
0-$100K	51	15	$1,080,100	$2,160,200	$5,400,500
$100K-$500K	84	24	11,843,000	23,686,000	59,215,000
$500K-$1M	22	6	8,345,000	16,690,000	41,725,000
$1M-$10M	36	10	73,214,876	146,429,752	366,074,380
$10M-$100M	11	3	171,557,500	331,632,000	791,803,500
Greater than $100M	2	<1	218,950,000	437,900,000	1,094,750,000
Included in Other Estimate	137	40	0	0	0
Total	343	100%	$484,990,476	$958,497,952	$2,358,968,380

[3] Although not every legacy system to be replaced in TLA and ERP enterprise efforts is mission critical, for purposes of this scenario they were included.

Analysis

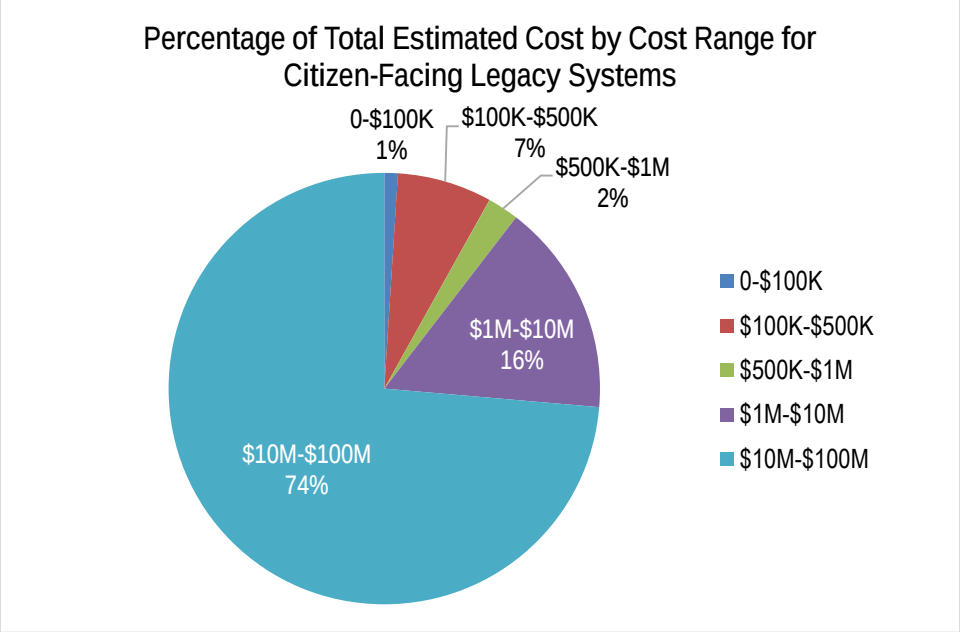
The price differential between modernizing all legacy IT systems and only the mission-critical legacy IT systems is approximately $859 million. Of the top 15 most costly to replace legacy systems, 87 percent (13 of 15) are mission critical. Of the top 64 most costly to replace legacy systems, 77 percent (49 of 64 total) are mission critical. As in the overall legacy system data set, the bulk of cost and largest variability of those costs lie in the systems that cost more than $10 million each to modernize or replace. These systems are listed in Appendix D: Legacy IT Systems with Estimated Modernization Costs that Exceed $10 Million.

Modernization Costs: Citizen-Facing

Another approach to lowering costs of modernization is to focus only on the citizen facing systems. The rationale for just these systems is that they are the most visible to constituents and represent the most risk to cybersecurity.

Results

Only 67 (3 percent) of the state's total 1,983 IT systems reported are legacy and citizen-facing. Estimated cost to fund modernization or replacement of all citizen-facing legacy IT systems is approximately $75 million, with an estimated range of $37million to $187 million.



Citizen-Facing Legacy IT Systems (or Sets of Systems) by Estimated Modernization/Replacement Cost Range	Number of Legacy IT Systems	Percentage of Total Legacy Systems	Low End of Range (-50% Best Estimate)	Best Estimate Cost Provided	High End of Range (+150% Best Estimate)
0-$100K	13	19	$377,500	$755,000	$1,887,500
$100K-$500K	21	31	2,650,000	5,300,000	13,250,000
$500K-$1M	3	4	875,000	1,750,000	4,375,000
$1M-$10M	3	4	5,945,021	11,890,041	29,725,103
$10M-$100M	1	<1	27,500,000	55,000,000	137,500,000
Greater than $100M	0	0	0	0	0
Included in Other Estimate	26	39	0	0	0
Total	67	100%	$37,347,521	$74,695,041	$186,737,603

Analysis
Given that so few of the state's IT systems are citizen-facing, and that those systems present a greater security risk than the internal systems, a logical approach would be to modernize those systems first. Modernizing this subset of systems is far cheaper than modernizing all legacy systems.

As in the overall legacy system data set, the bulk of cost and largest variability of those costs lie in the systems that cost more than $10 million each to modernize or replace, but in this scenario, there is only one citizen-facing legacy IT system (WSDOT's Wave2Go Electronic Fare System), estimated to cost from $10 million to $100 million to replace. It is included among the systems listed in Appendix D: Legacy IT Systems with Estimated Modernization that Exceed $10 Million. Neither of the state's two legacy systems that are estimated to cost more than $100 million to modernize or replace is citizen-facing.

Modernization Costs: By Budget Functional Area and Agency

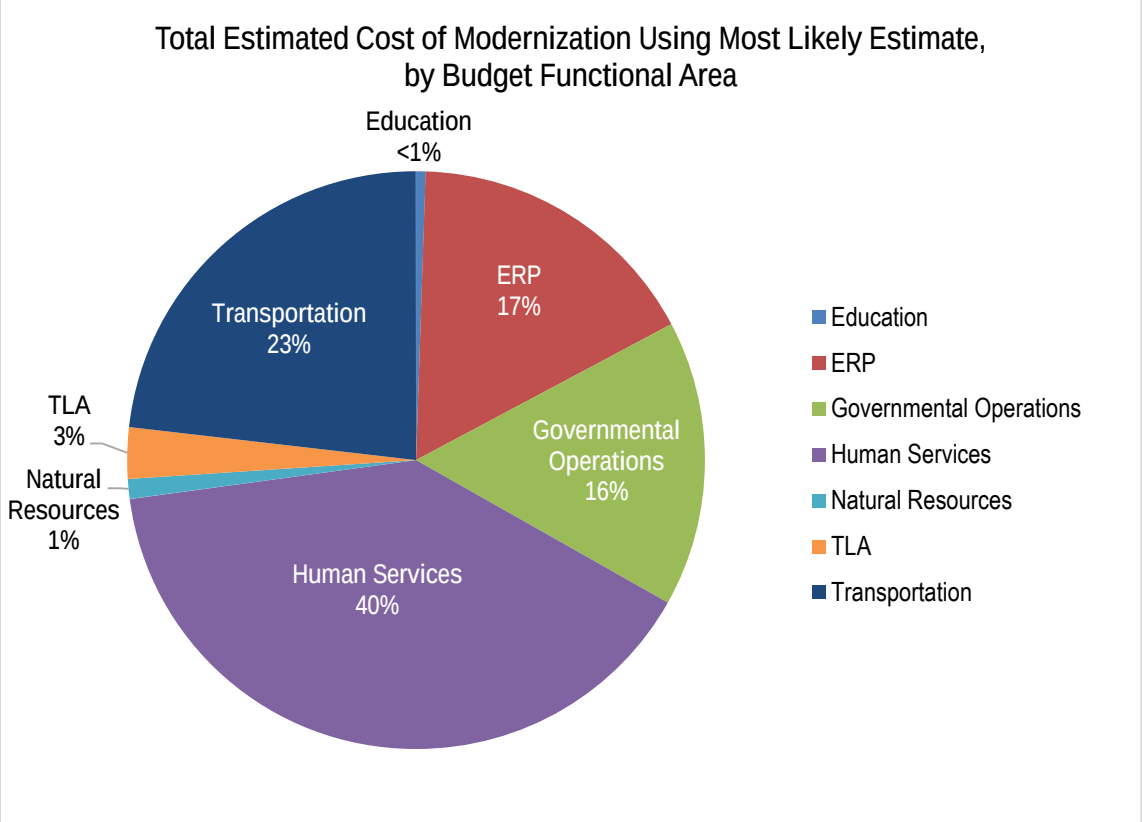
The remainder of this report assumes modernization of all legacy IT systems. The next section provides summary and analysis by budget functional area and agency. Because the ERP and TLA efforts replace legacy systems across agencies and budget functional areas, these were treated as if they were a separate functional area even though the resultant enterprise service offering will ultimately reside in the governmental operations functional area.

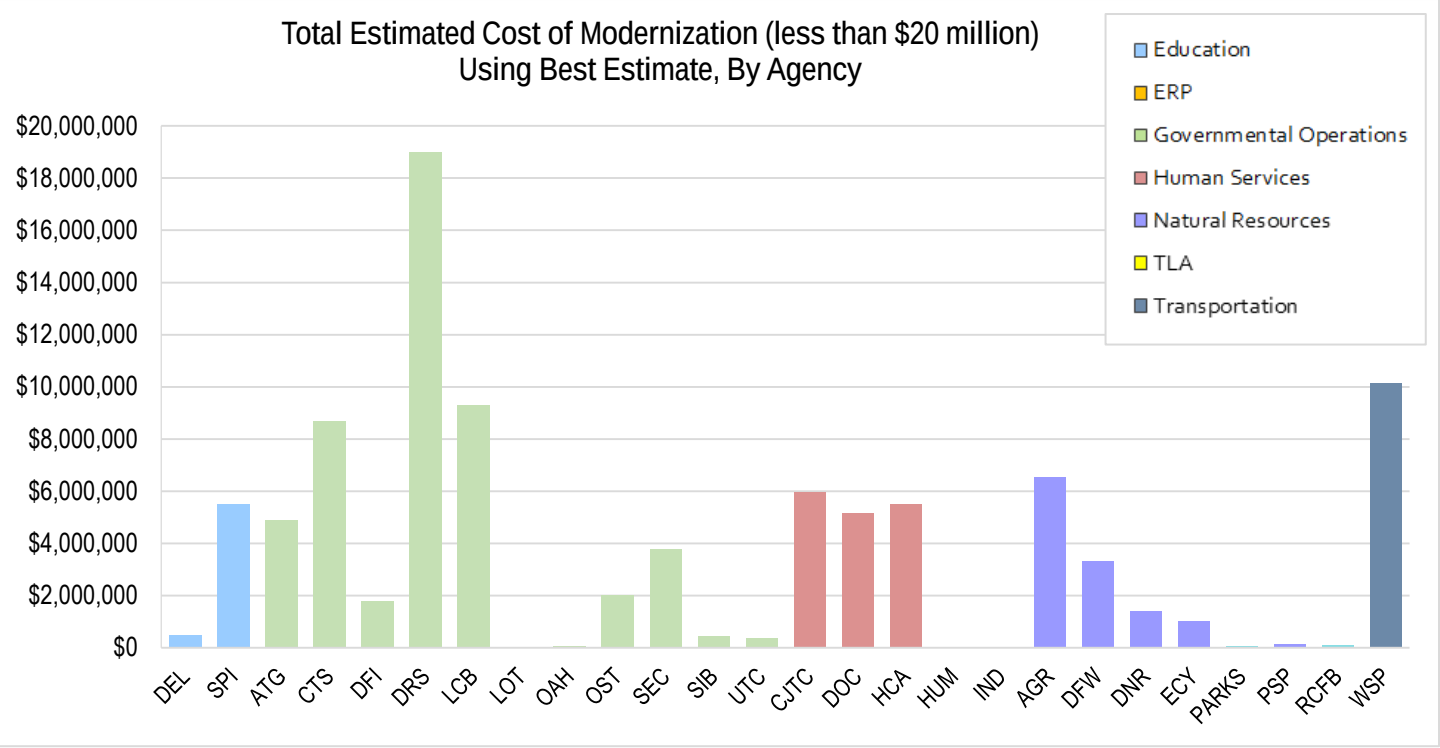
Results
The functional areas of the budget most impacted by legacy IT are:

1. Human services (119 systems, or 19 percent of all legacy systems, representing 40 percent cost)
2. Transportation[4] (197 systems, or 32 percent of all legacy systems, representing 23 percent cost)
3. ERP project (73 systems, or 12 percent of all legacy systems, representing 17 percent cost)
4. Governmental operations (150 systems, or 24 percent of all legacy systems, representing 16 percent cost)

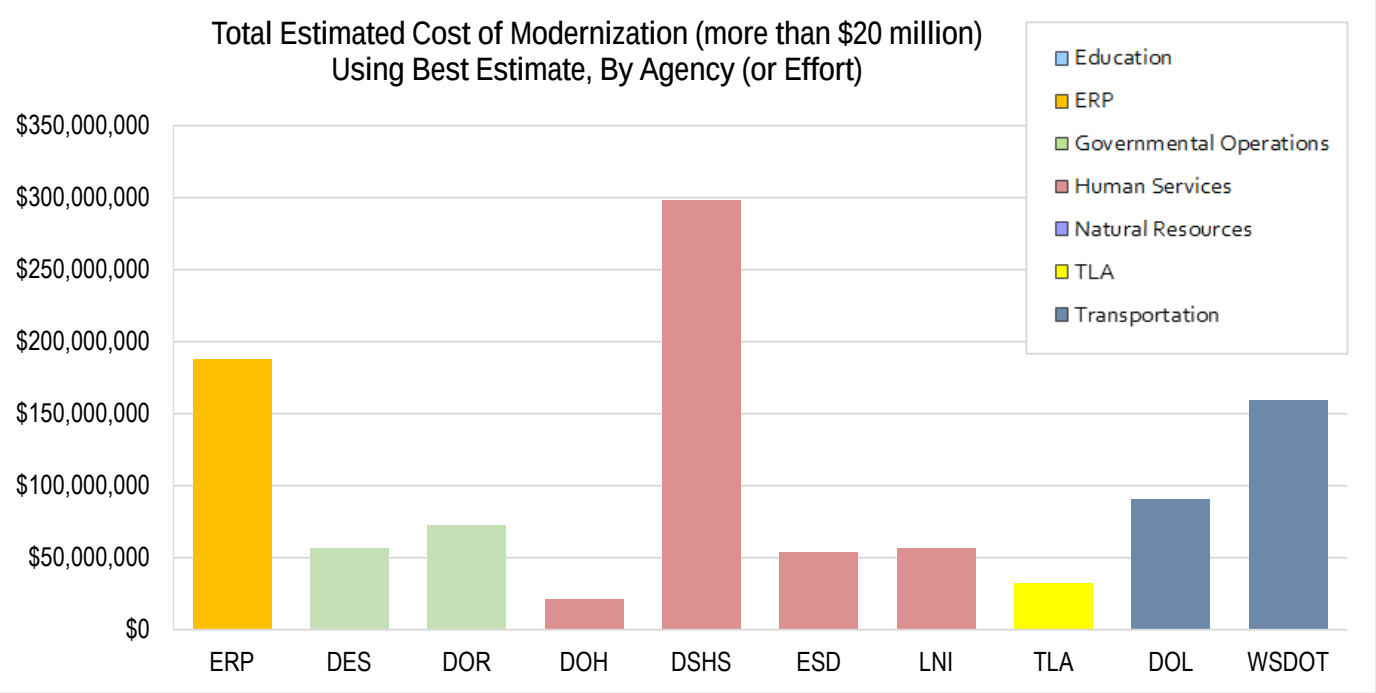
The remaining functional areas — natural resources, education and TLA — each compose less than 3 percent of the total modernization cost.

[4] The transportation-related functional area of the budget in this report comprises the Department of Transportation, Department of Licensing, Washington State Patrol and County Road Administration Board. Expenditure data for transportation-related agencies include projects funded through both the operating and transportation budgets.





Eight agencies and two efforts (ERP and TLA) account for the bulk of the cost to modernize or replace legacy systems. Because cost associated with these agencies/efforts dwarfs those of the other agencies included in this report, we elected to show them in a separate chart below.



Budget Functional Area	Number of Legacy IT Systems	Low Estimate (Best Est. -50%)	Best Estimate Cost Provided	High Estimate (Best Est. +150%)
ERP	73	$93,750,000	$187,500,000	$468,750,000
Dept. of Enterprise Services	38	93,750,000	187,500,000	468,750,000
Dept. of Fish & Wildlife	13	0	0	0
Dept. of Transportation	7	0	0	0
Dept. of Ecology	4	0	0	0
Dept. of Labor & Industries	4	0	0	0
Dept. of Natural Resources	2	0	0	0
Dept. of Health	2	0	0	0
Dept. of Social & Health Services	2	0	0	0
Dept. of Corrections	1	0	0	0
TLA	10	$21,892,500	$32,302,000	$43,478,500
Dept. of Enterprise Services	1	21,013,500	30,544,000	39,083,500
Dept. of Transportation[5]	6	679,000	1,358,000	3,395,000
Dept. of Corrections[6]	1	200,000	400,000	1,000,000
Dept. of Fish & Wildlife	1	0	0	0
Dept. of Ecology	1	0	0	0
Human Services	119	$222,925,522	$445,851,043	$1,114,627,608
Dept. of Social & Health	37	148,998,870	297,997,740	744,994,350

[5] WSDOT's costs for TLA are in addition to the funding requested by DES.
[6] DOC's costs are included here though it is not yet clear how modernization of its ATLAS system will relate to the TLA project.

Budget Functional Area	Number of Legacy IT Systems	Low Estimate (Best Est. -50%)	Best Estimate Cost Provided	High Estimate (Best Est. +150%)
Services				
Dept. of Labor & Industries	15	28,350,000	56,700,000	141,750,000
Employment Security Dept.	10	26,848,500	53,697,000	134,242,500
Dept. of Health	40	10,423,739	20,847,477	52,118,693
Criminal Justice Training Commission	4	2,975,000	5,950,000	14,875,000
Health Care Authority	1	2,750,000	5,500,000	13,750,000
Dept. of Corrections	10	2,574,313	5,148,626	12,871,565
Human Rights Commission	1	5,000	10,000	25,000
Board of Industrial Insurance Appeals	1	100	200	500
Transportation	197	$130,185,043	$260,370,085	$650,925,213
Dept. of Transportation	72	79,735,000	159,470,000	398,675,000
Dept. of Licensing	119	45,375,043	90,750,085	226,875,213
Washington State Patrol	6	5,075,000	10,150,000	25,375,000
Governmental Operations	150	$89,781,021	$179,562,041	$448,905,103
Dept. of Revenue	36	36,202,000	72,404,000	181,010,000
Dept. of Enterprise Services	63	28,400,000	56,800,000	142,000,000
Dept. of Retirement Services	5	9,500,000	19,000,000	47,500,000
Liquor Control Board	12	4,645,000	9,290,000	23,225,000
Consolidated Technology Services	9	4,350,000	8,700,000	21,750,000
Attorney General	8	2,450,000	4,900,000	12,250,000
Secretary of State	1	1,895,021	3,790,041	9,475,103
Office of the State Treasurer	1	1,000,000	2,000,000	5,000,000
Dept. of Financial Institutions	1	900,000	1,800,000	4,500,000
State Investment Board	1	226,000	452,000	1,130,000
Utilities & Transportation Commission	3	188,000	376,000	940,000
Office of Administrative Hearings	3	25,000	50,000	125,000
Washington State Lottery	7	0	0	0
Natural Resources	68	$6,277,000	$12,554,000	$31,385,000
Dept. of Agriculture	23	3,275,000	6,550,000	16,375,000
Dept. of Fish & Wildlife	16	1,650,000	3,300,000	8,250,000
Dept. of Natural Resources	4	700,000	1,400,000	3,500,000
Dept. of Ecology	20	509,500	1,019,000	2,547,500
Puget Sound Partnership	2	65,000	130,000	325,000
Recreation & Conservation Funding Board	1	50,000	100,000	250,000

Budget Functional Area	Number of Legacy IT Systems	Low Estimate (Best Est. -50%)	Best Estimate Cost Provided	High Estimate (Best Est. +150%)
State Parks	2	27,500	55,000	137,500
Education[7]	2	$3,000,000	$6,000,000	$15,000,000
Supt. of Public Instruction	1	2,750,000	5,500,000	13,750,000
Dept. of Early Learning	1	250,000	500,000	1,250,000
Grand Total	619	$567,811,085	$1,124,139,169	$2,773,071,423

Analysis

The ERP modernization effort is a massive and expensive endeavor that will affect agencies and their legacy systems throughout the enterprise. DSHS's modernization costs are driven primarily by ACES, estimated to cost $250 million to replace, and another system, BarCode, that is expected to cost more than $10 million to modernize or replace. The Employment Security Department (ESD) and the Department of Health (DOH) also have significant IT projects underway to either replace a single costly legacy system (e.g., Women, Infants & Children [WIC] Nutrition Program at DOH) or for a smaller set of legacy systems (e.g., DOH systems supporting vital statistics and notifiable conditions, or ESD systems related to unemployment insurance). The Department of Labor and Industries (LNI) has been using funds available in its base budget to incrementally modernize and/or replace its primary legacy system (LNI industrial insurance system, or LINIIS), and expects to submit significant funding requests in future biennia to continue and complete that effort. DOR and DOL both have major modernization efforts underway as well.

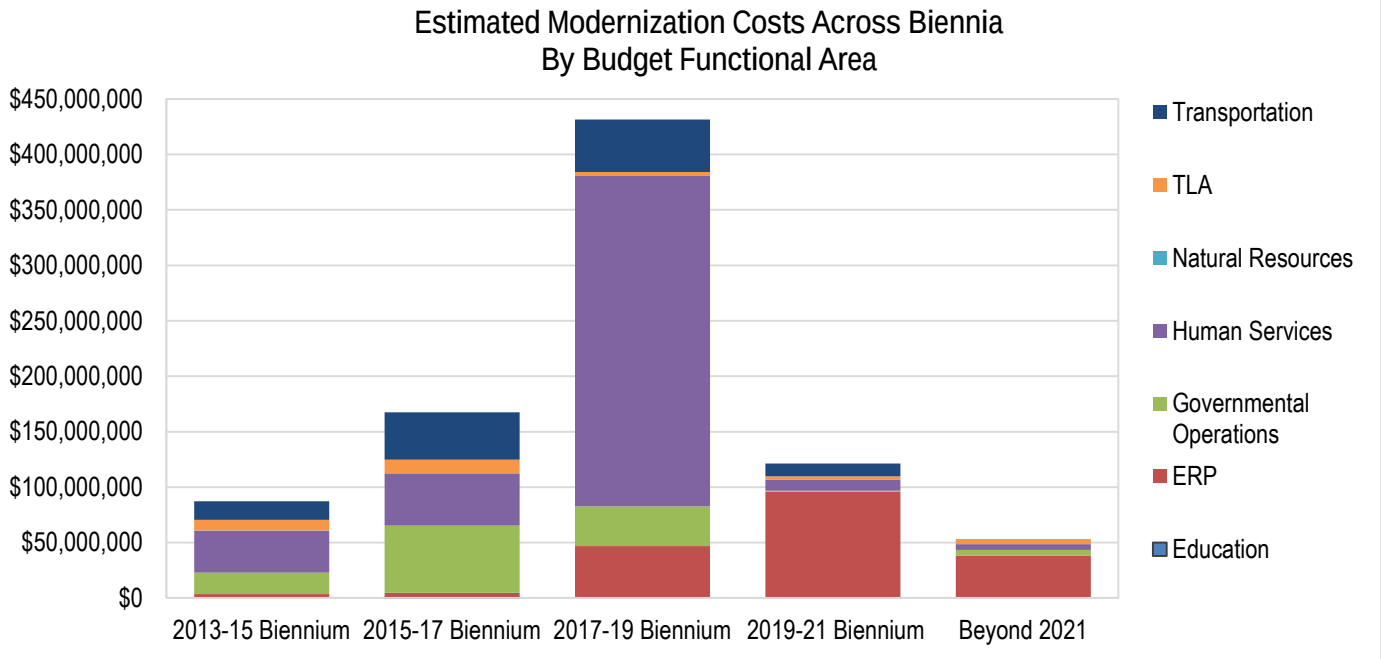
Modernization Costs Projected by Biennia

Where agencies provided cost estimates by system and biennial time period, the distribution of these estimated costs over time are shown below.

For costly efforts such as modernization of large, complex or intertwined legacy systems, explicit funding requests will be made and funding will not always be made available. These requests are often repeated in subsequent biennia, effectively "kicking the can down the road." Agencies are also fully aware of the current state budget situation and the pressure on the Legislature to find funding to support basic education as well as mental health beds even as revenues stay stable or decline on a per-capita basis. While the OCIO was asking agencies to assume funding availability for legacy modernization, the Governor was asking agencies to prepare scenarios for potential 15 percent budget reductions. For this reason, agencies tended to project funding needs onto the 2017–19 biennium to reflect that they would like to begin modernization efforts as soon as possible, but recognized they would not be able to do so immediately.

[7] As noted in Disclaimer section, school districts and higher education are not included in this report.

Results



Budget Functional Area / Agency	2013–15	2015–17	2017–19	2019–21	Beyond 2021
ERP	$3,600,000	$4,235,000	$46,900,000	$95,800,000	$38,300,000
DES	$2,400,000	$4,200,000	$46,900,000	$95,800,000	$38,200,000
DOH[8]	0	35,000	0	0	0
DSHS[9]	900,000	0	0	0	0
ECY[10]	300,000	0	0	0	0
TLA	$9,371,000	$12,431,000	$3,000,000	$3,000,000	$4,500,000
DES	8,013,000	12,031,000	3,000,000	3,000,000	4,500,000
DOC[11]	0	400,000	0	0	0
WSDOT	1,358,000	0	0	0	0
Human Services	$37,588,757	$47,144,286	$298,313,000	$10,002,500	$5,302,500
DOC	877,000	3,901,626	20,000	0	300,000
DOH	14,789,977	5,027,500	325,000	2,500	2,500

[8] DOH's costs for ERP have been included here to show the agency's cost over time, but they are not included in overall cost calculations because they are likely already included in the DES cost estimates.
[9] Per DSHS, risks posed by the DSHS TRACKS and Windows Allotment Reporting Program (WARP) systems were significant enough that the agency needed to replace the systems and could not wait until ERP implementation. The replacement of the WARP system has already been completed. TRACKS is not able to meet several major, relatively new, mandatory business needs, and is too obsolete to modify.
[10] ECY's costs for ERP have been included here to show the agency's cost over time, but they are not included in overall cost calculations because they are likely already included in the DES cost estimates.
[11] DOC's costs are included here though it is not yet clear how modernization of its ATLAS system will relate to the TLA project.

Budget Functional Area / Agency	2013–15	2015–17	2017–19	2019–21	Beyond 2021
DSHS	14,367,680	9,080,060	267,250,000	0	0
ESD	7,544,000	19,135,000	20,718,000	0	0
HUM	10,000	0	0	0	0
IND	100	100	0	0	0
LNI	0	10,000,000	10,000,000	10,000,000	5,000,000
Transportation	$16,618,085	$42,523,000	$47,255,000	$11,574,000	$0
DOL	12,215,085	36,506,000	28,505,000	11,074,000	0
WSDOT	1,203,000	817,000	17,450,000	500,000	0
WSP	3,200,000	5,200,000	1,300,000	0	0
Governmental Operations	$19,433,657	$60,478,384	$35,700,000	$1,000,000	$5,000,000
ATG	800,000	1,000,000	3,000,000	0	0
CTS	600,000	3,000,000	5,100,000	0	0
DFI	0	1,800,000	0	0	0
DOR	11,604,000	40,000,000	20,000,000	0	0
DRS	3,000,000	6,000,000	6,000,000	1,000,000	3,000,000
LCB	290,000	7,200,000	1,600,000	0	0
OST	0	0	0	0	2,000,000
SEC	2,419,657	1,370,384	0	0	0
SIB	452,000	0	0	0	0
UTC	268,000	108,000	0	0	0
Natural Resources	$519,000	$85,000	$350,000	$0	$0
ECY	369,000	0	300,000	0	0
PARKS	0	5,000	50,000	0	0
PSP	130,000	0	0	0	0
RCFB	20,000	80,000	0	0	0
Education	$0	$500,000	$0	$0	$0
DEL	0	500,000	0	0	0
Grand Total	$87,130,499	$167,396,670	$431,518,000	$121,376,500	$53,102,500

Analysis

For many of these legacy systems, CIOs see a pressing need to modernize as soon as possible but know that there is minimal possibility of funding in the immediate future. As these modernization projects get delayed, the number of legacy systems, and the cost of modernizing them, will only grow.

Enterprise-wide major projects, such as ERP and TLA, are shown on the chart in addition to budget functional areas. Other important points are:

1. TLA costs begin tailing off as the project is implemented and additional agencies use the system. Implementation is expected to be completed by the end of the 2015–17 biennium.

2. ERP costs begin ramping up in the 2017–19 biennium. The ERP project is of major importance and a major cost element in our modernization strategy, accounting for an anticipated $185.1 million broken across four biennia. In the 2015–17 biennium, the project would engage in foundational pre-implementation activities to increase the likelihood of successful implementation. The highest spike for that project is in the 2019–21 biennium, when the funding request is anticipated to be approximately $95.8 million, given the information known at this time, with approximately $40 million expected to be requested in the 2017–19 and 2021–23 biennia. This project will replace core financial systems across all state agencies, and have especially major impact on the DES system inventory. Between ERP, which will eliminate 38 DES legacy systems, and TLA, which will eliminate one additional system, the DES legacy systems will be reduced from 102 to 63 (a 40 percent reduction). ERP will also allow agencies to decommission another 35 legacy systems across state government.
3. Transportation and governmental operations expenditures in the next few biennia are also largely driven by the costs of completing the DOL modernization project and the DOR tax licensing system replacement, which together replace more than 100 legacy systems.
4. The spike in human services in 2017–19 is driven almost entirely by the activity necessary to re-procure ACES. The application is written in COBOL and currently updateable with the help of contracted staff. It is getting increasingly difficult to find COBOL programmers. It may not be possible to update the application in the future. A feasibility study has not been done, but the replacement estimate is based upon previous experience with replacement of systems of this magnitude and/or current industry trends. Modernization could become imminent to mitigate risks to the business in the next five years. DSHS has estimated $250 million for ACES re-procurement, with $400,000 for planning and creating the request for proposal. It indicates that price may increase depending on vendor bids and duration of the contract (current contract is six years with a two-year extension). Funding is included in its base budget to pay for the present contract.

Non-Fiscal Analysis of Legacy IT System Attributes

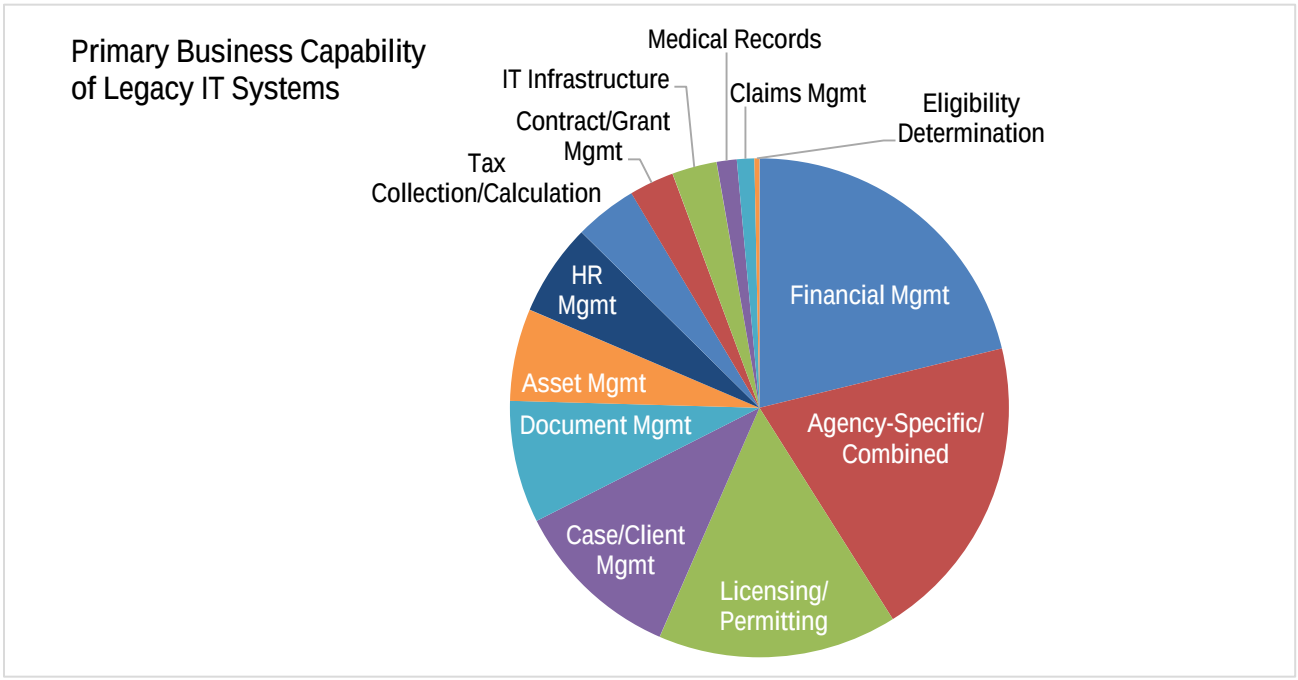
The agency survey provided interesting non-fiscal data on legacy IT systems that merit more discussion. A closer look at the breakdown of legacy IT systems by business capability, deployment model, agency and agency governance structure will inform and guide future strategies.

Legacy IT Systems by Business Capabilities

One view of legacy systems is to categorize them by the business functions the systems perform. Below is an analysis across the enterprise of what functions are most burdened with legacy.

Results

The largest three business capabilities affected by the legacy IT systems are financial management, agency-specific and licensing/permitting. These capabilities compose more than half of all legacy systems.



Primary Business Capability	Number of Total Legacy IT Systems	Percentage of Total Legacy IT Systems
Financial Management	131	21
Agency-Specific/Combined	123	20
Licensing/Permitting	96	16
Case/Client Management	68	11
Document Management	49	8
Asset Management	37	6
HR Management	37	6
Tax Collection/Calculation	25	4
Contract/Grant Management	18	3
IT Infrastructure	18	3
Medical Records	8	1
Claims Management	7	1
Eligibility Determination	2	<1
Total	619	100%

Analysis

Given that Washington has central IT service-providing agencies (CTS and DES), one might expect to see systems for back-office (e.g., financial, HR, asset, document or contract/grant management) or computing utility (e.g., IT infrastructure) type capability areas would be supplied almost entirely by those two agencies. However, there are a significant number of back-office business capabilities that agencies support individually. Migration to consolidated back-office systems happens over time (with projects such as TLA

and ERP). In the meantime, other agencies are unable to focus their available resources solely on systems that directly support agency-specific missions.

Several major IT projects are either underway or about to begin that have significant impact on reducing the number of legacy systems in a particular primary business capability category. These projects are anticipated to have large funding requests for the 2015–17 and subsequent biennia budgets. Some of these are in the vein of establishing enterprise or shared services, while others are very agency or mission-specific. These efforts are discussed in greater detail in the Status of Modernization or Replacement Efforts section later in this report.

Legacy IT Systems by Deployment Model

The state deploys and operates complex systems in a variety of ways. Systems may be developed and supported in-house or by vendors. They may be hosted in-house or by vendors. For vendor-developed, -supported or -hosted systems, supplemental in-house development may be present to integrate data or serve as connective tissue between systems.

In the survey of state agencies, four deployment options were offered:

1. In-house developed and hosted
2. Commercial-off-the-shelf (COTS) hosted onsite
3. Software-as-a-Service (SaaS)
4. Hosted – Non SaaS (developed in-house or COTS, and hosted by a vendor)

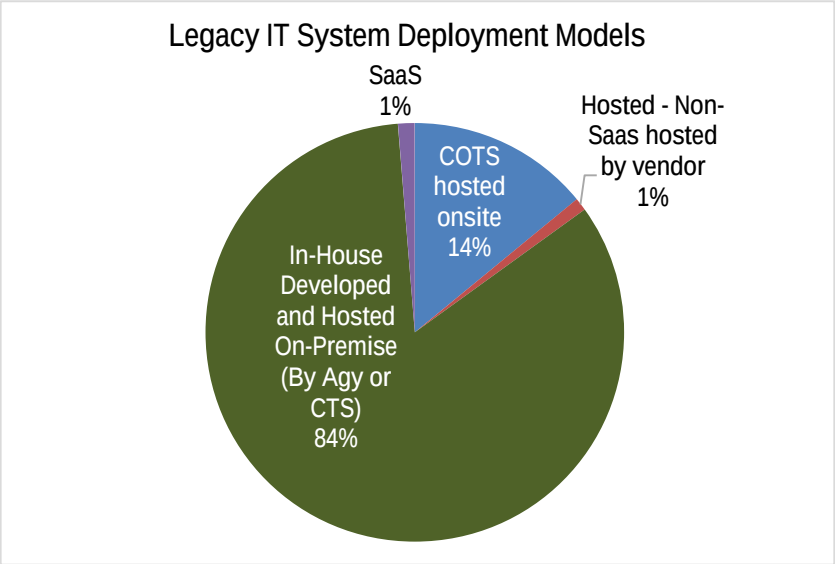
Each deployment model has benefits and drawbacks. In-house developed systems offer a high degree of customization, but usually have more complexity or higher cost of maintenance and operations. Both COTS and SaaS deployments reduce IT support costs by outsourcing software development and maintenance to the vendor. Both are written for a broad market but offer fewer configuration options to allow the customer to customize the solution to better fit existing (or desired) business processes.

The primary differences between COTS and SaaS are the licensing approach and the servers on which the systems are hosted. COTS solutions can be purchased, leased or licensed; SaaS solutions are licensed through a subscription model, granting a temporary right to use the solution as long as the client continues to subscribe. COTS solutions can be installed on servers specified by customers, including in their own data centers; SaaS solutions are centrally hosted on "the cloud" either by vendors themselves or by an application service provider. Customers may also elect to develop additional modules that interact with a COTS or SaaS solution to customize or integrate it. This raises the cost of maintenance and introduces risk that if the vendor changes the product significantly, all customer-built modules must also be changed.

This section explores the current composition of the system inventory and the evolution that will likely occur as modernization efforts are started and completed.

Results

The largest bulk of legacy IT systems (518 systems, or 84 percent) are in-house developed and hosted.



Type of System	Number of Legacy IT Systems	Percentage of Total Legacy IT Systems
In-house developed and hosted	518	84
COTS hosted onsite	87	14
SaaS	8	1
Hosted – Non-SaaS (developed in-house or COTS, and hosted by a vendor)	6	1
Total	619	100%

Analysis

Among legacy systems, the percentage of in-house developed/hosted solutions is 518, or 84 percent. In the larger inventory that includes both legacy and non-legacy, the percentage of in-house developed/hosted solutions is about 10 percentage points lower (73.5 percent). Some of this percentage difference can be explained by the advantages offered by SaaS and COTS deployment models, which minimize the chance of a system being classified as legacy in three ways:

- SaaS is a newer technology. SaaS systems inherently tend to be newer, and are therefore more likely to use modern platforms, operating systems and coding.
- In both SaaS and COTS models, the IT system is developed and supported by vendor resources. This minimizes development work needed on the customer (state) side to development and ongoing maintenance of integration or interface type modules (aka "connective tissue" in pace-layering). This has the consequence of making resource availability issues (one of the triggers for legacy classification) less likely.
- In SaaS deployments, the vendor upgrades the system, thus avoiding another legacy trigger (unsupported versions); the customer (state) is responsible only for ensuring that in-house developed integration or interface modules are using only vendor-supported platforms.

Even in-house developed systems no longer have to be written from the ground-up and hosted onsite. Platform-as-a-Service (PaaS) systems are developed and hosted by a vendor, and allow end-users to easily customize business rules, functionality, workflow, interface and end products while providing integration with other components such as databases. The PaaS provider supplies the networks, servers, storage and other services required to host the consumer's application. The strategy/road map section of this report recommends that line of business (agency-specific) systems use PaaS solutions. Similarly, agencies can use the Infrastructure-as-a-Service (IaaS) model to outsource equipment to support operations, including storage, hardware, servers and networking components. The service provider owns the equipment and is responsible for housing, running and maintaining it, and the user pays the service provider for hosting services.

As modernization efforts proceed and in conjunction with establishment of additional shared or enterprise services, a smaller overall system inventory and changed composition of that inventory are expected. In the future, we expect to see an increase in SaaS and COTS systems and a change to the in-house developed systems such that they may be developed on a PaaS and/or use IaaS rather than be completely home-grown and in-house hosted.

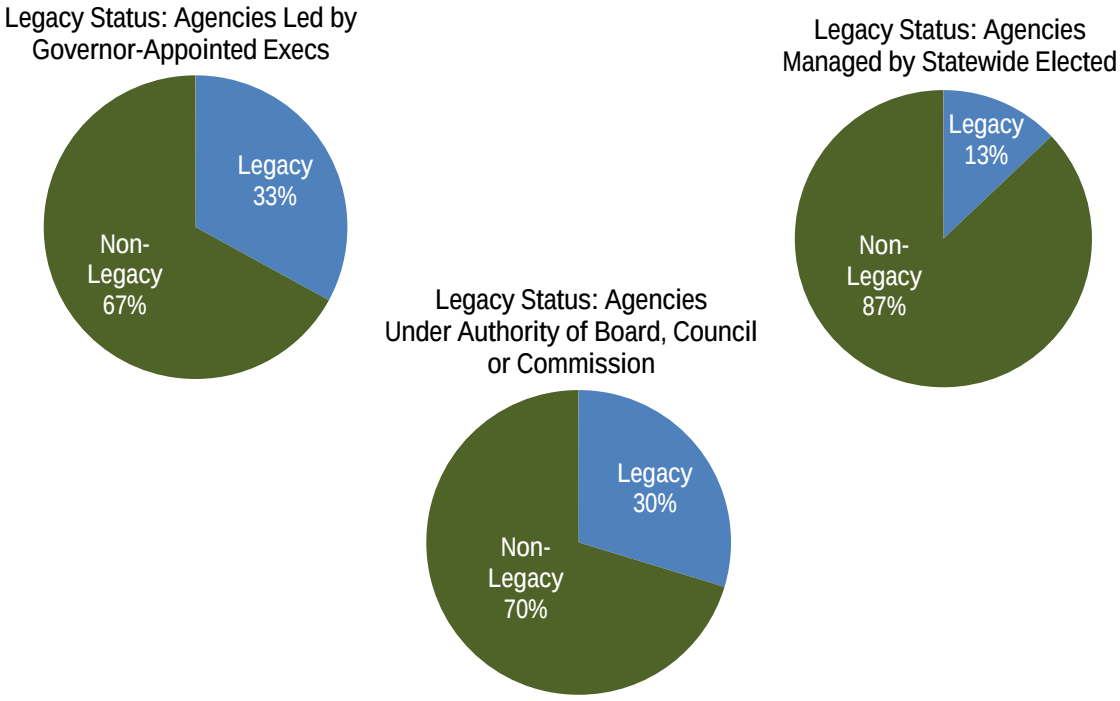
Particularly with SaaS and COTS systems, where the business processes modeled in the system are used across diverse customer bases, some standardization of business processes is also expected.

Legacy IT Systems by Agency Governance Model

Agencies included in this survey are governed in a variety of ways. Some are led by a governor-appointed executive. Others are managed by a statewide elected official. And still others are under the authority of a board, council or commission.

Results

Agencies managed by statewide elected officials have a much lower percentage (13 percent) of legacy IT systems relative to their total system base than agencies led by a governor-appointed executive (33 percent) or under authority of a board, council or commission (30 percent).



Analysis
With an almost 20 percent difference in the relative proportion of legacy systems to total systems supported, it might be interesting to ask whether the funding or prioritization approaches for IT in agencies headed by a separately elected statewide official differ significantly from those used in agencies with other governance structures. If the answer is affirmative, it might be interesting to ask, too, how those differences impact the ability to prevent systems from becoming legacy and/or act more quickly to modernize those that do.

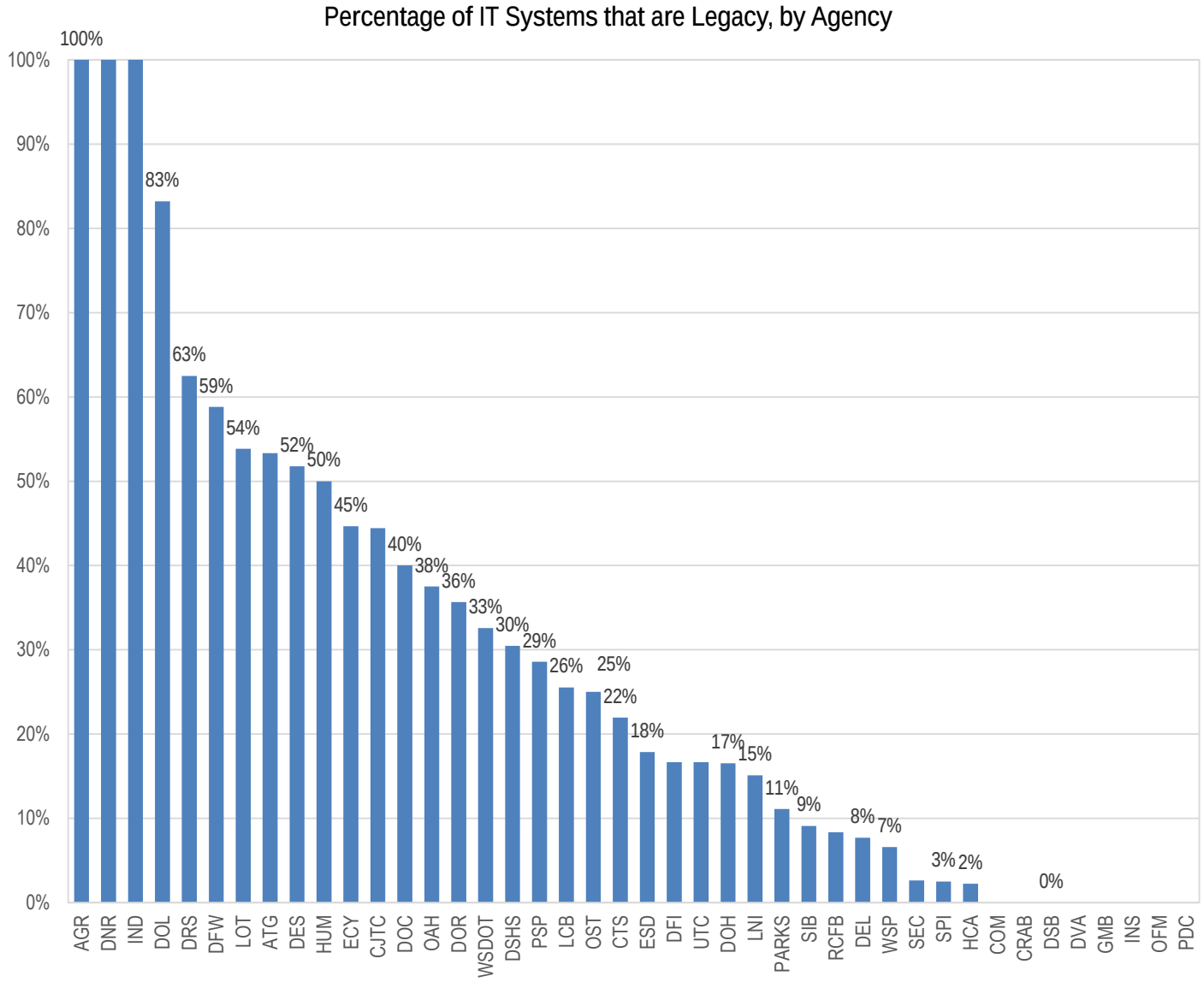
Legacy IT Systems by Agency

Just as some agency governance models seem better able to reduce the number of legacy IT systems, so too are some agencies.

Results
Three of the reporting agencies (Department of Agriculture [AGR], Department of Natural Resources [DNR] and the Board of Industrial Insurance Appeals [BIIA] l reported 100 percent of their systems as legacy. As noted in the disclaimer section, AGR and DNR provided their legacy systems for this survey while BIAA has a single system, which was classified as legacy based on the criteria.

Ten reporting agencies were on the other end of the spectrum, reporting that none of their systems is legacy. Five of the 10 agencies reporting no legacy systems have three or fewer systems total. All IT systems serving OFM (or OCIO) business needs are maintained and operated by DES, and therefore reported in the DES system inventory with exception of one maintained and operated by OCIO that is not deemed legacy.

More important than the number of legacy systems or the percentage relative to total number of systems in an agency, however, is the business criticality or reliance on that system by the agency. In the case of the Office of the State Treasurer (OST), for example, there are four systems and only one of them is legacy, giving a 25 percent legacy ratio. However, that one legacy system is the primary system that OST relies upon, accounting for the bulk of usage and maintenance cost and effort. Mission-critical status of a system is one indicator of relative importance while utilization would be another. This report did not go into this level of detail by agency.



Analysis

The following factors might explain the variance between agencies:

- **Interpretation:** There could be a difference in interpretation of the legacy classification questions across agencies that explains some of this variance (i.e., one agency may have interpreted economic feasibility of maintaining skilled support staff for a particular technology quite differently than another might have, and this would result in more or fewer legacy systems reported).
- **Funding structure:** One of the difficulties cited by agencies was a struggle with the funding model for IT in the agency. Agencies differ greatly in how IT work inside the agency is budgeted. Some agency IT divisions have their own budget. Other agency IT budgets pay for a set number of IT staff; these agencies depend on budgets from various programs or lines of business for additional funding. In these agencies, virtually any IT activity must be explicitly sanctioned by the business budget owner. It is entirely possible that agencies whose IT division has a separate budget are better able to prevent their systems from becoming legacy or, once they do become legacy, act more quickly to modernize or replace them. OCIO did not ask agencies about the internal mechanisms for funding the IT work inside the agency, and received this information only anecdotally while gathering data. If desired, OCIO could

do a follow-up study on the various funding models for IT work inside these agencies to see if this hypothesis proves true.

- **Funding source(s):** Along with variances in funding structure in agencies, there are also differences in funding sources. Some agencies have access to fee-based or dedicated funding sources. Some are more successful at leveraging federal or other grants. And some are more reliant on the General Fund and therefore must compete for every dollar. It might be useful to examine which funding sources are used in agencies reporting a smaller percentage of legacy systems.
- **Organizational and/or leadership factors:** Various factors related to organizational structure, approach and characteristics of individual leaders in the organization may come into play. Examples may include the reporting structure relative to the CIO, and the background and experience of the CIO and business executives in the agency. Additional research and analysis would be necessary to determine impact, if any, of such factors on ability to modernize or replace legacy systems.

Process for Prioritizing and Undertaking Modernization Efforts

Decisions on priority for IT activities, including how and when to modernize or replace legacy IT systems, generally lie solely in the agencies, though agencies are expected to align the technology approach for any IT work to the strategic technology direction set by OCIO.

Agency IT work is driven primarily by business needs. Line-of-business leaders in the agency compile a list of needs they hope to meet through technology, while agency CIOs compile a list of technology upgrades and issues that need to be addressed.

Once the list of the agency's immediate business and technology needs is created, a prioritization process begins. This process considers the best use of limited available funding and staff resources.

Agencies were asked to share criteria used to prioritize potential efforts. Not all agencies use the same prioritization process or criteria. This is the consolidated list of criteria provided by participating agencies:

- Alignment to mission (mission-critical systems and agency strategic goals are highest priority)
- Visibility (citizen-facing systems may be a priority)
- Risk (if risk of failure, data breach, etc., is significant, efforts to modernize/replace to minimize risk are prioritized)
- Alignment to agency enterprise architecture (reduction of platforms or skill sets to support; need for better data integration across systems)
- Opportunity (opportunity to modernize/replace system exists due to some external condition such as availability of grant funding or collaborative procurement/project)
- Enables or promotes more efficient use of resources (people or funding)
- Cost savings and/or process streamlining

Activities such as modernization/replacement of legacy IT systems, software version upgrades and system documentation that would lessen technical debt[12] and increase agility/capacity in the agency IT division are often prioritized below investments that would directly impact capabilities of frontline business systems. This is consistent with the findings of the 2008 National Survey that the National Association of State Chief Information Officers conducted on legacy modernization in other states.

The OCIO drew similar conclusions based on the results of its recent prioritization criteria weighting exercises conducted in the summer of 2014 with various groups in advance of the 2015–17 IT decision package review process. In these exercises, five groups of participants (OCIO, state agency CIOs, the Technology Services Board [TSB], state agency deputy directors and OFM budget staff) were asked to rank the relative importance of five criteria when considering IT funding requests. These criteria are security, business importance, feasibility/risk, technology strategy alignment and financial considerations.

The difference in weighting results from agency CIOs and deputy directors is stark: CIOs ranked business importance lowest, while deputy directors (and the TSB) ranked it highest. The OCIO ranked business importance second, only after security. For agency CIOs, feasibility/risk and security topped their list; these were next most important to the deputy directors as well. Full results of this weighting exercise are available from OCIO upon request.

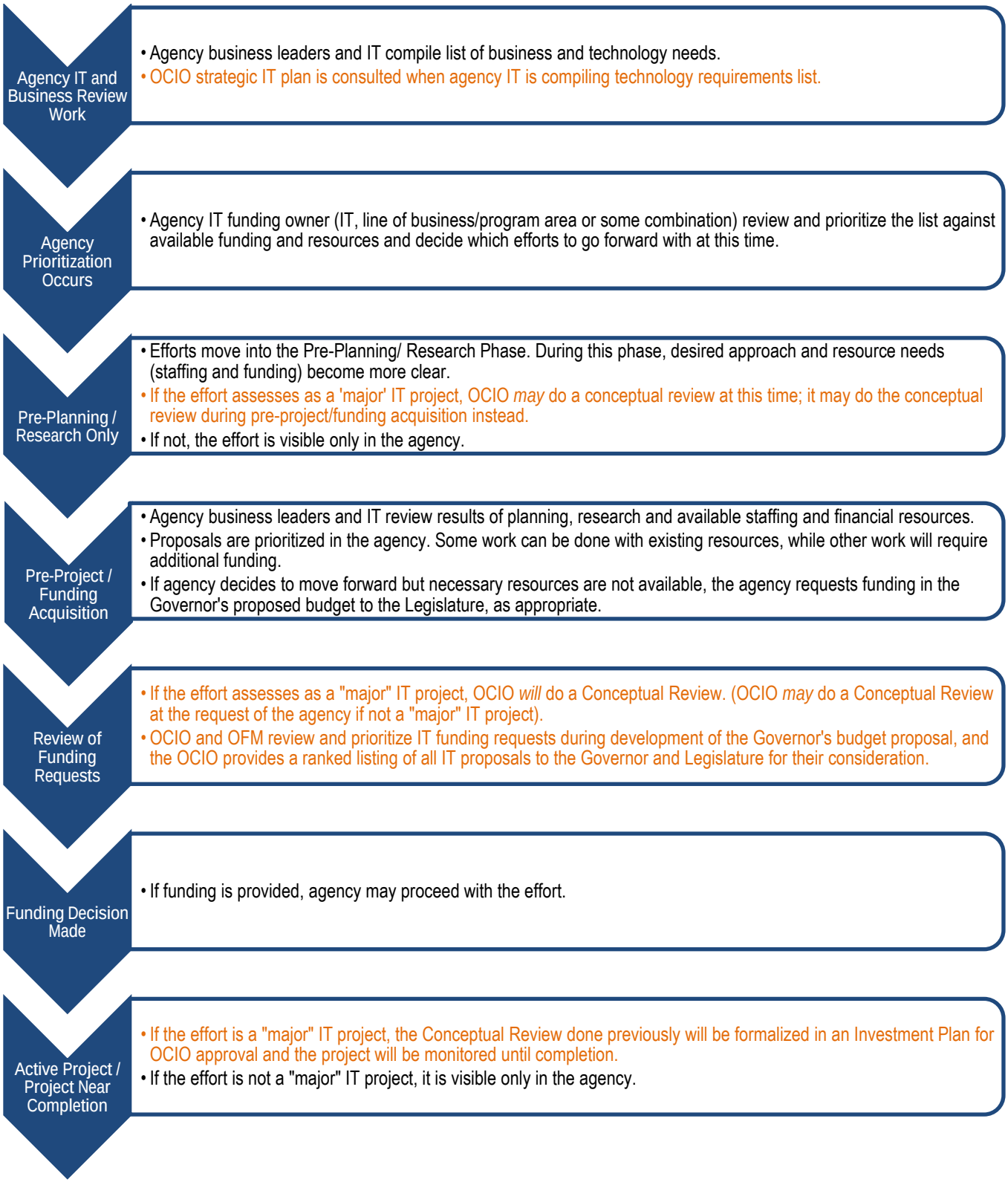
[12] Per Gartner ("Best Practices in Agile Development: Managing Technical Debt," Nov. 1, 2013, Nathan Wilson): "Technical debt comprises all the elements that make it difficult to operate, support, maintain, enhance and extend a software solution." Per Gartner ("Stop Aiming for Successful Projects, Start Aiming for Successful Applications," July 29, 2014, Andy Kyte & David Norton): "As with all debt, technical debt has to be paid back and incurs interest in the form of poor quality, increased maintenance cost, poor flexibility and lower productivity."

The impacts of these differing priorities play out across the state IT system landscape. Often, legacy systems are the most complex to replace (feasibility/risk) and may be especially vulnerable from a security standpoint. Thus, while legacy modernization might be a priority to CIOs, business line leaders and agency deputy directors tend to support other investments. Sometimes these legacy systems are not just the most costly systems to maintain but also the most costly to replace. Often the legacy system limps along meeting business needs in the most basic or bare minimum manner. A request to modernize or replace a legacy system is unlikely receive funding or authorization when competing against efforts that will provide visible improvements or new capabilities to the line of business.

Often, legacy modernization or replacement efforts are seen as a significant expenditure that results in the same capabilities being met, though often at a lower cost. Back-office systems, such as core financials, are an especially hard sell because while they have significant impact, the visibility of day-to-day challenges is lower. As a result, modernization of legacy IT systems often comes in small chunks as enhancements for new business capabilities are made to that system or as time becomes available between other projects. This approach is unlikely to make a significant dent in reducing our legacy IT systems overall and is best categorized as a temporary fix.

An illustration of the current process is included on the following page. Red text illustrates where, when and if OCIO has visibility, involvement or influence in the process (sometimes only indirectly). The project phases referenced in the illustration are used later in this document when discussing current efforts.

At the end of the process, if a proposed modernization effort is funded and completed, the system would no longer be classified as legacy because the characteristics (such as dependency on unsupported versions or declining availability of support staff) would no longer be applicable. If not fully funded or completed, the system(s) will likely remain in legacy status and go through this cycle again.

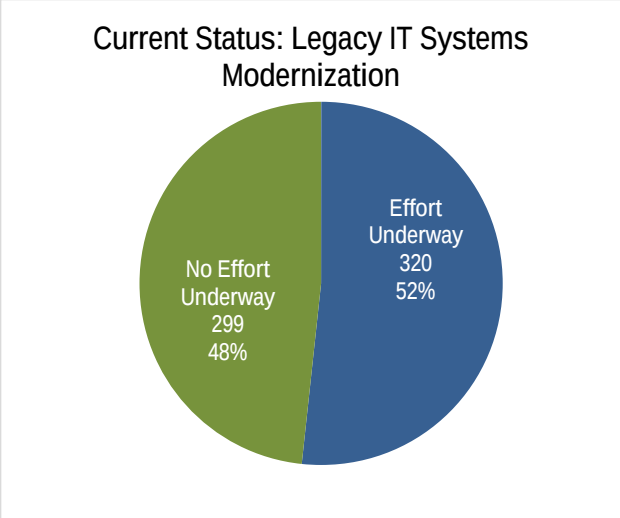


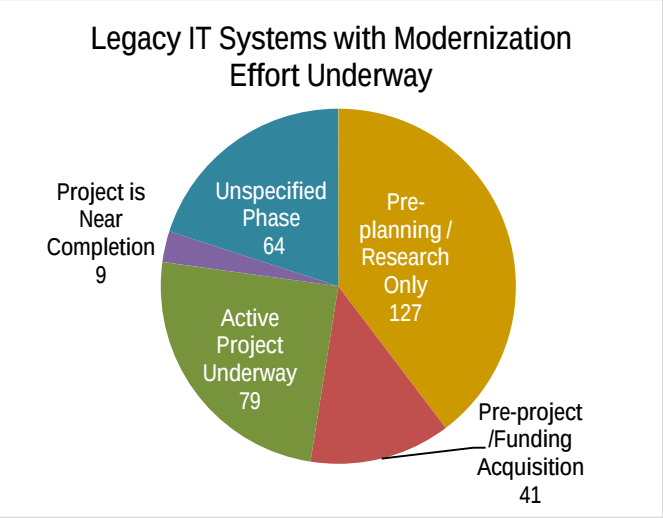
More information about the projects in the OCIO oversight process, including those that are modernizing or replacing legacy IT systems can be found on the Project Dashboard.

Status of Modernization or Replacement Efforts

Several modernization efforts are underway in the state. As these projects are completed, the number of legacy systems that remain are expected to decrease significantly. More modernization efforts are anticipated in the future in addition to some for which planning has not yet begun.

For systems with a modernization effort underway, agencies were asked what phase it was in; agencies were advised to select from a range of choices. These phases are the same as the project phases used in the illustration of current process earlier in this document.





Approximately half of the legacy IT systems have a modernization or replacement effort underway.

It is important to note that even if efforts are underway, **at least** half of these efforts are in a **very** early phase of either research or funding acquisition, which means that the bulk of the cost of these modernizations will be spent in future biennia. Some may span years or biennia, and others may be addressed iteratively. This means that the bulk of estimated expenditure for these efforts still lies ahead and that the variability of the estimates given is high.

Of those with an effort underway, exactly 50 percent (or 160 systems) are part of a current major IT project under OCIO oversight (either active or having undergone conceptual review) and the remaining 50 percent are visible only to the agency. This percentage will increase if efforts such as ERP, which replaces a large number of legacy systems, are funded and come into the oversight process.

Projects under OCIO oversight tend to be:

1. High risk and/or severity
2. High cost (therefore usually funded through an explicit funding request [decision package])
3. Of longer duration (often spanning multiple biennia)

Modernization Efforts and Anticipated Funding Needs

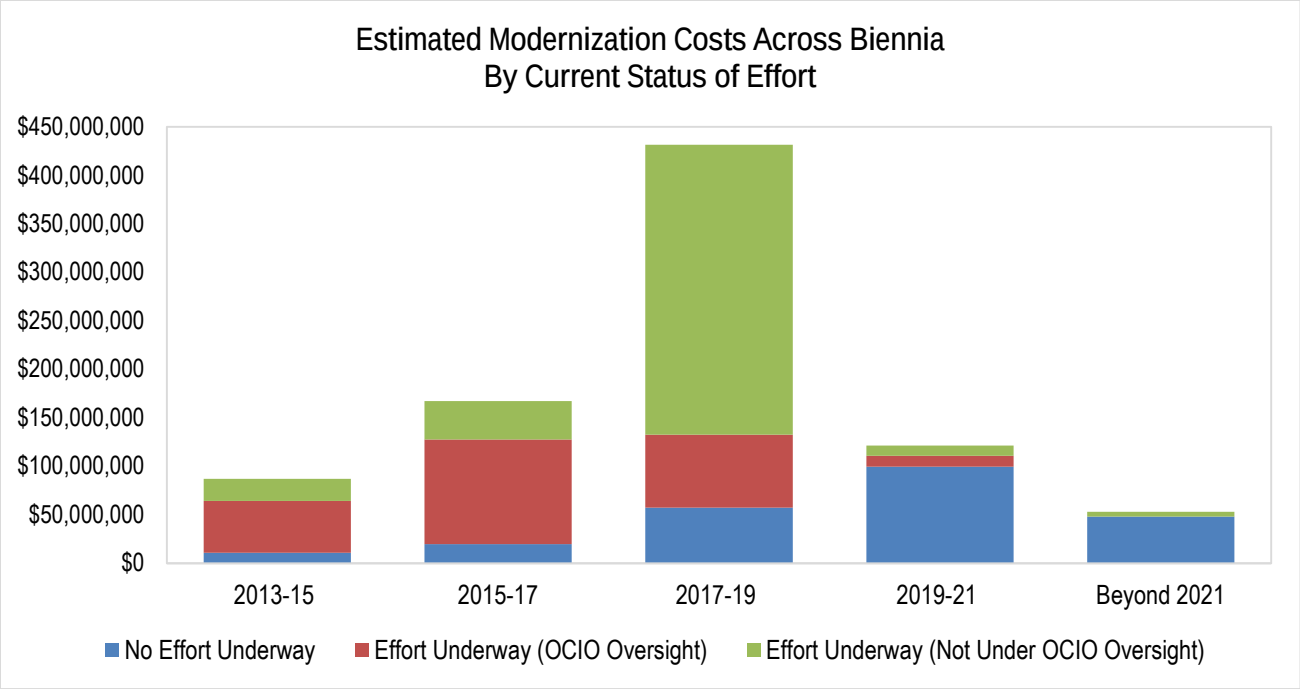
For projects under OCIO oversight, which tend to be higher cost and longer in duration, there is an often an expectation that once the initial funding request is granted, future funding requests to continue these efforts will be approved, too. Information about these projects, as well as anticipated funding need to

complete them, is provided in Appendix E: Detail on Current Modernization Efforts Underway and Under OCIO Oversight.

For those efforts either not yet underway, or not under OCIO oversight, agencies indicated that the likely fund source for these efforts is either existing agency budget or agency dedicated funds. **Cuts to agency budgets would have an adverse impact on the likelihood that these modernization/replacement efforts will be completed or new efforts started.**

In some instances, agencies did not provide estimated cost for modernization/replacement because they indicated that the effort to modernize/replace would balance to $0 against time saved as a result of modernizing. It is important to note that many system decommission activities (where no modernization or replacement is actually occurring, but a legacy system is being shut down and data potentially archived) fall into this category.

Where agencies provided cost estimates by system and biennial time period, the distribution of these estimated costs over time are shown below. Estimates for efforts in the near term (the remainder of fiscal year 2015 and the next biennium) are more likely to be accurate than longer estimates.



Current Status of Effort	2013–15	2015–17	2017–19	2019–21	Beyond 2021
No Effort Underway[13]	$11,038,000	$19,736,000	$57,450,000	$99,800,000	$48,100,000
Effort Underway (OCIO Oversight)	53,475,765	107,851,060	75,298,000	11,074,000	0
Effort Underway (Not under OCIO Oversight)	22,616,734	39,809,610	298,770,000	10,502,500	5,002,500
Total	$87,130,499	$167,396,670	$431,518,000	$121,376,500	$53,102,500

[13] This may seem contradictory, but indicates that the agency intends to begin modernization efforts before the close of FY 2015. Data were gathered from agencies as FY 2014 was closing and FY 2015 was just beginning.

Enterprise/Shared Services Examples

HR Management: DES Time, Leave & Attendance (TLA) project (underway and submitted for continued funding): The TLA project is chartered with implementing an enterprise system to reduce agency inefficiencies in timekeeping and leave management business processes; lessen effort and risk in meeting current statutory and regulatory requirements; decrease system duplication; and provide better tools and data for management. Two agencies are in the process of implementing TLA —the Department of Ecology and the Department of Transportation — and between them, seven legacy systems will be modernized or replaced. After full implementation, TLA will automate numerous manual processes and replace more than 20 systems, some of them legacy systems.

Financial Management: OFM Enterprise Resource Planning (ERP) project (proposed and submitted for funding): If the ERP decision package submitted by OFM is funded, approximately 138 core financial systems across the state would be decommissioned after implementation. Legacy systems constitute a substantial number of these. Based on the data received from agencies for this report, we cross-referenced 73 legacy systems with an estimated cost of $187.5 million if replaced one at a time[14]. This project would drastically reduce the impact of legacy systems on the financial management business capability while building out and modernizing the core financial system enterprise service offering.

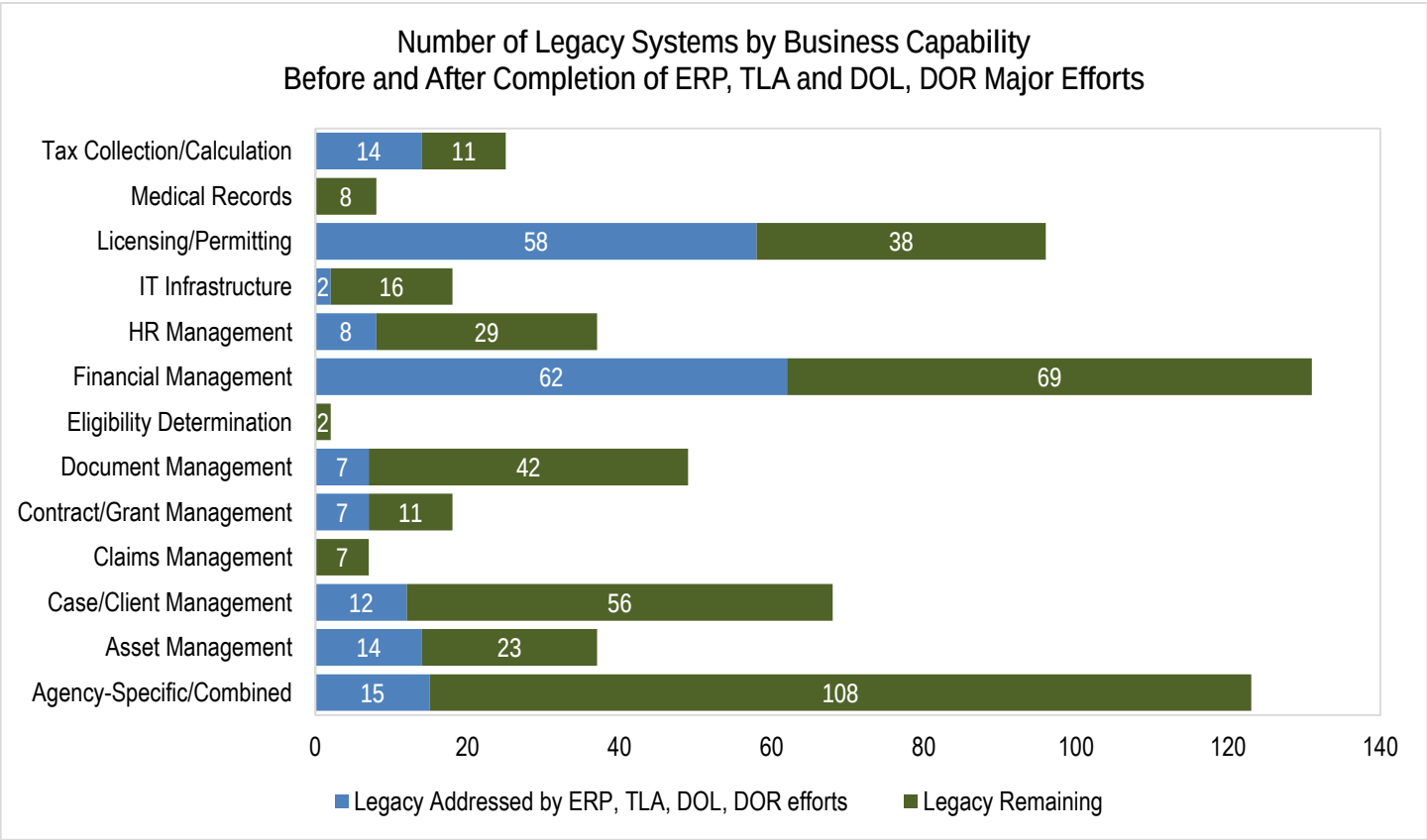
The ERP and TLA efforts are examples of how OCIO would envision using the data gathered in this report to identify and establish similar shared or enterprise services to process standardization and cut costs.

Agency and/or Mission-Specific Examples

Tax Collection/Calculation: DOR tax and licensing system replacement project (underway and submitted for continued funding): The Department of Revenue's modernization project, which was funded in the current biennium and will require funding in 2015–17 and 2017–19 to complete, will modernize or replace 25 legacy systems. This will reduce by 44 percent the number of legacy systems in the tax collection/calculation segment reported in this survey, and to a lesser degree, other business capability areas.

Licensing/Permitting: DOL modernization project (proposed and submitted for funding): If funded, the Department of Licensing 2015–17 modernization decision package would replace 91 legacy systems. The project will make a significant dent in the legacy system prevalence in the licensing/permitting business capability area (reducing it by 56 percent), and a lesser impact in other business capability areas (including an approximately 11 percent reduction in the number of legacy systems in both the IT infrastructure and financial management business capability areas).

[14] Significant effort would have been required to attempt to exactly match the number of systems reported between those initially captured in the State Auditor's Office effort and subsequent ERP planning work to those reported in this OCIO-led effort. In some cases, systems have been decommissioned and in others, agencies reported systems at a different level and under a different name from what was identified in the ERP planning effort.


Number of Legacy Systems by Business Capability
Before and After Completion of ERP, TLA and DOL, DOR Major Efforts
Tax Collection/Calculation
Medical Records
Licensing/Permitting
IT Infrastructure
HR Management
Financial Management
Eligibility Determination
Document Management
Contract/Grant Management
Claims Management
Case/Client Management
Asset Management
Agency-Specific/Combined
14
11
8
58
38
2
16
8
29
62
69
2
7
42
7
11
7
12
56
14
23
15
108
0
20
40
60
80
100
120
140
Legacy Addressed by ERP, TLA, DOL, DOR efforts
Legacy Remaining

Crafting an Enterprise-Level Legacy Modernization Road Map

Most prioritization of and work on IT systems that are supported in each agency are not visible to OCIO unless there is an explicit funding request or the project is assessed as "major" and is subject to the OCIO project oversight process.

Agency business needs, available staffing and funding resources, funding models and system characteristics differ greatly between agencies. It is the appropriate role of agency IT to identify agency-specific technology needs and solutions and work closely with agency business leaders. One role the OCIO plays is to work across agency boundaries and assist in making the enterprise more interoperable, efficient and responsive to both citizen and agency needs. This will sometimes take the form of policy or guidance (as in the establishment of an enterprise-level legacy modernization road map) or in specific activities to identify or advocate for enterprise services.

An enterprise-level legacy modernization road map is needed to systematically tackle the legacy challenge, simultaneously advancing state technology goals and maturing portfolio and technology business management disciplines. This road map must be flexible enough to adapt to changing realities and serve as both an aspirational vision and a practical guide.

The road map is a set of principles and guidelines used by agencies and OCIO to:

1. Mitigate current risk introduced by legacy systems and proactively stay current on supported versions of software.
2. Continue to identify, categorize and analyze the system (application) portfolio.
3. Determine when to initiate modernization or replacement efforts.
4. Determine the appropriate technology approach to modernization.
5. Build a sound business case to increase funding likelihood.

Each of these items is discussed in further detail in the following sections.

Mitigating Risk by Staying Current

Legacy systems have a higher risk of failure due to such factors as diminished availability of documentation, institutional knowledge, skilled support resources and other factors. They also have a higher risk of unauthorized disclosure of records (data breach), theft or service disruption (e.g., denial-of-service attacks, resulting in services not being available when needed) due in part to being reliant on or using unsupported software versions (48 percent of the legacy systems identified in this inventory use unsupported software versions), and in part because the development and code-testing techniques in place when the system was originally written did not anticipate modern cyber threats such as a SQL injection attack. The security-related risk is especially true for citizen-facing systems, as applications originally designed to be used in a secure internal network are now being exposed over the Internet. This risk is particularly pronounced for legacy systems that contain confidential or restricted data. This section will address mitigation of risk of failure, mitigation and improvement in security practices, and the need to place additional emphasis on staying current with supported versions of software.

Mitigating System Failure

When agencies cannot acquire resources to fully modernize or replace a legacy system, they may undertake activities to mitigate the risk of system failure or the ability to quickly recover from system failure. These approaches will vary dramatically based on available resources and risk.

Approaches could include improving documentation of the system in part through extracting information from retiring key staff; rewriting or improving the system incrementally as business needs or "bugs" require developers to modify specific areas of code; or might be exactly the opposite approach of "do not touch it for fear you will irretrievably break it." The latter approach illustrates why in some cases the maintenance cost associated with a legacy system may appear artificially low.

Addressing Security Issues in Legacy Systems

The migration of legacy systems to modern platforms will take a significant amount of time. In the meantime, OCIO believes there are several actions that would help mitigate security risks posed by the use of legacy systems. Some of these activities will also improve the security of newly created systems.

Identify potentially high-risk systems

Legacy systems deserve further attention from a security perspective. An assessment should be conducted to identify those systems that could pose greater risk to the state based on several factors:

Classification of data: Understanding the value of the data that reside on a system is the most important determinant in understanding potential risk. Systems that contain or are used to access sensitive or confidential information such as Social Security numbers, credit card numbers or other personally identifiable information are attractive targets for attackers. It is imperative to first identify those systems that contain this kind of information so the proper security controls can be put in place.[15]

Functional criticality: If a system is used to support a major business function, loss of the service would have a significant business impact on the agency. In addition, these kinds of systems generally have exposure to a large number of users, making system compromise more likely.

Government requirements: If a system maintains information that is subject to special government security requirements such as HIPAA, IRS regulations, etc., the risk to the enterprise is significantly increased.

Internal vs. external use: Publicly accessible systems present different risks than systems accessible only to internal users.

Age and implementation tools: As noted above, systems developed using older tools and languages that pre-date the widespread use of the Internet as a means of service delivery and access are inherently less secure than those developed using newer development frameworks.

Provide secure coding training

Training should be provided to agency code developers not only to enable them to securely develop new code, but also to allow them to identify and fix vulnerabilities in older systems. This training should include instruction on the Secure System Development Life Cycle, which emphasizes the use of security best practices throughout the useful life of an application.

Invest in new secure coding testing tools

In concert with training on how to code securely, the state, as an enterprise, should invest in secure coding-testing tools. These automated tools are capable of rapidly analyzing code to identify coding vulnerabilities that otherwise might be missed by manual review.

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[15] In recent years, there has been an increasing demand for making government data available to the public. A primary barrier is the absence of data classification information or the lack of visibility into it. Data classification is an activity that relies on the agency business executives (data owners and data stewards) in the agency who have statutory authority for protecting data and understand the limitations on data sharing. The agency IT division has data custodians who are responsible for implementing appropriate security controls and access to the data, depending upon the classification indicated by the data owners and stewards.

Use new, centralized IT security services

The Legislature provided funding for a suite of centralized, enterprise-grade IT security tools and services in the 2013–15 biennium. Many of these services, maintained and operated by CTS, are now coming online. Some of the services agencies can use to minimize the risk that comes from the use of legacy systems are:

- *Vulnerability assessment:* This technology scans hosts and applications for common vulnerabilities, providing a detailed report of actionable mitigation recommendations. New software vulnerabilities are continually being discovered and catalogued, making the need to perform vulnerability scans a necessity to protect legacy systems.
- *Web application firewall (WAF):* A WAF protects websites and their applications by identifying and blocking traffic from attackers attempting to exploit application vulnerabilities to steal data, deny service or deface websites. A WAF solution protects applications from SQL injection, cross-site scripting and other vulnerabilities that may be present in legacy systems.
- *Security information and event management (SIEM):* The use of a SIEM solution for recording log data from legacy systems, or the devices connected to legacy systems, provides instant visibility to these environments and alerting of threat activity. In nearly every recorded breach, attack footprints were available in the logs.
- *Discovery and mapping:* Experts cite having a current inventory of devices as one of the top critical security controls. The use of a discovery service allows for the proper identification and tracking of vulnerable access points by scanning an organization's network. These scans provide a map of the devices in use, details of the operating system deployed and current version of the software. Legacy systems may have more vulnerable access points than non-legacy systems for reasons already articulated.
- *Forward proxy:* All Web traffic from the legacy systems needs to be protected. A forward proxy service anonymizes the identity of devices used by a legacy system to request information from the Internet so attacks cannot be made against these devices directly. A forward proxy also blocks communication to hosts with a known bad reputation and any Web traffic matching a malware signature.

Subject legacy systems to periodic security design review

Over time, legacy systems are subjected to modification and revision that may inadvertently alter or reduce their security. This, coupled with the ever-changing nature of the IT security "threatscape" (spectrum of possible threats), means they should be periodically analyzed to ensure that any new vulnerabilities are identified and mitigated. The OCIO encourages agencies to request a review of any system that may introduce risk to the agency and the enterprise.

Prevent Additional Systems from Becoming Legacy by Staying Current on Software Versions

As the pace of change for commercial software continues to accelerate, more systems may become legacy because they operate or depend on software versions that are no longer supported by the vendor. When this happens, the OCIO and agency CIOs recommend against using the outdated or unsupported software or platforms, which is referred to in the IT industry as "deprecating." Having a rational strategy and road map for deprecating software platforms in a repeatable and predictable way is essential for several reasons:

1. Government has a unique responsibility to ensure availability and access to online services and information to the public. For this reason, it is critical to establish a strategy that does not rely on platforms or products that the vendor has ended support for, yet still provides the required access and accessibility. Design and maintenance of systems to enable cross-browser support is necessary, but continuing support for all prior versions of each browser represents an unnecessary drain on state resources and increases complexity and cost of system support.
2. Eliminating old platforms is complex and time consuming. Funding and planning these efforts well in advance of the platform becoming unsupported is critical.

In 2013, OCIO drafted and adopted Policy 142 – Windows XP End of Life to specifically address one particular known security risk related to the Microsoft Windows XP Operating System. Along with adopting this policy, OCIO began tracking upgrade/elimination of Windows XP platforms across agencies to ensure that our risk was mitigated. Similarly, but without adopting a policy, OCIO has been encouraging and monitoring agencies as they migrate off Windows 2003 for similar reasons.

These types of migrations are exactly the type of activities that often do not receive funding or priority when considered in the agency because, to the business executive in the agency, the change may produce no visible or discernible increase in usability or functionality. For the Windows XP situation, the policy direction by OCIO provided the justification for agency IT divisions to address the issue. However, it is not reasonable for OCIO to establish a separate policy and tracking effort to deprecate every software or platform that is no longer supported by its vendor.

OCIO will begin two activities to deal with the larger issue of unsupported software platforms.

1. Vendor and agency outreach: The OCIO will convene a working group to understand major vendors' plans to stop supporting their older platforms and software, as well as study the consequences anticipated at agencies. Examples of programs and platforms that represent complex but important issues are:
    a. Starting in 2015, Microsoft 2003 will no longer be supported.
    b. Old versions of Adobe Acrobat Reader and Writer represent well-known security risks.
    c. Old browser versions also represent security risk. For example, Microsoft has announced end-of-support in January 2016 for Internet Explorer 8 (IE8). Numerous state agencies use IE8 as their standard browser, and various systems may have functionality that will need to be reworked to continue operating on newer versions.
2. Policy direction: Based in part on the results of the above activity, OCIO will consider adoption of a policy on unsupported platforms. Possible forms this policy could take are:
    a. Systems using data classified as confidential or restricted must be on currently supported platforms.
    b. Systems that are Web-facing must be on currently supported platforms.

Determine When to Initiate Modernization or Replacement Efforts

Trying to eliminate all legacy systems in any given system inventory is an unrealistic goal given the pace of technology, limited resources, and funding and prioritization obstacles. Instead, our goal is continual improvement.

Knowing when, on a particular legacy system, the scale has tipped so that something should be done about it is critically important. Periodically reviewing a system inventory and making determinations on each system as to whether to tolerate it, invest in it, migrate it or eliminate it (known as the TIME model) is the fundamental definition of application portfolio management. This occurs normally in the agency, but in cases involving an enterprise or shared service (such as ERP or TLA), it will also involve OCIO.

Tolerating the system is the obvious default. Deciding that a system can no longer be tolerated, and that investment, migration or elimination has to occur, is largely based on the following:

1. Risk of an unsupported platform
2. Dependency on declining availability of skill set necessary for system support
3. Cost (financial and opportunity) of supporting existing system
4. System doesn't meet current business needs and/or can't be easily changed to meet changing or expected business needs (based on the market or mandate)

In some cases, eliminating a system is easy because the user base is small or the system is rarely used and there's no need to migrate the data. In others, eliminating a system may mean a significant data migration and accompanying change to business process (e.g., eliminating the core financial systems to move to an ERP is a significant change to business process and will require data migration). Visibility of elimination/ decommission efforts that fall into the former "easy" category is almost non-existent outside of the originating IT division and the users still accessing the system or data. In other cases, elimination efforts will need to be on the list of technology needs to be prioritized between the agency CIO and business leaders.

Build a Sound Business Case to Increase Funding or Prioritization Likelihood

A fundamental impediment to modernizing software is the perception that a lot of time, money and opportunity cost to upgrade will occur, and when modernization is completed, the same customer value will be delivered. While saving money is important, when a CIO can also identify significant, new customer-focused value, business cases for investment or migration are much more likely to be successful. Agencies differ greatly in how IT is budgeted. Some agency IT divisions have their own budget. In other agencies, the IT budget pays for a set number of IT staff but is dependent on funding from other programs or lines of business in the agency. In these agencies, virtually any IT activity must be explicitly sanctioned by the business budget owner.

As mentioned previously, one of the OCIO's statutory requirements is also the implementation and coordination of a technology business management program (RCW 43.41A.025). System (application) and service portfolios (inventories) are a critical component of this program as they constitute the highest level of "the stack" when viewing the various layers of IT costs and components that support a particular application or business service. They are also critical in building relationships that identify total cost of ownership (TCO) and utilization of systems and business services on an ongoing basis. This knowledge can then be used to enable agency and enterprise IT leaders to engage with line of business, OFM budgeting and legislative audiences more effectively to discuss the true costs and benefits (inclusive of opportunity costs) across the organization in terms that are not IT-specific as well as to better quantify and predict "what if" cost scenarios.

A business case developed for the replacement of the core financial systems (ERP/One Washington) includes TCO as well as the hard-dollar benefits and mission impacts. The mission impacts are both positive and negative. This business case was developed without benefit of the technology business management program which had not yet been built out to provide TCO at an application level. Once this capability is built out, detailed business cases like the one submitted for ERP/One Washington should be more easily produced. This type of information can then be used in decision-making processes such as the approval of investment plans for major projects or the prioritized ranking of IT decision packages in the budget process.

In many cases, a strong business case for modernization can be made on the basis of cost reduction alone, but in other cases, investment in legacy system maintenance would show to be very low. In these situations, the IT leader might emphasize the risk of system failure as well as the lesser capabilities available to support the business service. Having access to ongoing data at this level, tied clearly to systems and services, will allow us to build better funding requests, investment plans and more accurately assess capabilities and cost of replacement systems, thus making better-informed choices in each situation.

Determine the Appropriate Technology and Project Approach to Modernization

As noted in the Legacy IT Systems by Deployment Model section, there are various ways to deploy a technology solution. While in-house developed solutions offer the advantage of customization, they also increase the likelihood of evolving into legacy systems. However, not all systems may lend themselves to

SaaS or COTS deployment models. Additional factors should be taken into consideration, such as what type of system it is and the related expected life-span of the system.

Use Pace-Layering to Identify Probable System Lifecycle

The OCIO recommends using Gartner's Pace-Layering Model, in which each IT system that an agency supports would be identified as a system of record, differentiation and innovation or as connective tissue:

> *In 2010, Gartner introduced this new approach to managing the application portfolio by looking at systems in a series of three layers, where each layer evolves at a different rate. The three layers are:*
> - *Systems of Innovation – New systems that are built on an ad hoc basis to address new business requirements or opportunities. These are typically projects with a short life cycle (three to 12 months) that use departmental or outside resources and often citizen-grade technologies.*
> - *Systems of Differentiation – Systems that enable unique company processes or industry-specific capabilities. They have a medium life cycle of two to five years, but need to be reconfigured frequently to accommodate changing business practices or customer requirements.*
> - *Systems of Record – Established packaged systems or legacy homegrown systems that support core transaction processing and manage the organization's critical master data. The rate of change is low, because the processes are well-established and common to most organizations, and often are subject to regulatory requirements. Life span is 10 plus years, and often as long as 25 years.*

An application's pace layer view will help IT organizations and business understand the investment life cycle of their systems portfolio, and provide clarity and insight into how to rationalize IT investments and divestments. Coupled with the creation of a well-documented systems inventory, the pace-layered model provides another tool that the CIO and systems architects can use to craft a systems strategy.[16]

Gartner's pace-layering model also specifies an additional type of technology, that of "connective tissue." Connective tissues are "the enabling tools that tie applications together and provide a means for organizations to extend the value of their applications, or create new capabilities on top of the existing portfolio."[17] Examples of connective tissue are service-oriented architecture, enterprise information management, business intelligence, master data management, identity access management, etc.

Depending upon the classification (and the expected life cycle of the application), the approach to modernization would vary. Generally, the modernization or replacement approach for a legacy IT system that is a system of record would be to simplify, standardize, consolidate and reduce costs. We would do this by moving such systems to low-cost platforms or migrating to packaged software solutions (COTS or SaaS).

In the ERP/One Washington final report, though not explicitly stated, core financial systems are recognized as a system of record with a long life span:

> *Replacing an ERP system is hard. It costs money ($200 million–$300 million), takes time (5–7 years), and is disruptive as one system and ways of doing things is replaced by another. As a result, these systems often stay in place for 25–35 years. In addition, people accommodate to the limitations of the in-place system by developing "work-arounds" that allow them to do what they need even if 'the system' cannot. Over time, these work-arounds become part of business as usual and take the pressure off of demands to upgrade or replace the core system.*

When systems of differentiation or innovation are replaced, it is critical to design the replacement system to be agile so the system can continue to evolve to meet changing business needs in the future.

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[16] Gartner "How to Develop Your Applications Portfolio Using the Pace-Layered Model," Aug. 15, 2012, Page 2
[17] Gartner "How to Develop a Pace-Layered Application Strategy," Nov. 5, 2013, pg. 15

Consider Deployment Models that Require Less Time, Money and Staff to Maintain

In general, OCIO would ask agencies to consider the following deployment models, in this order, when evaluating how to replace a legacy system:

1. Look to SaaS first
2. COTS in a managed services model
3. COTS in a self-hosted model
4. Home grown using a PaaS
5. Home grown using elastic computing techniques
6. Home grown in a self-hosted model built on .NET technology

By approaching legacy modernization in this way, there will be a significant change in the composition of the overall application portfolio for all types of systems. This lessens overall dependence on in-house-developed solutions in favor of COTS or 'as-a-Service' solutions. This would have the additional impact of furthering OCIO goals to increase state usage of the cloud.

The business case produced for the ERP/One Washington project that included TCO, hard-cost savings and both positive and negative mission impacts did so based on three scenarios that are consistent with the OCIO-recommended deployment models evaluating managed services and SaaS approaches.

Consistent with the increased cloud usage, OCIO is also taking steps to ensure that data remain secure in the cloud. To this end, there should be standard terms and conditions for IaaS, PaaS and SaaS contracts that would include specification and enforcement of appropriate security controls as well as standardize the process for IT procurement.

Craft Projects of Shorter Duration that Deliver Value More Quickly

Some of the great variability in project estimates arises from projects of long duration, where customer value is not achieved until the very end of the project. The OCIO has been encouraging adoption of agile methodologies to projects. In fact, regardless of whether an agency can adopt a pure agile approach to its projects, OCIO encourages the careful crafting of scope, schedule and budget to deliver customer value in smaller, quicker increments. This would lessen the variability in the cost estimates and be more compatible with state budget cycles. Another benefit is that an agile approach provides the opportunity to gain customer feedback along the way to ensure that products and solutions delivered to the customer truly meet business needs. This approach is more likely to gain the support of line-of-business program managers because they see more immediate improvements, such as greater system functionality or lower maintenance and operation cost.

Continue to Identify, Categorize and Analyze the System (application) Portfolio

The OCIO has statutory responsibility for enterprise portfolio management (RCW 43.41A.035). Agencies are responsible for agency-specific portfolio management (RCW 43.41A.040). To date, OCIO does some minimal *project* portfolio management by prioritizing funding requests (per RCW 43.41A.050) and reviewing, approving and monitoring major IT investments as required by statute (RCW 43.41A.055). As noted in the current process flow, most evaluation and prioritization decisions are made at the agency level. Accordingly, OCIO participates only in further evaluation of those items that were both high priority and either assessed as a major IT project or for which funding was requested via the budget process.

A mature portfolio management program would also build out application and service portfolios and manage each, aligning to enterprise architecture plans and strategic goals. Agencies vary in their portfolio management program maturity levels. Application and service portfolios are a fundamental component of a technology business management program, which is another of OCIO's statutory requirements

(RCW 43.41A.025). Continued technology business management analysis will help guide future legacy modernization efforts.

Mandate Regular Update of System Inventories by Policy

One of the primary tools OCIO has at its disposal is the creation and enforcement of policies, standards and guidelines. The OCIO is in process of creating or significantly revising policies for statutorily required activities (portfolio management, technology business management and biennial performance reporting) to establish regular and ongoing requirements for provision, update and use of system inventory (and other) data. These policies were created or revised in July 2014 and are entering the review/revision process.

Review by Primary Business Capability to Identify/Establish Shared or Enterprise Services

As noted in the Legacy Systems by Primary Business Capability section, there is a potential for mining the data we now have to uncover additional opportunities for consolidation or improving integration/coordination across or in business capability categories. By exploring the data provided in the system inventory and using a cross-agency functional lens, we hope to shed light on these opportunities and start discussions on which may be most feasible. These would encompass both legacy and non-legacy systems. We already have established some policy direction and support for this approach.

Earlier in 2014, in accordance with our statutory requirement (RCW 43.41A.065) on "developing evaluation criteria for deciding which common enterprise-wide business processes should become managed as enterprise services," OCIO adopted Policy 185 –Establishing an Enterprise Service. As noted in the Status of Modernization or Replacement Efforts section, projects underway or about to begin will make significant impact on reducing the number of legacy systems in business capability areas such as financial management or licensing/permitting. To make similar progress in the next most-impacted capability areas, additional research into the case/client management capability area would be needed, as these systems tend to be fairly complex and include supporting business capabilities such as eligibility determination in their scope. In addition, the definition of case or client may vary significantly among agencies. In fact, it is likely that some of these systems may be better categorized as agency-specific.

Additional research and further segmentation would also be necessary to gain better insight into what agency-specific business capabilities are impacted by legacy systems.

Increase Standardization Where Appropriate

In instances where an enterprise or shared service is not appropriate, the data could help initiate or guide other efforts to establish master contracts that agencies with a particular business need could use.

A multi-agency effort initiated by OCIO is underway to construct a procurement vehicle that will result in a master contract with multiple vendor awards to offer enterprise content management (ECM) functionality to agencies. Document management lies in the larger scope of ECM. Once this contract is awarded, agencies will be able to select from a pre-qualified list of vendors who meet established requirements. This will ease the modernization or replacement of document management legacy systems for agencies while simultaneously allowing agencies that do not yet have document management capabilities to more easily acquire them. This will also incrementally move the enterprise toward standardization of processes and tools. Additional scenarios may lend themselves well to this approach.

Increase Use of Central Services

The data identify several cases where a service (such as Sharepoint, email or legislative bill tracking, etc.) may be available from a central service provider organization (CTS for computing utility infrastructure or DES for enterprise systems), yet an agency has elected to support its own implementation. It is important to note

that in determining which systems to include on the system inventory requested by OCIO, agency interpretation on "application" versus "infrastructure" may have varied (e.g., some agencies considered services such as Sharepoint or email as applications and included them, while others did not include these services as they considered them infrastructure). This is one of several already-identified improvements OCIO would like to make for capturing this data on an ongoing basis.

Law (RCW 43.41A.152) mandates that the OCIO "conduct a needs assessment and develop a migration strategy to ensure that, over time, all state agencies are moving towards using the consolidated technology services agency established in RCW 43.105.047 as their central service provider for all utility-based infrastructure services." While there is no similar statutory requirement for OCIO to assure similar migration to enterprise applications provided by DES, it is the intent of OCIO to encourage such migrations where they make sense. This is consistent with the establishment of the DES policy.

Encouraging migrations to enterprise services, whether for application or utility-based infrastructure, allows agencies to free up resources to focus on agency mission-specific work. It also results in fewer agency systems to support internally, lessens the total number of systems supported across the state and reduces duplication of systems and/or effort. With fewer overall systems to support, there are fewer systems susceptible to falling behind on vendor version support or to the inability to attract and retain adequate staffing.

Use the Information Technology Pool established in RCW 43.41.430 as a Modernization and Security Fund

The NASCIO 2008 report on legacy modernization, as well as a handful of agency participants in this survey, suggested the idea of establishing a dedicated fund that could be used solely for modernization/replacement efforts. This would be consistent with Gartner suggestions of establishing a particular program/project to establish goals for modernization if this issue is to handled head-on.

RCW 43.41.430 provides OFM with the authority to establish an information technology pool (subject to funds appropriated for this purpose), with one of the criteria for using funding from this pool being that the project begins or continues replacement of IT systems with modern and more efficient IT systems.

The OCIO recommends designating this as a modernization and security fund. If a project or activity meets a defined set of criteria, it could request support from this fund. Decisions about which projects or activities get funded would be granted at the discretion of the CIO, advised by a committee of agency representatives and OFM.

The fund would have two important goals:

1. Inspire agencies to share with OCIO timely and correct information about their portfolio and the state of their security program.
2. Remediate and address modernization and/or security issues quickly and in priority order.

Potential criteria for use of funds may include:

1. Credible documented submission of known deviations from OCIO security policy.
2. Up-to-date and comprehensive listing of agency systems available, including:
    a. Data classification information for each system
    b. Primary and additional business capabilities for each system
3. Agency has modeled TCO for all systems in Apptio and is therefore capable of providing credible (based on system of record data as modeled in Apptio) data showing current baseline cost, expected cost if project/activity is to proceed and resultant cost upon project/activity completion.

Appendix A: Agencies Inventoried

This study included the 44 agencies that spent $250,000 or more on IT in fiscal year 2013. The Puget Sound Partnership volunteered to participate as well, though its IT spending falls significantly below the cutoff line.

Agency Name	FY 2013 IT Spend (per AFRS)
Department of Social and Health Services (DSHS)	$105,320,723
Consolidated Technology Services (CTS)[18]	$90,792,882
Department of Enterprise Services (DES)	$58,045,056
Department of Labor and Industries (LNI)	$57,751,754
Washington State Department of Transportation (WSDOT)	$50,499,711
Employment Security Department (ESD)	$44,501,668
Health Care Authority (HCA)	$43,158,311
Office of Financial Management (OFM)	$27,195,878
Department of Corrections (DOC)	$26,495,126
Department of Licensing (DOL)	$21,732,543
Department of Health (DOH)	$19,745,511
Department of Revenue (DOR)	$17,971,953
Department of Ecology (ECY)	$16,632,006
Washington State Patrol (WSP)	$15,262,049
Department of Natural Resources (DNR)	$8,703,898
Office of the Superintendent of Public Instruction (OSPI)	$7,071,751
Department of Retirement Systems (DRS)	$6,832,016
Department of Fish and Wildlife (DFW)	$6,198,130
Office of the Attorney General (ATG)	$5,978,718
Liquor Control Board (LCB)	$5,678,548
Office of the Insurance Commissioner (OIC)	$3,841,654
Office of the Secretary of State (SEC)	$3,794,707
Department of Early Learning (DEL)	$3,197,713
Department of Agriculture (AGR)	$2,239,266
Military Department (MIL)	$2,218,064
State Auditor's Office (SAO)	$2,068,843
Department of Commerce (COM)	$2,033,047
Department of Financial Institutions (DFI)	$1,839,582
Utilities and Transportation Commission (UTC)	$1,801,370
State Investment Board (SIB)	$1,669,448
Office of the State Treasurer (OST)	$1,620,321
Lottery Commission (LOT)	$1,556,495
Office of Administrative Hearings (OAH)	$1,101,089

[18] CTS is the utility-based infrastructure IT provider for the state; as such all CTS spending is considered IT.

Agency Name	FY 2013 IT Spend (per AFRS)
State Parks and Recreation Commission (PARKS)	$979,424
Washington State Gambling Commission (GMB)	$939,848
Board of Industrial Insurance Appeals (BIIA)	$933,221
Department of Veterans Affairs (DVA)	$888,948
Recreation and Conservation Funding Board (RCFB)	$827,199
Department of Services for the Blind (DSB)	$671,430
County Road Administration Board (CRAB)	$548,962
Washington State Criminal Justice Training Commission (CJT)	$364,241
State School for the Blind (SFB)	$361,143
Public Disclosure Commission (PDC)	$357,830
Human Rights Commission (HRC)	$288,591
Puget Sound Partnership (PSP)*	$41,918

*Voluntarily participated in this study.

Appendix B: System Inventory Questionnaire

Initial Questionnaire

Note: A Frequently Asked Questions (FAQ) document was prepared and posted on the OCIO website to assist agencies as they responded to this data request.

- System Name
  - This should be freeform text; should be the name of the system as commonly known – no acronyms or nicknames
- Legacy Determination Questions
  - **Updateability**: Can the System Be Updated to Meet Business Needs? (Y/N)
  - **Resource Availability**: Are there Support Resources Both Available and Economically Feasible for this System?
  - **Version Support**: If the System is COTS, internally using a 3rd-party software product for functionality, or in-house developed in a specific programming language, is the version/release you are currently using still being supported?
  - **Other Risk**: Are there other ways that this system creates unacceptable risk that is not included in the questions above? (Y/N)
- **Estimated Modernization cost** (choose from one of the following):
  - 0-$100K
  - $100K-$500K
  - $500K-$1M
  - $1M - $10M
  - $10M- $100M
  - Greater than $100M
- Current Modernization Effort Underway (Y/N)
  - Primary Business Capability
    - Asset Management
    - Case/Client Management
    - Claims Management
    - Contract/Grant Management
    - Document Management
    - Eligibility Determination
    - Financial Management
    - HR Management
    - IT Infrastructure
    - Licensing/Permitting
    - Medical Records
    - Tax Collection / Calculation
    - Other
  - More Than One Capability (freeform text limited to 250 characters): Use to note if other business capabilities are within the same system.
  - Critical or Core (Y/N) (see FAQ for more information)
  - **Type of IT System:** (choose from one of the following):
    - SaaS
    - Hosted - Non-SaaS hosted by vendor
    - COTS hosted onsite
    - In-House Developed and Hosted on-premise (by agency or CTS)
  - User Base Questions

- Internal User Base: Is system used by internal agency staff? (Y/N)
- Partner User Base: Is system used by external partners? (Y/N)
- Public User Base: Is system used by the public? (Y/N)

Follow-up Questions

To provide legislators with the contextual information they are seeking to help guide them in budget planning exercises, OFM has requested that we ask additional follow-up questions related to the funding for modernization/replacement of legacy IT systems. These questions are intended to broadly provide a multi-year outlook based on best information available.

We recognize that these questions (like the estimated modernization cost) will result in answers that are far more likely to be (at least somewhat) accurate in the near term than the longer horizon. They will be reported only in aggregate as the other cost information has been provided. Please do the best that you can in the time available.
Answer THESE questions only for rows that identify a Legacy system (has a 'Y' in the Legacy column, derived from one or more of the following: 'N' in Updateability, Resource Availability or Version Support OR 'Y' in Other Risk).

For each of the applicable options date ranges below, answer the applicable funding-related questions.

- If you answered 'Y' in the Current Modernization Effort Underway column previously, we anticipate at minimum that you will provide answers to the Funding Amount in Biennium 2013-2015 column.
- If you are funding (or anticipate funding) modernization/replacement of this legacy system solely from existing base level maintenance funding, fill in only the funding amount questions so that we can get a sense of the anticipated spend distribution and length of effort across various biennia.

Funding-Related Questions

- **Biennium 2013-2015 Funding Request**: Did you receive funding via a Decision Package for this work in Biennium 2013-2015? (Y/N)
- Biennium 2013-2015 Funding Amount:
- **Biennium 2015-2017 Funding Request:** Do you anticipate submitting a funding request (Decision Package) for this work in Biennium 2015-2017? (Y/N)
- Biennium 2015-2017 Funding Amount:
- **Biennium 2017-2019 Funding Request:** Do you anticipate submitting a funding request (Decision Package) for this work in Biennium 2017-2019? (Y/N)
- Biennium 2017-2019 Funding Amount:
- **Biennium 2019-2021 Funding Request:** Do you anticipate submitting a funding request (Decision Package) for this work in Biennium 2019-2021? (Y/N)
- Biennium 2019-2021 Funding Amount:
- **Beyond 2021 Funding Request:** Do you anticipate submitting a funding request (Decision Package) for this work in beyond 7/1/2021? (Y/N)
- Beyond 2021 Funding Amount:
- **Funding Source:** Choose from one of the options below:
  - Existing Maintenance Budget
  - GF-S
  - Dedicated
  - Federal or Other Grant

If Dedicated or Federal or Other Grant:
Funding Account Name: Please enter the name of the funding account, if known
Match Requirement: Y/N
If Y: **Match Source:** Choose from one of the options below:

- GF-S
- Dedicated

Answer these questions only for rows that have 'Y' in 'Current Modernization Effort Underway' column and identify a Legacy system (has a 'Y' in the Legacy column, derived from one or more of the following: 'N' in Updateability, Resource Availability or Version Support OR 'Y' in Other Risk)

- **Modernization Phase**: Which of the following phases is the modernization effort in?
  - Pre-planning / Research Only
  - Pre-project / Funding Acquisition
  - Active Project Underway
  - Project is Near Completion
- If you selected 'Active Project Underway' or 'Project is Near Completion', answer the following questions:
  - **Level 2 or 3 Project**: Is the Project a Level 2/3 Project under oversight by OCIO? (Y/N)
  - If 'Y':
    - **Level 2 or 3 Project Name**: Provide the name that the project appears under on the Project Dashboard.

Appendix C: Legacy System Inventory

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
AGO	Business Cards	Document Management	SaaS	N	N	N	N	
AGO	Case Management System	Case/Client Management	COTS hosted onsite	Y	Y	N	N	
AGO	eDiscovery	Document Management	SaaS	Y	Y	N	N	
AGO	Evaluation Tracker	HR Management	SaaS	N	N	N	N	
AGO	Garnishments	Financial Management	Developed/Hosted In-House	N	N	N	N	
AGO	HITS (Criminal Justice Homicide Investigation Tracking System)	Case/Client Management	Developed/Hosted In-House	N	N	N	N	
AGO	Performance Development Plan PDP Notes	HR Management	Developed/Hosted In-House	N	N	N	N	
AGO	Training Registration	HR Management	Developed/Hosted In-House	N	N	N	N	
AGR	Beef Tag Program	Licensing/Permitting	Developed/Hosted In-House	N	Y	N	N	
AGR	Cashiering	Financial Management	Developed/Hosted In-House	Y	Y	N	N	
AGR	Chemigation/Fertigation	Licensing/Permitting	Developed/Hosted In-House	N	Y	N	N	
AGR	Commission Merchant	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
AGR	Consumer Complaints Program	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
AGR	Cottage Foods Program	Licensing/Permitting	Developed/Hosted In-House	N	Y	Y	N	
AGR	Dairy System	Licensing/Permitting	Developed/Hosted In-House	N	Y	N	N	
AGR	Egg Program	Licensing/Permitting	Developed/Hosted In-House	N	Y	N	N	
AGR	Feed Inspection Program	Licensing/Permitting	Developed/Hosted In-House	N	Y	N	N	
AGR	Feed Licensing & Registration	Licensing/Permitting	Developed/Hosted In-House	N	Y	N	N	
AGR	Feed Tonnage Program	Licensing/Permitting	Developed/Hosted In-House	N	Y	N	N	
AGR	Fertilizer Sampling Program	Licensing/Permitting	Developed/Hosted In-House	N	Y	N	N	
AGR	Fertilizer/Tonnage	Licensing/Permitting	Developed/Hosted In-House	N	Y	N	N	
AGR	Food Assistance Program	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	Y	N	
AGR	FoodWin	Licensing/Permitting	Developed/Hosted In-House	N	Y	N	N	
AGR	Micro Lab Ordering Process	Asset Management	Developed/Hosted In-House	N	Y	N	N	
AGR	Organic Materials Program	Asset Management	Developed/Hosted In-House	N	Y	N	N	
AGR	Organic Program	Licensing/Permitting	Developed/Hosted In-House	Y	Y	Y	N	
AGR	Pesticide Registration	Licensing/Permitting	Developed/Hosted In-House	N	Y	Y	N	
AGR	Purchase Order	Financial Management	Developed/Hosted In-House	N	Y	N	N	
AGR	RRT Training Program	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
AGR	Sanitary Certificates Program	Licensing/Permitting	Developed/Hosted In-House	N	Y	N	N	
AGR	Weights & Measures	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
CJTC	Adobe Breeze	Agency-Specific/Combined	COTS hosted onsite	N	Y	N	Y	

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
CJTC	Application Extender	Document Management	COTS hosted onsite	Y	Y	N	Y	
CJTC	Learning Management System	Agency-Specific/Combined	SaaS	Y	Y	N	Y	
CJTC	LETS	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
CTS	Contracts Database	Contract/Grant Management	Developed/Hosted In-House	Y	N	N	N	
CTS	CSA/SLA Agreements	Contract/Grant Management	Developed/Hosted In-House	Y	N	N	N	
CTS	Infra	IT Infrastructure	COTS hosted onsite	N	Y	N	N	
CTS	Key Comps	HR Management	Developed/Hosted In-House	Y	N	N	N	
CTS	Online Directory (dial.wa.gov)	Case/Client Management	COTS hosted onsite	N	N	Y	N	
CTS	OSS	IT Infrastructure	COTS hosted onsite	N	N	N	N	
CTS	Performance & Development Plan (PDP)	HR Management	Developed/Hosted In-House	Y	N	N	N	
CTS	Position Description Form (PDF)	HR Management	Developed/Hosted In-House	Y	N	N	N	
CTS	Procurement Request System	Asset Management	Developed/Hosted In-House	Y	N	N	N	
DEL	Electronic Licensing Forms	Licensing/Permitting	Non-Saas hosted by vendor	N	Y	N	N	
DES	AFRS (Parent)	Financial Management	COTS hosted onsite	N	Y	N	N	ERP
DES	Agency Billing System	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	Allocate.exe	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	Allocation Rules	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DES	Asset Comparison Report	Asset Management	Developed/Hosted In-House	N	N	N	N	
DES	Assets/Assets 2000.mdb	Asset Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	BASS Data Release	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	Best Buy	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	Bill Build	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DES	Budget Development Reporting	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	Budget Development System	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	Budget Document Production System	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	Budget Grouping System	Financial Management	Developed/Hosted In-House	N	N	N	N	ERP
DES	Budget Summary System (for Operating and Transportation Budgets) Winsum	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	Capital Asset Management System	Asset Management	COTS hosted onsite	N	Y	N	N	ERP
DES	Capital Budget System	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	Class Tracking	HR Management	Developed/Hosted In-House	N	Y	N	N	
DES	Client Service Contracts Database	Contract/Grant Management	Developed/Hosted In-House	N	N	N	N	ERP
DES	Compensation Impact Model	HR Management	Developed/Hosted In-House	Y	Y	N	N	
DES	Computron A/R Reports	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	Computron A/R System	Financial Management	COTS hosted onsite	N	Y	N	N	ERP

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
DES	Consolidated Mail System (Outgoing)	Document Management	Developed/Hosted In-House	N	Y	N	N	
DES	Consolidated Mail Systems (Basics,Billing)	Document Management	Developed/Hosted In-House	N	Y	N	N	
DES	Contract Evaluation System	Contract/Grant Management	Developed/Hosted In-House	N	N	N	N	
DES	Contracts	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	Contracts Database	Contract/Grant Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	CTS AP Imaging	Financial Management	COTS hosted onsite	N	N	N	N	ERP
DES	CTS CostCenter.exe	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	CTS CSD Billing - Web Metering Information System	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DES	CTS CSD Billing Customer Datasets (CDS)	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	CTS CSD Billing Monthly processing of Excel spreadsheets	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DES	CTS CSD Billing Monthly Reporting	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DES	CTS CSD Billing monthly storage processing	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DES	CTS CSD Billing SMF processing	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DES	CTS Decision Support System	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	CTS Finance Interfacing	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	CTS FINS Invoicing	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DES	CTS PNL Processing	Financial Management	Developed/Hosted In-House	N	N	N	N	ERP
DES	CTS Sales History and Revenue	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	CTS Solomon AR	Financial Management	COTS hosted onsite	Y	N	N	N	ERP
DES	CTS Solomon GL	Financial Management	COTS hosted onsite	N	N	N	N	ERP
DES	CTS Tally	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DES	CTS TSD Long Distance billing	Financial Management	COTS hosted onsite	N	Y	N	N	
DES	CTS TSD State Operators billing	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DES	CTS TSD Billing Customer Data Sets (CDS) and other outbound interfaces	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DES	CTS TSD Local telephone billing	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DES	CTS TSD Wide Area Network (WAN) billing	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DES	Disclosure Forms	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	Dispute Management	Case/Client Management	Developed/Hosted In-House	N	N	N	N	
DES	EAS Documents	Document Management	Developed/Hosted In-House	N	Y	N	N	
DES	EBLS (Parent)	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DES	Education Ombudsman Complaint System	Case/Client Management	SaaS	N	Y	N	N	
DES	Electronic Voucher Form	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	Enterprise Accounts Receivable	HR Management	COTS hosted onsite	N	Y	N	N	ERP

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
DES	Enterprise Contract Management Systems	Contract/Grant Management	Developed/Hosted In-House	N	Y	N	N	
DES	Facilities Information Management System	Asset Management	COTS hosted onsite	N	N	N	N	
DES	Facilities Inventory and Condition Assessment Program (FICAP)	Asset Management	COTS hosted onsite	N	N	N	N	
DES	Facility Inventory System	Asset Management	COTS hosted onsite	Y	Y	N	N	
DES	Financial Contracts	Contract/Grant Management	Developed/Hosted In-House	N	N	N	N	ERP
DES	Financial Toolbox	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	Fiscal Notes System	Financial Management	Developed/Hosted In-House	N	N	Y	N	ERP
DES	Fleet Focus	Asset Management	COTS hosted onsite	Y	Y	N	N	
DES	FMMS Reports	Asset Management	Developed/Hosted In-House	N	Y	N	N	
DES	FN - Agency Contacts	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	FN - Fiscal Note Administration	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	FN - i960 Analysis	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	FN - Management	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	FN - Public Site	Financial Management	Developed/Hosted In-House	N	N	Y	N	
DES	FN - Request	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	Fund Balancing System	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	Fund Reference Manual	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DES	Incident Report	Asset Management	Developed/Hosted In-House	N	N	N	N	
DES	Interactive Budget System (IBS)	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DES	Jury Source List	HR Management	Developed/Hosted In-House	N	Y	N	N	
DES	LSC Interface	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	Mainsaver (FMMS)	Asset Management	COTS hosted onsite	N	Y	N	N	
DES	Maxxess Systems Inc	Agency-Specific/Combined	COTS hosted onsite	N	Y	N	N	
DES	OFM Audit Tracking System	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DES	OFM Document Management System	Document Management	COTS hosted onsite	Y	Y	N	N	
DES	OrgStructure	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DES	Project Tracking System	Asset Management	Developed/Hosted In-House	Y	Y	N	N	
DES	Purchasing Contract Management System	Contract/Grant Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	Results through Performance Management	HR Management	Developed/Hosted In-House	N	N	N	N	ERP
DES	Revenue Summary System	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	Salary Projection System	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	Six Year Outlook	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	Small Works Roster	Contract/Grant Management	Developed/Hosted In-House	Y	Y	Y	N	
DES	Sole Source Contracts Database	Contract/Grant Management	Developed/Hosted In-House	N	Y	N	N	ERP

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
DES	Supply Request	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	Surplus Point of Sale System	Asset Management	COTS hosted onsite	N	Y	N	N	
DES	SystemGuard	IT Infrastructure	Developed/Hosted In-House	N	Y	N	N	
DES	The Allotment System- Allotment Management and Review	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	The Allotment System- Expenditure Authority	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	Time Management System	HR Management	Developed/Hosted In-House	N	Y	N	N	TLA
DES	Transportation Executive Information System - Capital	Financial Management	Developed/Hosted In-House	N	N	N	N	ERP
DES	Transportation Executive Information System - Fund	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	Transportation Executive Information System - Reporting	Financial Management	Developed/Hosted In-House	N	N	N	N	ERP
DES	Travel & Expense Management System	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DES	TVSDocNum	Financial Management	Developed/Hosted In-House	N	N	N	N	ERP
DES	Washington Electronic Business Solutions	Contract/Grant Management	Developed/Hosted In-House	N	Y	Y	N	ERP
DES	WinSum Version Transfer Maintenance	Financial Management	Developed/Hosted In-House	N	N	N	N	
DES	Working Capital Reserve	Financial Management	Developed/Hosted In-House	N	N	N	N	
DFI	Oracle Imaging	Document Management	Developed/Hosted In-House	Y	Y	N	N	
DFW	AFRS Titles	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DFW	CAPS	Contract/Grant Management	Developed/Hosted In-House	Y	Y	N	N	
DFW	CAPS Fin	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DFW	Cash Receipts	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DFW	Coded Wire Tag System (CWTS)	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
DFW	Computerized Maintenance Management System (Tero)	Asset Management	Non-Saas hosted by vendor	N	Y	N	N	ERP
DFW	Consumable Inventory System	Asset Management	COTS hosted onsite	N	Y	N	N	ERP
DFW	CPMS	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	ERP
DFW	Datamover	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
DFW	DEEDS	Asset Management	Developed/Hosted In-House	N	Y	N	N	ERP
DFW	DOL Discover Pass	Licensing/Permitting	Developed/Hosted In-House	N	N	N	N	
DFW	EPIC	Asset Management	COTS hosted onsite	N	Y	N	N	ERP
DFW	Fish Ticket Scanner	Document Management	COTS hosted onsite	N	Y	N	N	
DFW	Hatcheries	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
DFW	HRMS_Data	HR Management	Developed/Hosted In-House	N	Y	N	N	TLA

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
DFW	JMX/Opennode/Juveniles	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	Y	N	
DFW	Leased_PC	Asset Management	Developed/Hosted In-House	N	Y	N	N	ERP
DFW	Lift Web Reports	Agency-Specific/Combined	Developed/Hosted In-House	N	N	Y	N	
DFW	Puget Sound Ambient Monitoring Program (PSAMP)	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DFW	QuickSoftData	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DFW	SalmonScape	Agency-Specific/Combined	Developed/Hosted In-House	Y	N	Y	N	
DFW	Species Admin (AKA Taxonomy)	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DFW	SPS Data Load	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DFW	SSRPM	IT Infrastructure	COTS hosted onsite	N	N	N	N	
DFW	SUDS	Financial Management	Non-Saas hosted by vendor	N	Y	N	N	ERP
DFW	UseTax	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DFW	Viking	Agency-Specific/Combined	COTS hosted onsite	N	Y	N	N	
DFW	VMTS-Web App	Asset Management	Developed/Hosted In-House	N	Y	N	N	ERP
DFW	WDFW_HR	HR Management	Developed/Hosted In-House	N	Y	N	N	
DFW	Wild Reporting	Agency-Specific/Combined	Developed/Hosted In-House	N	N	Y	N	
DNR	CAS	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DNR	FES	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
DNR	FPARS	Case/Client Management	Developed/Hosted In-House	N	Y	Y	N	
DNR	LRS	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DNR	NTAR	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DNR	P & T	Case/Client Management	Developed/Hosted In-House	N	Y	N	N	
DOC	Archive Gatekeeper	Case/Client Management	Developed/Hosted In-House	N	N	N	N	
DOC	ATLAS	HR Management	COTS hosted onsite	Y	Y	N	N	TLA?
DOC	DGP	Agency-Specific/Combined	COTS hosted onsite	Y	Y	N	N	
DOC	InfoPort Manager	Case/Client Management	COTS hosted onsite	Y	Y	N	N	
DOC	Labzilla	Case/Client Management	COTS hosted onsite	N	Y	N	N	
DOC	LibertyNet (Web)	Document Management	COTS hosted onsite	Y	Y	N	N	
DOC	OBTS	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DOC	OSPS	Case/Client Management	COTS hosted onsite	Y	Y	N	N	
DOC	SDE	Asset Management	COTS hosted onsite	Y	N	N	N	
DOC	STG	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DOC	TAS	Financial Management	COTS hosted onsite	Y	Y	N	N	
DOC	Tracks	Case/Client Management	Developed/Hosted In-House	N	N	N	N	ERP
DOH	Birth Defects Surveillance System (BDSS)	Medical Records	Developed/Hosted In-House	Y	N	N	N	

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
DOH	Bulletin	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DOH	Careware - (Ryan White Client Level Data)	Medical Records	COTS hosted onsite	N	N	N	N	
DOH	Certificate of Need	Licensing/Permitting	Developed/Hosted In-House	Y	N	N	N	
DOH	Certification of Birth Record Information (CBRI)	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
DOH	Child Health Intake Form	Medical Records	Developed/Hosted In-House	N	N	N	N	
DOH	CHS Letters	Document Management	Developed/Hosted In-House	Y	N	N	N	
DOH	Community Action on Tobacco Evaluation System (CATALYST)	Case/Client Management	Developed/Hosted In-House	N	N	N	N	
DOH	Contracts	Contract/Grant Management	Developed/Hosted In-House	N	N	N	N	
DOH	Cross Connection Control Activities Reporting System	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DOH	Data Entry for Death Records(DEDR)	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
DOH	Early Notification of Childhood Death (ENCD)	Agency-Specific/Combined	Developed/Hosted In-House	Y	N	N	N	
DOH	Electronic HIV/AIDS Reporting System (eHARS)	Medical Records	COTS hosted onsite	Y	N	N	N	
DOH	Envision	Agency-Specific/Combined	COTS hosted onsite	N	N	N	N	
DOH	HIV Prevention Mailing List	Case/Client Management	Developed/Hosted In-House	N	N	N	N	
DOH	HIV Test Result Scan Database	Medical Records	COTS hosted onsite	N	N	N	N	
DOH	Incidence & Viral Resistance (IVR)	Medical Records	Developed/Hosted In-House	N	N	N	N	
DOH	Infertility Prevention Project (IPP)	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DOH	J1VISA	Case/Client Management	Developed/Hosted In-House	N	N	N	N	
DOH	Journal Voucher Revenue Transfer System (JVXFER) for Windows	Financial Management	Developed/Hosted In-House	N	N	N	N	ERP
DOH	Journal Voucher Revenue Transfer System for Telecommunications (JVXFER Telwin) for Windows	Financial Management	Developed/Hosted In-House	N	N	N	N	
DOH	Microsoft Exchange 2003	IT Infrastructure	COTS hosted onsite	N	Y	N	N	
DOH	Non-Sufficient Funds (NSF) Application	Financial Management	Developed/Hosted In-House	N	N	N	N	ERP
DOH	Pesticide Incident/Event Reporting System (PIERS)	Case/Client Management	Developed/Hosted In-House	N	N	N	N	
DOH	PRAMS_WEB	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DOH	Pregnancy Risk Assessment Monitoring System (PRAMS)	Case/Client Management	COTS hosted onsite	Y	N	N	N	
DOH	Public Disclosure	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DOH	Public Water System Submission Log	Financial Management	Developed/Hosted In-House	N	N	N	N	

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
	Tracking System							
DOH	Radiation Air Emissions Protection System (RADAEP)	Agency-Specific/Combined	Developed/Hosted In-House	Y	N	N	N	
DOH	Real-time Birth Record Registration (BR3)	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
DOH	Source Water Protection GIS Data (SWAP)	Agency-Specific/Combined	Developed/Hosted In-House	Y	N	Y	N	
DOH	State Drinking Water Consumer Confidence Reporting System	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DOH	Statewide HIV/AIDS Activity Reporting & Evaluation (SHARE)	Case/Client Management	Developed/Hosted In-House	N	N	N	N	
DOH	TB Cohort Review TIM Data	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DOH	TB Contact System	Medical Records	Developed/Hosted In-House	Y	N	N	N	
DOH	Telecommunication /Private Branch Exchange (PBX) Bill Processing (TelWin) System	Financial Management	Developed/Hosted In-House	N	N	N	N	
DOH	Telecommunication /Private Branch Exchange (PBX) Bill Processing TeleWin) Import/Export System	Financial Management	Developed/Hosted In-House	N	N	N	N	
DOH	Time Accounting	HR Management	Developed/Hosted In-House	N	N	N	N	
DOH	Viral Hepatitis Contacts (HCV Resource)	Case/Client Management	Developed/Hosted In-House	N	N	N	N	
DOH	Vital Statistics (Bedrock)	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
DOH	Water System Sanitary Surveys Tracking system	Licensing/Permitting	Developed/Hosted In-House	N	N	N	N	
DOH	Women, Infants, Children/Client Information Management System (WIC/CIMS)	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	AckPrinter	IT Infrastructure	Developed/Hosted In-House	Y	N	N	N	
DOL	Admin	IT Infrastructure	Developed/Hosted In-House	Y	N	N	N	
DOL	Aircraft Fuel Tax	Tax Collection/Calculation	Developed/Hosted In-House	Y	Y	N	N	
DOL	Appraisers Continued Education	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Audit Track	Case/Client Management	Developed/Hosted In-House	Y	N	N	N	
DOL	Audits Field Recon	Financial Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	CATS	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Cemetery Trust Funds	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Com Track	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Dealers Regulatory	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Ecology	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
DOL	Filing Officer	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
DOL	Firearms Online	Licensing/Permitting	Developed/Hosted In-House	N	N	N	N	

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
DOL	Firearms System	Licensing/Permitting	Developed/Hosted In-House	N	Y	N	N	
DOL	Fuel Tax Evasion	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Fuel Tax Refunds	Tax Collection/Calculation	Developed/Hosted In-House	Y	Y	N	N	
DOL	Funeral Trust Funds	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Heating Oil	Tax Collection/Calculation	Developed/Hosted In-House	Y	Y	N	N	
DOL	IFTA Audits	Case/Client Management	Non-Saas hosted by vendor	Y	Y	N	N	
DOL	Inspections Tracking System	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	LicenseQuery (public facing)	Licensing/Permitting	Developed/Hosted In-House	Y	N	Y	N	
DOL	Motor Fuel Tax	Tax Collection/Calculation	Non-Saas hosted by vendor	Y	Y	N	N	
DOL	Real Estate Continued Education	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Reports Portal	Agency-Specific/Combined	Developed/Hosted In-House	Y	N	N	N	
DOL	Schools Portal	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	Solar (Public Facing)	Licensing/Permitting	Developed/Hosted In-House	Y	Y	Y	N	
DOL	Special Fuel Tax	Tax Collection/Calculation	Non-Saas hosted by vendor	Y	Y	N	N	
DOL	Uniform Commercial Code	Document Management	Developed/Hosted In-House	Y	Y	Y	N	
DOL	Venture Audits System	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Venture Imaging Indexing System	Document Management	Developed/Hosted In-House	Y	N	N	N	
DOL	Venture Licensing System	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	Venture Query (database)	Agency-Specific/Combined	Developed/Hosted In-House	Y	N	Y	N	
DOL	Central Issuance System (CIS)	Licensing/Permitting	COTS hosted onsite	Y	Y	N	N	
DOL	DHS Website	Licensing/Permitting	Developed/Hosted In-House	Y	N	N	N	
DOL	Driver Federal System (DFEDS)	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	Driver Field System (DFS)	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	Duplicate Driver License (DDL)	Licensing/Permitting	Developed/Hosted In-House	Y	N	Y	N	
DOL	Electronic traffic internet processing (Etrip)	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	High Risk Insurance (SR22/26) processing	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	HQ COBOL System	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	IHPS	Licensing/Permitting	Developed/Hosted In-House	Y	N	N	N	
DOL	Image Cold Migration/Driver History	Document Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	LDTS Test Scheduler	Licensing/Permitting	Developed/Hosted In-House	Y	N	Y	N	
DOL	OLI Online Original	Licensing/Permitting	Developed/Hosted In-House	Y	N	Y	N	
DOL	OLR Admin	Licensing/Permitting	Developed/Hosted In-House	Y	N	N	N	
DOL	OLR website	Licensing/Permitting	Developed/Hosted In-House	Y	N	Y	N	
DOL	TPT	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	AAMVA	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
DOL	Accounts Payable	Financial Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Budget Information Tracking System (BITS)	Contract/Grant Management	Developed/Hosted In-House	N	Y	N	N	
DOL	COR Billing	Tax Collection/Calculation	Developed/Hosted In-House	N	Y	N	N	
DOL	Counter Cash	Financial Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Counter Cash Batch	Financial Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Counter Cash Services	Financial Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Customer Access Service	Asset Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Customer Application Authorization Service	Asset Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Dishonored Check System	Tax Collection/Calculation	Developed/Hosted In-House	Y	Y	N	N	
DOL	Driver and Plate Search	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	Y	N	
DOL	Finacial Responsibility Letters System	Financial Management	Developed/Hosted In-House	Y	N	N	N	
DOL	HR Action Request	HR Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	HR Admin	HR Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	HR Café	HR Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	HR GAP Batch Jobs	HR Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	HR HRMS Data Service	HR Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	HR LMS Forwarder	HR Management	Developed/Hosted In-House	N	Y	N	N	
DOL	HR OrgPlus	HR Management	COTS hosted onsite	Y	Y	N	N	
DOL	HR Reports	HR Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	HR SSIS	HR Management	Developed/Hosted In-House	N	Y	N	N	
DOL	HR Synchronization Process	HR Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	HR Training Profile	HR Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Imaging Utility	Document Management	COTS hosted onsite	Y	Y	N	N	
DOL	LSO Recon Automation	Financial Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	LSO Reconciliation System	Financial Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Monitor Refund System	Financial Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	NCR Remittance	Financial Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	OneSource	Document Management	COTS hosted onsite	N	N	N	Y	
DOL	Online Security Admin	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
DOL	Revenue COBOL System	Financial Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Special Mail Handling Application (MARS)	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	Y	
DOL	WSP	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
DOL	Abandoned Vehicle Report	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	Agent Subagent Query	Licensing/Permitting	Developed/Hosted In-House	Y	N	Y	N	
DOL	Cash Handling	Tax Collection/Calculation	Developed/Hosted In-House	Y	Y	N	N	

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
DOL	Confidential System	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	DAV POW MOH Special Plates System	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	Destroyed Vehicles Reporting	Licensing/Permitting	Developed/Hosted In-House	Y	Y	Y	N	
DOL	Disabled Parking Privlege	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	E-Permitting	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	External Vehicles Imaging	Licensing/Permitting	Developed/Hosted In-House	Y	N	N	N	
DOL	Fee Distribution Reporting	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	HAM MARS Special Plates System	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	Internet Renewals (Vehicle or Vessel)	Licensing/Permitting	Developed/Hosted In-House	Y	N	Y	N	
DOL	Internet Transaction Statistics	Licensing/Permitting	Developed/Hosted In-House	Y	N	N	N	
DOL	Label System	Licensing/Permitting	Developed/Hosted In-House	Y	N	N	N	
DOL	National Motor Vehicle Information System	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	Parking Ticket System	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	Personalized Plate System	Licensing/Permitting	Developed/Hosted In-House	Y	Y	Y	N	
DOL	Research Tracking	Licensing/Permitting	Developed/Hosted In-House	Y	N	N	N	
DOL	RTA Tax Estimator	Tax Collection/Calculation	Developed/Hosted In-House	Y	N	Y	N	
DOL	Stolen Vehicles Flag Automation	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	Title and Reg Reception Desk	Licensing/Permitting	Developed/Hosted In-House	Y	N	N	N	
DOL	Tribal Vessels System	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	Vehicle Exceptions	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	Vehicle Field System	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	Vehicle HQ System	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	Vehicle Internet Change Address	Licensing/Permitting	Developed/Hosted In-House	Y	N	Y	N	
DOL	Vehicle Office Location Lookup	Licensing/Permitting	Developed/Hosted In-House	Y	N	Y	N	
DOL	Vehicle or Vessel Search (IVIPS)	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	Vehicle Report of Sale	Licensing/Permitting	Developed/Hosted In-House	Y	N	Y	N	
DOL	Vehicle Security	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	Vehicles Imaging	Document Management	Developed/Hosted In-House	Y	Y	N	N	
DOL	Vessel HQ System	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	VFEDS - Vehicle Title History	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	VFS Transactions	Licensing/Permitting	Developed/Hosted In-House	Y	N	N	N	
DOL	VHS - Electronic Lien Transfer System	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	VHS - Plate Lookup System (VOIDS)	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOL	VHS - Vehicle Emissions Data Service	Licensing/Permitting	Developed/Hosted In-House	Y	N	N	N	
DOL	VHS - Vehicle User Select	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
DOL	VHS - Vessel Online Web Application (COBOL)	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOR	Admin & Fish Tax Reports	Tax Collection/Calculation	Developed/Hosted In-House	Y	N	N	N	
DOR	Audit Review System - Mail Agent - Audit 2000	Tax Collection/Calculation	Developed/Hosted In-House	Y	Y	N	N	
DOR	Automate Compliance System - Mainframe - Vehicle Valuation System	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DOR	Bankruptcy - FTP - Parser - Court Notice - Match	Tax Collection/Calculation	Developed/Hosted In-House	Y	N	N	N	
DOR	BLS File Transfer Application	Licensing/Permitting	Developed/Hosted In-House	Y	N	N	N	
DOR	BLS Imaging	Licensing/Permitting	Developed/Hosted In-House	Y	N	N	N	
DOR	BLS Mainframe	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
DOR	Business Data Requests	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DOR	Business License Admin (BPD Admin)	Agency-Specific/Combined	Developed/Hosted In-House	Y	N	N	N	
DOR	Business Licensing Guide	Licensing/Permitting	Developed/Hosted In-House	Y	N	Y	N	
DOR	Business Records Database	Tax Collection/Calculation	Developed/Hosted In-House	Y	N	Y	N	
DOR	Business Registration Management System - Central Identification	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
DOR	Centralized Notepad	Agency-Specific/Combined	Developed/Hosted In-House	Y	N	N	N	
DOR	Centrally Assessed Property System	Tax Collection/Calculation	Developed/Hosted In-House	Y	Y	N	N	
DOR	Cigarette Tax System - Consumer Reports - Web - Tracking	Tax Collection/Calculation	Developed/Hosted In-House	N	Y	N	N	
DOR	Construction Activity Network System - Desktop Data Entry - Access DB Upload -External Web -Internal Web	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
DOR	Credit Management System - New employee credit approval - Pollution control calculator	Tax Collection/Calculation	Developed/Hosted In-House	Y	Y	N	N	
DOR	DOR Public Website	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	Y	N	

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
DOR	e-File -Helpdesk Batch -Helpdesk Web -Electronic Filing Web -Electronic Filing Batch -Amended Return	Case/Client Management	Developed/Hosted In-House	Y	Y	Y	N	
DOR	Electronic Case Management System - Declaration of Use Tax (Aircraft) - External - Declaration of Use Tax (Aircraft) - Internal	Case/Client Management	Developed/Hosted In-House	Y	N	N	N	
DOR	Excise Tax	Tax Collection/Calculation	Developed/Hosted In-House	Y	Y	N	N	
DOR	Field Audit - Audit Transcripts	Tax Collection/Calculation	Developed/Hosted In-House	Y	Y	N	N	
DOR	Forest Tax Return System - FT Data Entry - FT Permits - E-File	Tax Collection/Calculation	Developed/Hosted In-House	N	Y	Y	N	
DOR	Integrated Document System	Document Management	COTS hosted onsite	Y	Y	N	N	
DOR	Job Scheduling and Calendar	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DOR	Outstanding Returns	Tax Collection/Calculation	Developed/Hosted In-House	Y	Y	N	N	
DOR	Personnel System (Tandem)	HR Management	Developed/Hosted In-House	N	Y	N	N	
DOR	Production Quality Exceptions	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DOR	Research Stats Batch	Tax Collection/Calculation	Developed/Hosted In-House	Y	N	N	N	
DOR	Revenue Receipting System - Interal Web App - Web Service	Tax Collection/Calculation	Developed/Hosted In-House	Y	N	N	N	
DOR	Tax Account Receivable Integrated System - Miscellaneous tax approval	Tax Collection/Calculation	Developed/Hosted In-House	Y	Y	Y	N	
DOR	Tax Assessment Waiver Tracking	Agency-Specific/Combined	Developed/Hosted In-House	Y	N	N	N	
DOR	Tax Incentives Reporting and Tracking System - Internal Web - External Web - 2001 Screen (Tandem) - Mailing List -Public Disclosure	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	Y	N	

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
DOR	Unclaimed Property - Withhold and Deliver -e-Claim -eFile for Holders - Web	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
DOR	Unified Business Identifier	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
DOR	Vessel Valuation System	Tax Collection/Calculation	Developed/Hosted In-House	N	Y	N	N	
DRS	Beneficiary Information System (BIS)	Case/Client Management	Developed/Hosted In-House	N	Y	N	N	
DRS	Disbursements	Case/Client Management	Developed/Hosted In-House	N	Y	N	N	
DRS	Employer Information System (EIS)	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DRS	Financial System (FS)	Financial Management	Developed/Hosted In-House	N	Y	N	N	
DRS	Member Information System (MIS)	Case/Client Management	Developed/Hosted In-House	N	Y	Y	N	
DSHS	A19 Log	Financial Management	Developed/Hosted In-House	Y	N	N	N	
DSHS	ACES Data Warehouse	Agency-Specific/Combined	Developed/Hosted In-House	Y	N	N	N	
DSHS	ACES.ONLINE	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DSHS	Administrative Incident Reporting System	Agency-Specific/Combined	Developed/Hosted In-House	Y	N	N	N	
DSHS	Automated Client Eligibility System	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DSHS	Background Check Application	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DSHS	BarCode Reception Program	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DSHS	Bill Track	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DSHS	Cache WSH	Case/Client Management	Developed/Hosted In-House	N	Y	N	N	
DSHS	Capital Programs-Batch Control Log	Financial Management	Developed/Hosted In-House	N	N	N	N	
DSHS	Capital Programs-Energy Expenditure Reporting System	Financial Management	Developed/Hosted In-House	N	N	N	N	
DSHS	Capital Programs-Facilities Condition Assessment	Financial Management	COTS hosted onsite	N	N	N	N	
DSHS	Capital Programs-Financial Reporting (OCP-FIN)	Financial Management	Developed/Hosted In-House	N	N	N	N	
DSHS	Capital Programs-Invoice Tracking System	Financial Management	Developed/Hosted In-House	N	N	N	N	
DSHS	Cash Receipts System	Financial Management	Developed/Hosted In-House	N	N	N	N	
DSHS	Child Care Program	Case/Client Management	Developed/Hosted In-House	Y	N	N	N	
DSHS	Client Receivable System	Financial Management	COTS hosted onsite	Y	N	N	N	
DSHS	Constituent Services	Case/Client Management	Developed/Hosted In-House	Y	N	N	N	
DSHS	Consumer Information System	Case/Client Management	Developed/Hosted In-House	Y	N	N	N	
DSHS	Criminal History System	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	Y	N	

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
DSHS	CSS-Metasys Computerized Facility Management System	Asset Management	SaaS	N	N	N	N	
DSHS	CSS-PetroVend	Financial Management	SaaS	N	N	N	N	
DSHS	Dentimax	Case/Client Management	COTS hosted onsite	N	N	N	N	
DSHS	Electronic Jobs Opportunity Automated System	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
DSHS	Facility Information (Nursing Home)	Case/Client Management	Developed/Hosted In-House	N	N	N	N	
DSHS	Instructor and Curriculum Tracking System	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DSHS	Labor and Industries/Public Assistance	Financial Management	Developed/Hosted In-House	N	N	N	N	
DSHS	MHD Incident Reporting System	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DSHS	Patient Funds	Case/Client Management	Developed/Hosted In-House	N	N	N	N	
DSHS	Pre-Admission Screening and Resident Review	Case/Client Management	Developed/Hosted In-House	N	N	N	N	
DSHS	Residential Program System	Case/Client Management	Developed/Hosted In-House	Y	N	N	N	
DSHS	Supplemental Security Income Case Management System	Case/Client Management	COTS hosted onsite	Y	N	N	N	
DSHS	Telecommunications Accessibility Services Database	Case/Client Management	Developed/Hosted In-House	N	N	N	N	
DSHS	TRACKS Asset, E-Purchasing, and Vehicle System	Asset Management	Developed/Hosted In-House	Y	N	N	N	ERP
DSHS	Translation Requests Management System	Agency-Specific/Combined	Developed/Hosted In-House	Y	N	N	N	
DSHS	Treasury Offset Program	Financial Management	COTS hosted onsite	Y	N	N	N	
DSHS	Treatment Assessment and Reports Generation Tool	Case/Client Management	Developed/Hosted In-House	Y	N	N	N	
DSHS	Victim Witness Notification System	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
DSHS	Windows Allotment Reporting Program	Financial Management	Developed/Hosted In-House	Y	N	N	N	ERP
ECY	Accounts Receivable System (AR)	Financial Management	COTS hosted onsite	N	Y	N	N	ERP
ECY	Adjudications	Agency-Specific/Combined	Developed/Hosted In-House	Y	N	N	N	
ECY	AQPPS	Licensing/Permitting	Developed/Hosted In-House	N	Y	N	N	
ECY	Automated Leave eForm (ALF)	HR Management	Developed/Hosted In-House	N	Y	N	N	TLA
ECY	BARTS (Billing and Revenue Tracking System)	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
ECY	Dam Safety	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
ECY	ELTS (Ecology Loan Tracking System)	Financial Management	COTS hosted onsite	N	Y	N	N	ERP
ECY	EPCRA	Document Management	Developed/Hosted In-House	N	Y	Y	N	
ECY	ERTS	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
ECY	Grants Receivable Systems (GRS)	Financial Management	COTS hosted onsite	N	N	N	N	ERP
ECY	HWTRInfo	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
ECY	Hydstra	Agency-Specific/Combined	COTS hosted onsite	N	Y	N	Y	
ECY	LaboratorySearch	Eligibility Determination	COTS hosted onsite	N	Y	Y	Y	
ECY	Legacy Driller Licensing system	Licensing/Permitting	Developed/Hosted In-House	N	Y	Y	N	
ECY	Legacy Well Construction Notice of Intent System	Licensing/Permitting	Developed/Hosted In-House	N	Y	Y	N	
ECY	LIMS	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
ECY	Metering	Agency-Specific/Combined	Developed/Hosted In-House	N	N	Y	N	
ECY	MIS	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
ECY	NWP work planning tool (NWPsys)	Contract/Grant Management	COTS hosted onsite	N	Y	N	N	
ECY	PARIS	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	Y	N	
ECY	SEPA	Licensing/Permitting	Developed/Hosted In-House	N	Y	Y	N	
ECY	TMDL tracking and implementation	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
ECY	Trustwater	Licensing/Permitting	Developed/Hosted In-House	N	N	N	N	
ECY	TurboWaste	Document Management	Developed/Hosted In-House	N	Y	Y	N	
ECY	Water Rights Tracking System (wrtssp1)	Licensing/Permitting	Developed/Hosted In-House	N	Y	Y	N	
ESD	Autonomy Process Automation	Document Management	COTS hosted onsite	N	N	N	N	
ESD	Benefit Payment Control (BPC)	Claims Management	Developed/Hosted In-House	Y	N	N	N	
ESD	Disaster Unemployment Assistance (DUA)	Claims Management	Developed/Hosted In-House	Y	N	N	N	
ESD	Expert Fact Finding (EFF)	Eligibility Determination	Developed/Hosted In-House	Y	N	N	N	
ESD	General Unemployment Insurance Development Effort (GUIDE)	Claims Management	Developed/Hosted In-House	Y	Y	N	N	
ESD	Genesys Softphone	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
ESD	Interactive Voice Response System (IVRS)	Claims Management	COTS hosted onsite	Y	Y	Y	N	
ESD	Oracle IPM (Imaging System)	Document Management	COTS hosted onsite	Y	Y	N	N	
ESD	Tivoli Storage Manager	IT Infrastructure	COTS hosted onsite	Y	Y	N	N	
ESD	WorkFirst (JFS & CATS)	Case/Client Management	Developed/Hosted In-House	Y	Y	Y	N	
HCA	PEBB Eligibility and Accounting System (PAY1)	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
HUM	Aladdin - GUI for DB	Case/Client Management	Developed/Hosted In-House	Y	N	N	N	
IND	Board of Appeals Information System (BAIS)	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
LCB	Ascent Capture (Functionality included in iLINX modernization)	Document Management	COTS hosted onsite	N	N	N	N	
LCB	Banquet Permit Online	Licensing/Permitting	COTS hosted onsite	Y	N	Y	N	
LCB	Distribution of Excess Funds	Financial Management	Developed/Hosted In-House	N	N	N	N	

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
LCB	Enforcement Notebook (Part of Regulatory Information Management System (iSeries) modernize effort)	Case/Client Management	COTS hosted onsite	N	Y	N	N	
LCB	iLINX	Document Management	COTS hosted onsite	Y	N	N	N	
LCB	Oracle IBPM	Licensing/Permitting	COTS hosted onsite	Y	Y	N	N	
LCB	Order Keg Books Online	Licensing/Permitting	Developed/Hosted In-House	N	N	Y	N	
LCB	OTRS IT Service Management	IT Infrastructure	COTS hosted onsite	Y	N	N	N	
LCB	Package Time 2 (Part of Regulatory Information Management System (iSeries) modernize effort)	Document Management	COTS hosted onsite	N	N	N	N	
LCB	Regulatory Information Management System (iSeries)	Licensing/Permitting	Developed/Hosted In-House	Y	Y	N	N	
LCB	Report a Violation Online	Licensing/Permitting	Developed/Hosted In-House	N	N	Y	N	
LCB	Tech Templates/MIW Letters/LIQ Letters (Part of Regulatory Information Management System (iSeries) modernize effort)	Licensing/Permitting	Developed/Hosted In-House	N	N	N	N	
LNI	Actuarial Rating	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
LNI	Asset Tracking System (ATS)	Asset Management	COTS hosted onsite	N	N	N	N	ERP
LNI	Automated Purchasing System (APS)	Financial Management	COTS hosted onsite	N	N	N	N	ERP
LNI	Benefit Payment System (BPS)	Financial Management	Developed/Hosted In-House	Y	Y	N	N	
LNI	Business Process Management (Filenet)	IT Infrastructure	COTS hosted onsite	N	Y	N	N	
LNI	Cash Receipt (AIMS)	Financial Management	Developed/Hosted In-House	Y	N	N	N	ERP
LNI	Cash Receipt Viewer	Financial Management	Developed/Hosted In-House	Y	N	N	N	ERP
LNI	Claims Mail	Claims Management	Developed/Hosted In-House	Y	Y	N	N	
LNI	Enterprise Reporting Service (BOXI)	IT Infrastructure	COTS hosted onsite	N	N	N	N	
LNI	Enterprise Shared Security Administration (ESSA)	IT Infrastructure	Developed/Hosted In-House	N	N	N	N	
LNI	Exchange	IT Infrastructure	COTS hosted onsite	N	Y	N	Y	
LNI	Jurisdiction Online - Boiler (JOL)	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
LNI	Labor & Industries Industrial Insurance System (LINIIS)	Claims Management	Developed/Hosted In-House	Y	Y	N	N	
LNI	Medical Information Payment System - Point of Sale (MPOS)	Medical Records	Developed/Hosted In-House	Y	Y	N	N	
LNI	OpenText FAX Server	IT Infrastructure	COTS hosted onsite	Y	Y	Y	N	
LNI	Outbound Correspondence System (OCS)	IT Infrastructure	COTS hosted onsite	N	N	N	N	
LNI	Right to Know (RTK)	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
LNI	WebSphere Portal	IT Infrastructure	COTS hosted onsite	N	N	N	N	
LNI	WISHA Information Network Data Exchange - WIN to IMIS Data Exchange System (WDX)	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
LOT	Accounts Receivable	Financial Management	Developed/Hosted In-House	Y	Y	N	N	
LOT	IRS Reporting (W2Gs, 1099s, 1042s)	Tax Collection/Calculation	Developed/Hosted In-House	Y	Y	N	N	
LOT	Prize Payment (PZP)	Financial Management	Developed/Hosted In-House	Y	Y	N	N	
LOT	Promotions	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
LOT	Sales Maint on Tandem for MSSQL	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
LOT	Sales Reporting Tandem	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
LOT	Scratch Ticket Inventory System	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
OAH	CATS	Case/Client Management	Developed/Hosted In-House	Y	Y	N	N	
OAH	e-Portfolio	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
OAH	HATS	Case/Client Management	Developed/Hosted In-House	N	Y	N	N	
OSPI	Child Nutrition Program 2000	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
OST	Treasury Management System	Financial Management	Developed/Hosted In-House	N	Y	N	N	
PARKS	MicroMain	Asset Management	COTS hosted onsite	N	Y	N	N	
PARKS	PastPerfect Interpretive Artifacts Inventory	Asset Management	COTS hosted onsite	N	N	N	N	
PSP	Action Agenda Report Card	Case/Client Management	Developed/Hosted In-House	Y	Y	Y	N	
PSP	MyPugetSound	Agency-Specific/Combined	Developed/Hosted In-House	Y	N	Y	N	
RCFB	PRISM Client/Server	Case/Client Management	Developed/Hosted In-House	N	Y	N	N	
SEC	Corporation & Charities Systems	Document Management	Developed/Hosted In-House	Y	Y	Y	N	
SIB	FCS	Agency-Specific/Combined	SaaS	Y	N	N	N	
UTC	Business Practices Tracking	Case/Client Management	Developed/Hosted In-House	Y	N	N	N	
UTC	Consumer Complaints	Case/Client Management	Developed/Hosted In-House	Y	N	N	N	
UTC	Permits and Insurance	Licensing/Permitting	Developed/Hosted In-House	Y	N	N	N	
WSDOT	167 HOV Office Documents	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	511 Voice Interactive System	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	Y	N	
WSDOT	Administrative Services Contracts	Document Management	Developed/Hosted In-House	Y	Y	N	N	
WSDOT	As Builts	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Automated Training Management System	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
WSDOT	Aviation Internet Registration	Agency-Specific/Combined	Developed/Hosted In-House	N	N	Y	N	
WSDOT	Bridge Load Rating Structural Analysis	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
WSDOT	Capital Program Management System	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	ERP
WSDOT	CLAS Collisions	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Common Modules	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
WSDOT	Construction Contracts Information System	Contract/Grant Management	Developed/Hosted In-House	N	Y	N	N	ERP
WSDOT	Consumable Inventory System	Asset Management	Developed/Hosted In-House	N	Y	N	N	ERP
WSDOT	Contract Administration and Payment System	Contract/Grant Management	Developed/Hosted In-House	N	Y	N	N	
WSDOT	Contractor Pre-Qualification System	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
WSDOT	Data Warehouse	Asset Management	Developed/Hosted In-House	Y	Y	N	N	
WSDOT	Disadvantaged Business Enterprise Certification	Document Management	Developed/Hosted In-House	Y	N	Y	N	
WSDOT	eDocs Importer	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Employee Master File/Personnel Information System	HR Management	Developed/Hosted In-House	N	N	N	N	
WSDOT	Ferries 3RAM Interface	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
WSDOT	Ferries Automated Operations Support System	HR Management	Developed/Hosted In-House	N	Y	N	N	TLA
WSDOT	Ferries Claims Management System	Claims Management	Developed/Hosted In-House	N	N	N	N	
WSDOT	Ferries Credit Card Refunds	Financial Management	Developed/Hosted In-House	N	N	N	N	
WSDOT	Ferries EFS Integration with Smart Card	Financial Management	Developed/Hosted In-House	N	N	Y	N	
WSDOT	Ferries Electronic Personal Identification Suite	Licensing/Permitting	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Ferries Fleet Watch	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
WSDOT	Ferries Globe	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
WSDOT	Ferries HR Employee Confidential Data Lookup	HR Management	Developed/Hosted In-House	N	N	N	N	
WSDOT	Ferries Information System	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
WSDOT	Ferries Labor System	Financial Management	Developed/Hosted In-House	Y	N	N	N	TLA
WSDOT	Ferries Letters of Time	Licensing/Permitting	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Ferries Maintenance Preservation Enhancement Tool (M-PET)	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
WSDOT	Ferries Mandarin Library System	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
WSDOT	Ferries Permits	Agency-Specific/Combined	Developed/Hosted In-House	N	N	Y	N	
WSDOT	Ferries Public Vehicle Reservations	Agency-Specific/Combined	Developed/Hosted In-House	N	N	Y	N	
WSDOT	Ferries QDS Vessel Mode Admin	Agency-Specific/Combined	Developed/Hosted In-House	N	N	Y	N	
WSDOT	Ferries Terminal Records Resource System	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
WSDOT	Ferries Training Budget	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
WSDOT	Ferries Vigilos	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
WSDOT	Ferries WINDS	HR Management	COTS hosted onsite	Y	N	N	N	TLA

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
WSDOT	Force Account	Agency-Specific/Combined	Developed/Hosted In-House	N	Y	N	N	
WSDOT	Functional Class Specifications	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Highway Activities Mobile Map	Asset Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Highway Road Logs	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Historical Photos	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	HPMS Submittal Application	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
WSDOT	Human Resource Management System	HR Management	Developed/Hosted In-House	N	Y	N	N	
WSDOT	Incident Location Tool	Agency-Specific/Combined	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Integrated Real Estate Info System	Asset Management	Developed/Hosted In-House	N	N	N	N	
WSDOT	Labor Collection / Payroll Expenditure Reporting	Financial Management	Developed/Hosted In-House	Y	Y	N	N	TLA
WSDOT	Materials Lab Documents	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Minor Capital Inventory	Asset Management	Developed/Hosted In-House	N	Y	N	N	ERP
WSDOT	Monthly Construction Reporting	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
WSDOT	Network Change Log	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
WSDOT	NWR Design	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Olympic Region Photos	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	OMWBE Reporting	HR Management	Developed/Hosted In-House	N	N	N	N	
WSDOT	Payroll Backup	Financial Management	Developed/Hosted In-House	Y	N	N	N	TLA
WSDOT	Payroll System Reporting	Financial Management	Developed/Hosted In-House	Y	Y	N	N	TLA
WSDOT	Payroll Workflow	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Performance Management Program	HR Management	COTS hosted onsite	N	N	N	N	
WSDOT	PMRS Project ECM	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	PMRS Project Management Utility	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Primavera Contract Manager	Contract/Grant Management	COTS hosted onsite	N	N	N	N	
WSDOT	Public Disclosure of Collision Reports	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Range Tracking	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
WSDOT	Real Estate Deeds Documents	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Real Estate Information System (RETIRING)	Asset Management	Developed/Hosted In-House	N	Y	N	N	
WSDOT	Real Estate Services - Electronic Review	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Roadside Features Inventory System (RETIRING)	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
WSDOT	Safety Analyst	Agency-Specific/Combined	COTS hosted onsite	Y	Y	N	N	
WSDOT	Scanweb	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
WSDOT	Short Duration Counts	Document Management	Developed/Hosted In-House	Y	N	N	N	

Agency	Application Name	Primary Business Capability	Type of Application	Modernization Effort Underway?	Critical or Core?	Public User Base?	Internal Mobility?	ERP or TLA?
WSDOT	Spatial Metadata Management System (RETIRING)	Agency-Specific/Combined	COTS hosted onsite	Y	N	N	N	
WSDOT	SRview image collection system	Asset Management	Developed/Hosted In-House	N	N	N	N	
WSDOT	Statewide Accounting and Managing Personnel ECM	Document Management	Developed/Hosted In-House	Y	Y	N	N	
WSDOT	Traffic Accident and Roadway Information System	Asset Management	Developed/Hosted In-House	Y	Y	N	N	
WSDOT	Transportation Allotment and allocation Control System	Agency-Specific/Combined	Developed/Hosted In-House	N	N	N	N	
WSDOT	Transportation Asset Reporting and Tracking System	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
WSDOT	Transportation Data Office Scanning & Indexing	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Transportation Information Planning and Support System	Agency-Specific/Combined	Developed/Hosted In-House	Y	N	N	N	
WSDOT	Transportation Reporting and Accounting Information System	Financial Management	Developed/Hosted In-House	N	Y	N	N	ERP
WSDOT	Washington Bridge Inventory System	Agency-Specific/Combined	Developed/Hosted In-House	Y	Y	N	N	
WSDOT	Wave2Go Electronic Fare System	Financial Management	Developed/Hosted In-House	Y	N	Y	N	
WSDOT	Work Order Authorization	Document Management	Developed/Hosted In-House	Y	Y	N	N	ERP
WSDOT	WSDOT Archives	Document Management	Developed/Hosted In-House	Y	N	N	N	
WSP	Blackberry Enterprise Server (BES)	Agency-Specific/Combined	COTS hosted onsite	Y	Y	N	Y	
WSP	CADETS/Sigma	HR Management	Developed/Hosted In-House	Y	N	N	N	
WSP	Project Initiation Process (PIP) Site	Agency-Specific/Combined	Developed/Hosted In-House	Y	N	N	N	
WSP	Voice over IP (VOIP)	IT Infrastructure	COTS hosted onsite	N	Y	N	N	
WSP	Washington Crime Information Center (WACIC)/Washington State Identification System (WASIS) (W2)	Agency-Specific/Combined	COTS hosted onsite	Y	Y	N	N	
WSP	WSP Network (Data and Voice Network)	IT Infrastructure	COTS hosted onsite	Y	Y	N	N	

Appendix D: Legacy IT Systems with Estimated Modernization Costs That Exceed $10 Million

The legacy IT systems that were estimated to cost more than $10 million to modernize or replace are listed below, in descending order by estimated cost with brief narratives describing agency approach to modernization as currently formulated.

Agency	System/Application Name	Best Cost Estimate[19]	Mission Critical?	Citizen-Facing?	Notes
DES	Accounting & Financial Reporting System ([AFRS] Parent)	$187,500,000	Yes	No	This cost represents establishment of an enterprise service offering for core financials in the proposed ERP project, One Washington. 73 legacy systems identified in this survey will be replaced as part of this effort, inclusive of AFRS (our current primary system of record) and TRAINS (the WSDOT accounting system). Costs were attributed to AFRS for summation purposes only.
DES	Time Management System	$30,544,000	Yes	No	This cost represents establishment of an enterprise service offering for managing time, leave and attendance in the Time, Leave and Attendance (TLA) (DES, with WSDOT and ECY as pilot agencies). 10 legacy systems identified in this survey will be eliminated as part of this effort, inclusive of DES existing Time Management System. Costs were attributed to TMS for summation purposes only.
DOH	Women, Infants, Children/Client Information Management System (WIC/CIMS)	$14,500,000	Yes	No	The Women, Infants, Children/Client Information Management System (WIC/CIMS) will be replaced in the Women, Infants & Children (WIC) Cascades project. All project and maintenance costs will be funded by the United States Department of Agriculture (USDA) Food and Nutrition Services (FNS).
DOL	HQ COBOL System	$33,460,000	Yes	No	These three systems represent the core systems of the 91 legacy systems proposed for modernization or replacement in the Modernization project. Costs were aggregated into these systems by the agency for summation purposes, as opposed to estimating for each of the 91.
DOL	Venture Licensing System	$10,340,000	Yes	No	
DOL	Vehicle HQ System	$27,412,000	Yes	No	
DOR	Integrated Document System	$71,604,100	Yes	No	This cost is not for a single system, but instead represents the total estimated cost for modernization / replacement of 25 DOR legacy systems addressed in the Tax and Licensing Systems Replacement project. Costs were aggregated into these systems for summation purposes, as opposed to estimating for each of the 25.
DRS	Employer Information System (EIS)	$15,000,000	Yes	No	The Employer Information System (EIS) would be replaced in the Employer Reporting Application (ERA) project.

[19] Please note: Cost may vary as much as -50%/+150% of the best estimate depending on the amount of information known by the agency about the system and/or the modernization approach at this time.

Agency	System/Application Name	Best Cost Estimate[20]	Mission Critical?	Citizen-Facing?	Notes
DSHS	Automated Client Eligibility System	$250,400,000	Yes	No	This application is written in COBOL and is currently updateable with the help of contracted staff. It is getting increasingly difficult to find COBOL programmers and it may not be possible to update the application in the future. A feasibility study has not been done, but the replacement estimate is based upon previous experience with replacement of systems of this magnitude and/or current industry trends. Modernization could become imminent to mitigate risks to the business anytime in the next 5 years. We have estimated $250M for ACES re-procurement, with $400K for planning and creating the RFP. The price may increase depending on vendor bids and duration of the contract (current contract is 6 years with a 2 year extension). Funding currently exists in DSHS base budget to pay for the present contract.
DSHS	BarCode Reception Program	$10,110,000	Yes	No	The current software is obsolete. It is updateable today because of existing staff, but not sustainable for the future. The only programmers for Panther Prolifics are in DSHS and it is not a skill set that is widely available. Staff attrition prior to modernization could pose business risks. Planning for modernization of this system is in the works with a view to mitigate business risks within the next 5 years. A feasibility study has not been done, but the replacement estimate is based upon previous experience with replacement of systems of this magnitude and/or current industry trends.
ESD	General Unemployment Insurance Development Effort (GUIDE)	$43,662,000	Yes	No	The General Unemployment Insurance Development Effort (GUIDE) system is one of 4 legacy systems being modernized or replaced in the Unemployment Tax & Benefit System (UTAB) project.
LNI	Labor & Industries Industrial Insurance System (LINIIS)	$20,000,000	Yes	No	The system upgrades have begun with internal agency funding for the 2013-15 biennium. Legislative funding requests are required to continue the modernization effort over the next decade.
WSDOT	Data Warehouse	$55,000,000[21]	Yes	No	This application was identified as legacy due a vendor risk factor for the reporting environment. The reporting environment vendor has been bought out several times, and the current vendor is sun-setting the product. Replacement of this product is around $200,000 in terms of software, installation and training. It does not amount to a wholesale replacement of the Data Warehouse. Since the time of the assessment, WSDOT has purchased a replacement solution. Prior to purchase, WSDOT worked with DES to ascertain the suitability of existing enterprise solutions but the one available was deemed insufficient to meet WSDOT's needs.

[20] Please note: Cost may vary as much as -50%/+150% of the best estimate depending on the amount of information known by the agency about the system and/or the modernization approach at this time.

[21] WSDOT declined to provide a best cost estimate for its Data Warehouse. For this report, we assumed the replacement cost to be $55 million, which is the midpoint of the $10 million - $100 million band in which WSDOT indicated this project would fall.

Agency	System/Application Name	Best Cost Estimate[22]	Mission Critical?	Citizen-Facing?	Notes
WSDOT	Transportation Information Planning and Support System	$15,200,000	No	No	Transportation Information Planning and Support System is a 25 year old system. Through attrition, WSDOT has lost business knowledge/technical knowledge in some critical areas of the application. Should a mandated enhancement be requested or a problem arises in one of these areas it will take considerable time to the change in business requirements or fix the issue. To offset future employee turnover, ITD is working with Talent Development to identify future nationwide opportunities for the recruitment of new staff to meet the technical requirements. WSDOT currently has resources with the TDGO office to gain an understanding of the business area and how it applies to the TRIPS application, which is complex and takes time to master.
WSDOT	Wave2Go Electronic Fare System	$55,000,000[23]	No	Yes	This application was identified as legacy due a vendor risk factor and the ability of the underlying software to meet changing business and customer requirements. The risk that the vendor may not be able to support/maintain the security and currency of the system has been mitigated by replacing portions of the original solution with new software and making system-wide improvements for PCI compliance. For modernization, WSDOT is exploring alternatives to improve or replace the solution and create extensive compatibility and integration between Wave2Go and the GoodToGo! tolling solution(s).

[22] Please note: Cost may vary as much as -50%/+150% of the best estimate depending on the amount of information known by the agency about the system and/or the modernization approach at this time.
[23] WSDOT declined to provide a best cost estimate for its Wave2Go Electronic Fare System. For this report, we assumed the replacement cost to be $55 million, which is the midpoint of the $10 million - $100 million band in which WSDOT indicated this project would fall.

Appendix E: Detail on Current Modernization Efforts Underway and Under OCIO Oversight

The table below contains direct links to the Project Dashboard entry for the active and funded major projects that are modernizing or replacing at least one legacy system. Where project documentation provided it, fund sources, benefit realization and break-even dates are included.

Fund amounts for the 2013–15 biennium were taken from the enacted 2013–15 operating budget and 2014 supplemental operating budget. Estimates for subsequent biennia were taken from agency-produced project documents on the Project Dashboard and 2015–17 operating budget requests submitted by agencies.

Project Name	Project Notes	FY 2014-15 Funding Notes	FY 2016-17 Funding Request	Anticipated FY 2018-19 Funding Request	Anticipated FY 2020-21 Funding Request
Time, Leave and Attendance (TLA) (DES, with WSDOT and ECY as pilot agencies)	Pilot project will replace 6 legacy systems at DES, WSDOT and ECY, and should be completed Sept 2015. TLA is likely to be an enterprise service available for all state agencies. There are estimated to be more than 100 timekeeping systems currently in use in state government, though not all are legacy systems.	$8.013M (Data Processing Revolving Account – State)	$13.509M	$3.0M	$3.0M
Tax and Licensing Systems Replacement (DOR)	DOR is in process of procuring a vendor for software and expects to complete this project around FY 2020. Will replace 25 legacy systems.	$11.604M (Data Processing Revolving Account – State, Business License Account – State)	$26-40M	$16.4-20M	
Employer Reporting Application (ERA) (DRS)	Postponed until FY 2016-17 due to unsuccessful procurement. Will replace 1 legacy system.	$3.074M (Department of Retirement Systems Expense Account – State, Deferred Compensation Administration Account – Non-appropriated)	$4.844M	$6.0M	
Criminal History System Replacement (DSHS)	Expected to be completed by the end of FY 2015.	$2.350M (General Fund – State, General Fund – Federal)			
Electronic Medical Records System-ICD10 (DSHS)	Project in progress, expected to be completed October 2015. Will replace 1 legacy system.	$9.966 (General Fund – State, General Fund – Federal)	$2.003M		

Project Name	Project Notes	FY 2014-15 Funding Notes	FY 2016-17 Funding Request	Anticipated FY 2018-19 Funding Request	Project Name
Notifiable Conditions Data Improvement (NCDI) (DOH)	Expected completion in October FY 2017.	$3.808M (General Fund – State, General Fund – Federal)	$1.821M		
WA Life and Health Events System (WHALES) (DOH)	Expected to be completed June 2016. Will replace 5 legacy systems.	$3.164M (General Fund – Private/Local)			
Women, Infants & Children (WIC) Cascades (DOH)	DOH's replacement of its Client Information Management System is expected to be completed April 2017.	$8.139M[24] (General Fund – Federal)			
CallTech (ESD)	Expected completion June 2015. Will replace 2 legacy systems.	$3.735M (Unemployment Compensation Administration Account – Federal)			
Unemployment Tax & Benefit System (UTAB) (ESD)	Expected to be completed October 2018. Will replace 4 legacy systems.	$12,386M (Unemployment Compensation Administration Account – Federal)	$19.135M	$20.718M	
WINS-Child Nutrition (SPI)	Project is expected to be completed January 2015.	$2.326M (General Fund – Federal)			
Central Issuance System (DOL)	Procurement in process. Estimated completion June 2017. Will replace 1 legacy system.	$1.491 (Highway Safety Account – State)	$4.035	$850K	$850K
Business and Technology Modernization (DOL)	Software vendor procurement in process. Expected completion 2019. Will replace 90 legacy systems.	$5.286M (Highway Safety Account – State)	$27.412	$25.5M	12.6M
Prorate & Fuel Tax System Replacement (DOL)	Project in process. Expected completion April 2016. Will replace 8 legacy systems.	$2.355M (Motor Vehicle Account)	$5.059M	$480K	$116K

[24] The replacement cost for the WIC Cascades program is based on monthly project status report from September 2014 available on the OCIO Project Dashboard website, and includes costs for the 2013−15 and 2015−17 biennia.

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