State of Nevada

Division of Children and Family Services (DCFS)

Deliverable 3.5.3.5

Cost Benefit Analysis

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Dear Mr. Bokka and Mr. Milicevic,

On behalf of KPMG LLP (KPMG or Firm), I am pleased to submit the enclosed Deliverable 3.5.3.5 Cost Benefit Analysis.

Please do not hesitate to contact me at 404-556-8198 or vrkrishnan@kpmg.com if I can provide any additional information or answer any questions.

Very truly yours,

KPMG LLP

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Revision History

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11/10/24	001	Deliverable drafted	KPMG
12/27/24	002	Internal reviews and edits	KPMG
12/31/24	1.0	Deliverable draft submitted to DCFS	KPMG

Modifications to the approved baseline version of this artifact must be made in accordance with the DCFS Artifact Management Standards.

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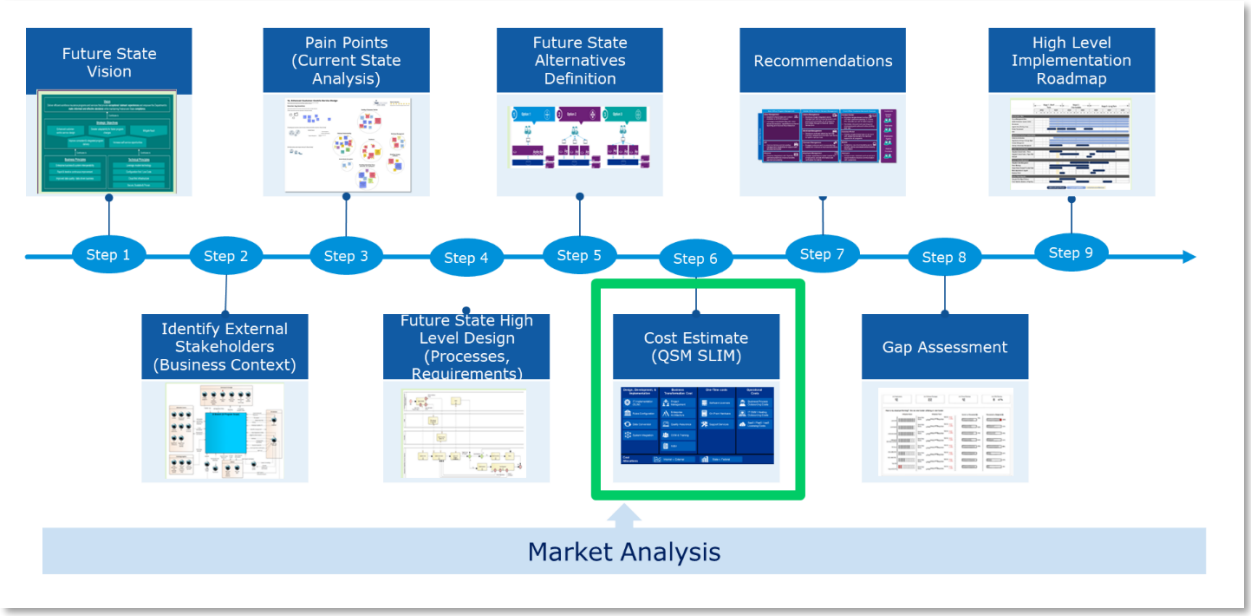
Introduction

KPMG LLP (KPMG) has been retained by the State of Nevada Division of Child and Family Services (DCFS) to provide Cost Benefit Analysis that informs decisions moving forward related to approach, solutions, and cost for the UNITY Modernization effort.

Harnessing KPMGs knowledge of the CCWIS solution landscape and in close collaboration with DCFS, KPMGs attained understanding for Nevada's modernized UNITY vision and worked with DCFS in defining priorities and requirements for a modernized system.

To estimate costs implied by each of the prioritized alternatives, KPMG deployed its cost estimation methodology and leveraged internationally standardized cost modeling tools, common technical components in large government transformation projects, and a team of certified function point analysts to derive costs and benefits for each alternative.

This deliverable is part of a larger series of deliverables and work-products developed by KPMG in close collaboration with DCFS in conjunction with the UNITY Modernization Planning project.



Purpose of this Deliverable

The purpose of Deliverable 3.5.3.5, Cost Benefit Analysis, is to provide DCFS with an accurate and defensible analysis for three (3) high level and prioritized alternatives.

A clear understanding of the costs and benefits is critical in providing "rubber meets the road" guidance for DCFS when selecting an approach to their modernization journey. To that end, this deliverable summarized the prioritized three alternatives and applies proved, expert methods to calculate associated costs and benefits, and synthesizes those findings in a digestible, meaningful manner.

To inform the costs and benefits analysis, KPMG relied on its understanding of DCFS programmatic and IT modernization vision, its priorities, and KPMGs cost modeling tools and experts.

Goals for this Deliverable

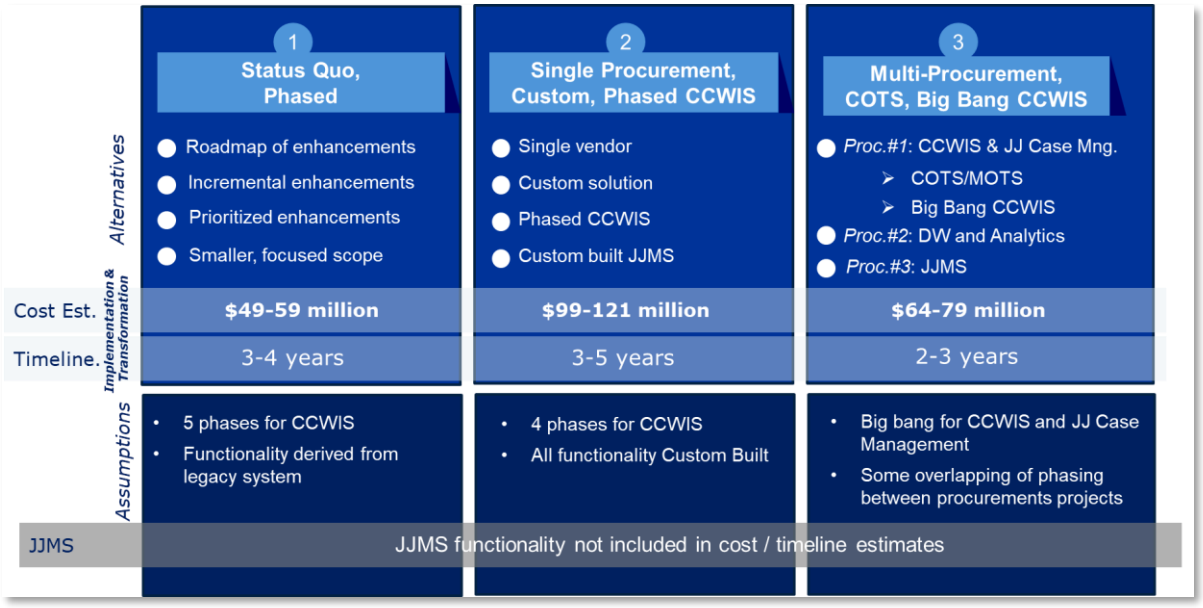
The primary goal of this Deliverable is to serve as a detailed look at the cost estimates and high-level benefits for the three (3) prioritized alternatives. This analysis will serve as a guiding artifact for DCFS in its pursuit of the CCWIS modernization effort. It is the intention of this deliverable to summarize the three prioritized alternatives, presenting relevant details on each and then summarize estimated costs and benefits for each of these three alternatives. The goal of this effort is to maximize DCFS's potential to make informed decisions regarding subsequent steps of its UNITY modernization.

This deliverable is intended to provide:

1. A high-level definition for each of the three (3) solution alternatives identified
2. The methodology for estimating costs and benefits
3. The quantitative and qualitative costs and benefits estimated for each alternative
4. A summary of the alternatives and the bottom-line costs and benefits estimated for each

Executive Summary

The Cost Benefit Analysis (CBA) for the UNITY Modernization Project outlines a rigorous and detailed examination of three key alternatives for modernizing the State of Nevada's Division of Child and Family Services (DCFS) systems. This deliverable aims to equip DCFS with critical insights and data to inform strategic decisions on the best path forward for the UNITY Modernization effort. The (3) alternatives prioritized for further analysis from the cost and benefits perspectives are summarized below.



KPMG employed industry-standard practices and robust methodologies to develop cost estimates for the three alternatives. This included leveraging internationally recognized cost modeling tools, conducting function point analysis, and utilizing the SLIM toolkit to estimate system development, configuration, and implementation costs. The analysis also considered qualitative and high-level benefits based on market research and expert knowledge in the field of CCWIS implementations.

While Alternative 1 offers the lowest immediate costs and risk, it may not fully address the long-term needs and goals of DCFS and holds the organization “hostage” to the current technical solution and approach. Alternative 2, although providing a highly customized solution, comes with higher costs and extended timelines. Conversely, Alternative 3 strikes a balance by offering the benefits of specialized expertise, reduced risk, and faster implementation at a more reasonable cost, making it a compelling option for the UNITY Modernization.

One important aspect to consider when planning for large modernization projects, such as the one Nevada (NV) is embarking on, is the differentiation between costs that scale with volume and those that remain relatively constant regardless of the population size or user base. While some costs, like data conversion, are directly influenced by the volumes handled, most costs involved—such as system implementation and integration efforts—tend to remain largely consistent irrespective of the size of the population served or user base.

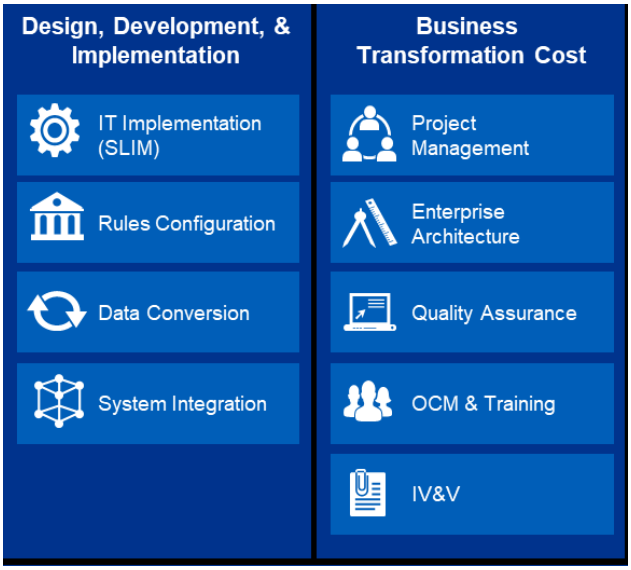
Approach and Methodology

Approach and Methodology for Developing Cost Estimates

In developing cost estimates for the prioritized alternatives, we used industry standard practices, complex input we obtained in previous phases of the UNITY Modernization Planning effort and our proven experience and expertise in running similar scoped efforts around the country and for multiple programs.

Our approach to cost estimates at the alternative level includes more than just the cost estimates for technical components. We work to estimate the full costs of a transformation effort, and we consider the spectrum of services and resource costs needed throughout the full roadmap. The figure below summarizes our approach to formulating these full cost estimations and outlines the various types of potential costs that we typically include in these estimates.

For each of the prioritized alternatives analyzed below, resources will be applied to support the successful implementation of new technologies and their associated business changes. While the technical vendor(s) will be responsible for the establishment of their technical capabilities, they will require a level of support from other vendors and/or internal state staff for planning and integrating their platform into the overall modernization roadmap. Total costs for the modernization program support include estimates based on the expected levels of applicability and complexity associated with each alternative.



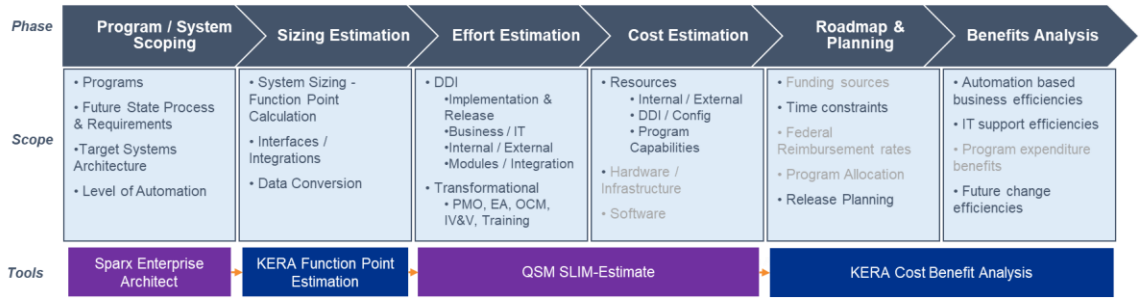
The modernization program support categories include the following:

1. **Design, Development, Implementation (DDI)**: Technical costs associated with enhancing or implementing technologies.
2. **Business Services**: Subject matter services needed to design and configure technology solutions.
3. **Enterprise Architecture**: Development of the core architecture, processes, and requirements associated with the System Integrator (SI) procurement and supporting architecture governance through the DDI phases.
4. **Project Management:** Support for all PMO functions including vendor coordination, management, tracking status, risks, issues, etc. associated with implementing capabilities.
5. **Quality Assurance**: Tracking performance of deliverables against standards and expectations, and support certification activities.
6. **People and Change**: Supports communications, change management, and training activities.
7. **Data Integration**: Supports data integration of technologies across the enterprise.

8. **System Integration**: Supports integrating the system across the enterprise and interface development.
9. **Data Conversion**: Costs associated with data conversion efforts which are not directly included in the total DDI costs.
10. **Independent Verification and Validation (IV&V)**: Cost associated with a vendor that provides an independent project review and oversees State/Federal compliance.

Approach for Estimating IT Implementation Costs

To develop ultimate estimations that are clear and defensible, we start by conducting function point analysis based on the information gathered in the To-Be Process phase and the requirements documentation efforts conducted in the earlier phases of the effort. Then, we use our function point modeling process and the SLIM tool to estimate the cost of system development, configuration, and implementation.



These cost estimates include high-level estimates for Design, Development, and Implementation (DDI), technical components and wrap around business services per leading practices in support of the transformation effort. To arrive at high level estimates for DDI, we started by leveraging cost modeling tools that are based on International Function Point Users Group (IFPUG) Standards, and common technical components in large government transformation projects. Our personalized estimates for each of the three prioritized alternatives started by leveraging the KERA reference certified function point repository which provided our team with reference estimated ranges of function points based on the scope, size, and complexity of reference CW system functions aligning to standardized business processes. Our team then aligned these reference ranges to the priorities and specific requirements identified in the previous phases of the planning effort to quantify the complexity of the development effort associated with each of the prioritized alternatives.

Once the function points were estimated and the technical parameters identified, we used industry leading Quantitative Software Management (QSM)'s Software Lifecycle Management (SLIM) toolkit to help estimate ranges of effort and cost for the specific items of each of the three prioritized alternatives. These high-level ranges associated with the different development alternatives, their specific strategies and constraints lead to different cost implications.

SLIM uses data from more than 10,000 actual projects and their metrics as a computational benchmark. In addition, SLIM considers both functional scopes, as well as implementation factors such as:

• Implementation phases and timeframes

• COTS versus development languages adopted
• Technology approaches including Software as a Service (SAAS), Platform as a Service (PAAS), Infrastructure as a Service (IAAS), cloud, on-premises, and hybrid
• Number and skills of resources available.

Cost Dynamics of Large Modernization Efforts

One important aspect to consider when planning for large modernization projects, such as the one Nevada (NV) is embarking on, is the differentiation between costs that scale with volume and those that remain relatively constant regardless of the population size or user base. While some costs, like data conversion, are directly influenced by the volumes handled, most expenses involved—such as system implementation and integration efforts—tend to remain largely consistent irrespective of the size of the population served or user cohort.

Volume-Dependent Costs

1. Data Conversion

Data conversion involves migrating existing data from legacy systems to the new platform, and this process is highly sensitive to the volume of data. Larger volumes of data require:

- **Extended Mapping and Validation Efforts** – More data records entail additional time and resources to map, validate, and verify accuracy during conversion.
- **Quality Assurance** – Ensuring data quality involves detailed scrutiny that scales directly with the amount of data being converted.

2. Cloud Software Licensing

Cloud Software Licensing are operating (rather than implementation) costs and depend on the volumes handled and the number of users.

Fixed or Less Variable Costs

1. System Implementation and Integration

The significant portion of costs associated with implementing and integrating a new system remains relatively stable regardless of population size:

- **Compute Environments** – Set up and operating costs are rather fixed regardless of volume of population supported or the number of user base.
- **Core Software Development** – Developing or configuring the core functionalities of the system requires similar efforts whether the system serves a small or large user base. The core modules and workflows need to be established and tested comprehensively, driving consistent costs.
- **Integration with Other Systems** – Establishing interfaces and integration points with other systems (e.g., financial systems, federal databases, healthcare systems) involves fixed efforts to ensure compatibility and data exchange.
- **Customization and Configuration** – Tailoring the system to meet specific policy, regulatory, and operational requirements incurs equivalent costs due to the effort needed to customize workflows, rules, and interfaces.

2. Infrastructure

The foundational infrastructure required for running the system also exhibit cost stability:

- **Cloud Services** – For cloud-based deployments, compute environments set up and operating costs are rather fixed regardless of volume of population supported or the number of user base. The baseline subscription and service plans cover essential needs for computing, storage, and network services, independent of user load within reasonable thresholds.
- **Data Centers** – Establishing or upgrading data centers to host the system involves capital expenditure for physical space, power, cooling, and basic connectivity, unaffected by minor variations in user volume or population size.
- **Servers and Network Equipment** – Initial setup involves procuring servers and network infrastructure to support the system. The foundational requirements for performance, reliability, and security often demand similar investments.

Approach to Estimating Business Services Costs

Initiating the DCFS Modernization Program will require the development of a Transformation Office, whose initial tasks will be to establish the foundational structure that will help direct and oversee the rest of the program as well as to establish the initial Organizational Change Management Strategy and Planning. As such, these costs are all considered one-time 'business services' costs. As fixed costs, these estimates are based on a range of previous industry contracts that align to the scope of a Transformation Office, acknowledging that wide-ranging levels of detail may have been required in specific deliverable expectations.

The cost of this phase incorporates:

1. **Program & Project Management Planning** – Establish a Project Management Office (PMO) structure, processes, and standards specifically for managing DCFS Modernization requirements and engaging with broader DCFS project management capabilities.
2. **Business Architecture & Organizational Design** – Evaluate future state needs and their corresponding business design (target operating model) that represents expected changes in how DCFS will evolve over time to incorporate new service delivery models and leverage planned new technologies in a target architecture.
3. **People & Change Strategic Planning** – Develop key plans and strategies for change management, stakeholder engagement, communications, and training over the course of the program.

Approach and Methodology for Benefits Analysis

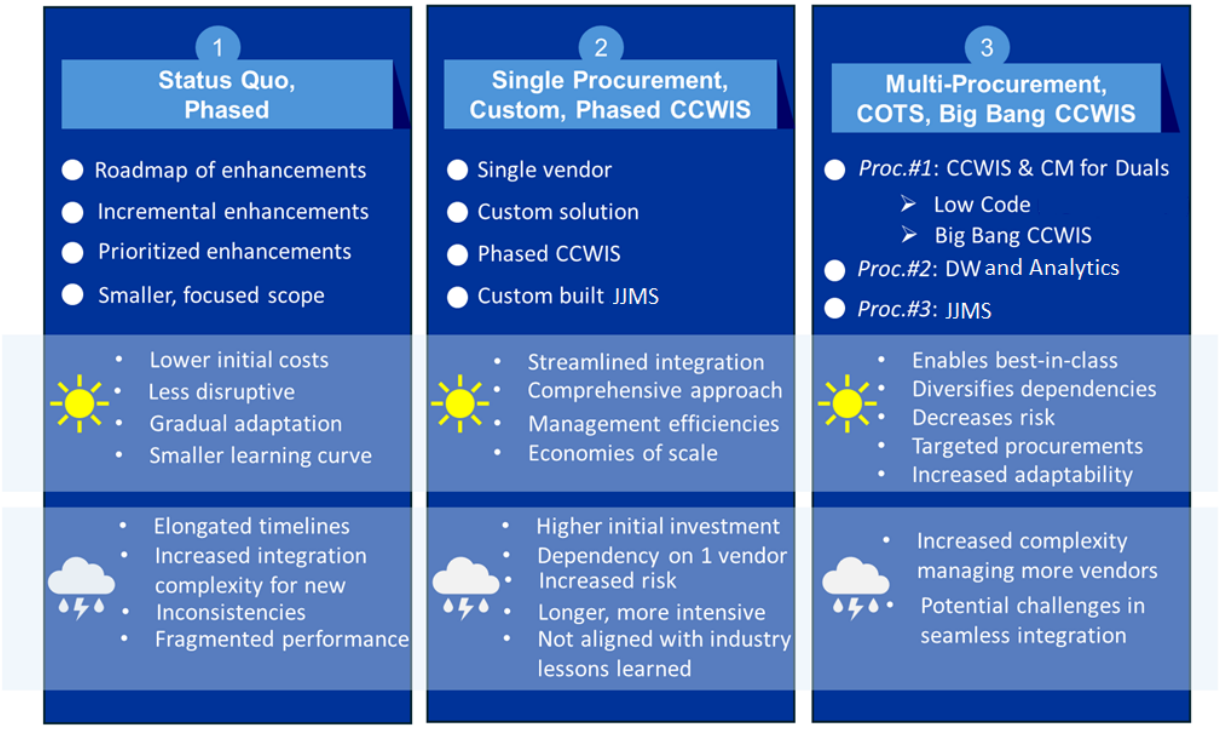
To estimate the qualitative and high-level benefits associated with each of the prioritized alternatives, we leveraged a combination of our experience and expertise as well as available market research from the CCWIS and other markets. The main aspects considered in summarizing the high-level benefits associated with each of the prioritized alternatives revolve around:

- the solution type that each alternative is aligned with
- the implementation approach (e.g., phased or big bang)
- the type or structure of the procurement effort (e.g., single or multi)
- the alignment with the vision and guiding principles set forward at the onset of the project
- the high-level requirements and other findings collected in previous phases of the project.

Summary of Alternatives

KPMG follows and participates in CCWIS implementations across the country and has a good understanding of the current landscape of solutions. We used our collective knowledge and experience in this area as well as the information obtained in the earlier phases of the planning effort (e.g., vision and guiding principles, to-be process definitions, requirements) to inform the DCFS' modernization options and crystalize three meaningful alternatives.

As such, the following three alternatives were prioritized for analysis[1].



Alternative 1 - Status Quo, Phased

A status quo approach entails continuing with the existing system in use as-is and making necessary incremental changes over time to meet the same functional requirements as new solutions will be expected to demonstrate. With this alternative, the emphasis is on simply making those targeted updates or fixes that allow reaching the proposed goals either as just continue to function and/or provide for gap functionalities as enhancements or new modules.

This alternative of phased enhancements will allow DCFS to stagger the work needed to bring the current UNITY system into alignment with the goals set forward for the modernization effort. This phased deployment could be organized by prioritizing:

- A certain functional / non-functional area and then addressing the delta functionalities under that area

[1] More details on the Alternatives and their definitions can be found in Deliverable 3.5.3.7. Recommendations

- Specific enhancements that focus on the most fragile or more in-need of modernization areas regardless of the functional/non-functional area they belong to.

Thus, this option allows DCFS to be more in control of which areas to target and when.

As this alternative is status quo and phased, it is estimated that there will be less of a need for training and change management support.

Alternative 2 – Single Procurement, Custom, Phased

A custom design approach as proposed in Alternative 2 is an approach tailored to specifically meet the unique needs and requirements of a child welfare agency. It involves developing or modifying low-code software applications to better align with agency-specific processes and requirements. This allows for agencies to address local policies, workflows, regulations, data collection, and reporting needs, alongside ensuring CCWIS compliance. Further, integration with existing systems is seamless, creating custom interfaces and data exchanges with pre-existing IT infrastructure and databases. The scalability and flexibility are both high, capable of evolving over time to accommodate changes in policy, practice, or technology. The customization available allows for the creation of custom reports and analytics tools that support effective monitoring and decision-making specific to the agency's objectives.

Alternative 2 proposes a single procurement approach for the entire modernization scope including CCWIS, CW-JJ and the JJ specific scope (also called the JJ Management System, JJMS) scope as well as any Data Warehouse (DW) and Analytics scope. Such an approach most often leads to a large, multi-million-dollar contract awarded to a single vendor. Multiple states around the nation are known to have deployed this approach for the CCWIS functionality only, thus not including the JJMS scope in this one-vendor approach. To our knowledge, a full integration between CCWIS and the full JJ scope including the JJMS functionality in a NV approach would be unique.

Alternative 3 – Multi-Procurement, COTS/MOTS, Big Bang CCWIS

This alternative as defined for cost-benefits estimation purposes allows the state to benefit from prebuilt, commercially available products that are designed to be used by multiple customers with little to no customization. The difference between COTSs and MOTSs is that COTSs allow for approaches designed to meet general requirements common to many organizations, while MOTSs assume more of a customizable effort to better fit the specific needs of an organization.

Alternative 3 proposes organizing different procurements to allow for a better fit with the goals and priorities for the modernization effort laid out by DCFS. This alternative assumes a COTS/MOTS type of solution for the CCWIS and JJ Case Management functionality and, due to market limitations, assumes a custom built for rest of the JJ scope (e.g., JMS). A multi-procurement approach does allow for specialized vendors to compete for specific parts of the work and often results in more tailored and higher-quality outcomes.

Alternatives Cost Estimate and Benefits Analysis

To understand the impact that different alternatives and strategies have on the cost, we first conducted a high-level analysis targeted at understanding how two key variables would impact cost ranges for various technology implementation approaches:

- different solution types (e.g., status quo, COTS/MOTS, Custom built)

- different phasing strategies for the CCWIS scope (e.g., big bang or phased).

In the procurement of technology solutions, vendors often are only asked to provide Design, Development, and Integration (DDI) costs, although their role typically also includes integration and conversion efforts. Business services / capabilities are sometimes provided by business advisors or managed internally but need to be accounted for either way. Of these options, the full transformation costs were only evaluated for the three scenarios that made up the alternative analysis, as these reflected the widest range of time and costs for the combination of approaches. The efforts included in DDI versus transformation costs include:

Implementation	
- DDI • Design • Custom Development • Configuration • Testing • Bug fixing	- Enterprise Architecture - Quality Assurance - Project Management - Change Management & Training - IV & V
- Data Conversion - Data Integration - System Integration	

When we evaluate the combinations of different solution types and phasing strategies, the impact of these two (2) variables as main drivers of implementation cost is reflected below:

Solution Type			
Status Quo w/Enhancements	Implementation	N/A	$36 - $44 million
	Transformation		$13 - $15 million
Custom Built (Low-Code)	Implementation – CCWIS & JJ CM	N/A	$66 - $81 million
	Implementation - DW		$8 - $9 million
	Transformation		$25 - $31 million
COTS / MOTS	Implementation – CCWIS & JJ CM	$42 - $53 million	N/A
	Implementation - DW	$6 - $7 million	
	Transformation	$16 - $19 million	

Analyzing these ranges, it is understandable that the Status Quo option has the lowest implementation cost estimate though it comes with lower estimated benefits as it will propagate known technology limitations that triggered the need for modernization in the first place. As addressed later in the Recommendations section, when making decisions related to alternatives, it is key that decisions consider strategic and more diverse factors that go far beyond just the implementation cost.

The cost ranges above vary quite significantly when discussing phased approaches. As expected, a phased implementation is estimated to cost more than a big bang approach, reflecting the fact that each phase requires additional regression testing and redoing all integration points with other system functions as well as additional scope for training and organizational change management.

In this early planning stage of estimating the cost of modernization, there is a margin of error that acknowledges that many detailed decisions are yet to be made. These decisions could significantly influence the overall price of the modernization effort. As such, each of the three prioritized alternatives described above has been evaluated as a range in which the modernization costs can confidently be projected to fall between.

The ranges estimated for each alternative are included in the Alternatives Cost Estimate and Benefits Analysis section below.

Common Cost Estimation Assumptions and Inclusions for All Alternatives

For consistency purposes, there are some common assumptions that have been established for all three alternatives, including:

- Assumes the following hourly rates per skill type:
  - Internal IT Resource Rate: $100/h
  - Internal Business resource Rate of $100/h
  - External IT Resource Rate of $180/h.
  - External Business Resource Rate of $210/h.
- The Scope includes all CW scope and the JJ functionality in support of Case Management.
- The Implementation cost includes, in addition to the DDI component, costs associated with:
  - Data integration (DI)
  - System integration (SI)
  - Data conversation.
- The Transformation cost includes costs associated with business services aligned with leading practices such as:
    - Establishing a Transformation / PMO office
    - Conducting an OCM comprehensive strategy and planning effort
    - Business architecture (BA)
    - Quality Assurance (QA)
    - IV&V.
- Additionally cost includes conducting a comprehensive Planning effort for the entire scope of the Modernization, inclusive of closing the gaps around the JJ Modernization / JJMS planning.

— Where possible, costs assume a “regular” timeline (see below) as calculated by the SLIM tool with no additional constraints derived from a need to rush the scope to meet tighter deadlines.

The cost estimate for this alternative excludes cost components associated with:

— Annual M&O[2]
— Annual Technology
— Annual Business Processes Operations
— the full JJMS scope due to the lack of data points available on the JJMS requirements at the time of this report

Alternative 1 - Status Quo: Cost Estimate and Benefits Analysis

Alternative 1 – Status Quo: High-Level Cost Estimate and Timeline

Total Cost Range: $49 million – $59 million

Solution Strategy

A status quo approach entails continuing with the existing system in use as-is and making necessary incremental changes over time to meet the same functional requirements as new solutions will be expected to demonstrate.

With this alternative, the emphasis is on simply making those **targeted updates or fixes** that allow the agency to reach the proposed goals (e.g., continue to function, increase efficiency, standardization and/or provide for gap functionalities). This alternative assumes that the current system is not end of life, can support enhancements and is scalable and flexible enough to support the modernization effort and estimated future business needs.

Investing in functionality to bring the current UNITY system into CCWIS compliance needs to be achieved if federal compliance and funding is important to DCFS.

Phasing Strategy

Alternative 1 proposes a status quo approach with **phased enhancements** that will allow DCFS to stagger the work needed to bring the current UNITY system into alignment with the goals set forward for the modernization effort. This phased deployment could be organized by:

— Prioritizing a *certain functional / non-functional area* and then addressing the delta functionalities under that area
— Prioritizing *specific enhancements* that focus on the most fragile or more in-need of modernization areas regardless of the functional/non-functional area they belong to.

This option allows DCFS to be more in control of which areas to target and when.

As such, the cost associated with this Alternative follows the effort of expanding and redesigning, in phases, the current capabilities already existing in the UNITY system to meet the

[2] Current M&O or DCFS technical operations cost information was not available to KPMG at the time of this report to project potential future costs.

ongoing needs of the business and consolidating users across all counties onto the system. Since this option is working with the existing system, it makes logical sense to have more phases each with a more targeted scope to roll out new functionality faster.

Cost Estimation Assumptions used for Alternative 1

- Assumes needing five (5) phases to incorporate the scope associated with bringing current UNITY system into CCWIS compliance and in alignment with requirements gathered during the prior phases of this planning effort.
- Phasing is assumed to follow a functional/non-functional prioritization model, allowing DCFS to close the gap between current UNITY and future state UNITY one functional/non-functional area at a time (e.g., functional areas can be sequenced as per Deliverable 3.5.3.4 Matrix).
- Allocation of enhancements to the current system is assumed to be equivalent across all functional areas – with proportional level of updates to every business area rather than some being more impacted than others.
- Assumes functionality will be derived from the legacy system.
- Assumes code that will be reused makes up around 60% of total code of the new system, and code that is new or modified makes up around 40% of total code for the new system. If the current system requires larger percentages of replacement, the costs will begin approaching the costs associated with alternative 2.
- Assumes Waterfall Software Development Life Cycle of (SDLC) to manage each individual phase.
- The current system is not end of life, can support enhancements and is scalable and flexible enough to support the modernization effort and estimated future business needs.

Timeline

Based on the functionalities and approach associated with this Alternative, the estimated timeline for implementation is 3-4 years. In case DCFS desires to accelerate this timeline, an increase in estimated cost should be expected to account for challenges inherent from compressing code development and resulting defect rates that typically accompany this strategy. This increase should not be immediately assumed to be linear.

Status Quo High Level Cost Estimate

Project	DDI	Business Services	Enterprise Architecture	Project Management	Quality Assurance	People and Change	Data Integration	System Integration	Data Conversion	IV&V	Estimated Transformation Cost
	Total	Total	Total	Total	Total	Total	Total	Total	Total		Total
Transformation Office - Change Management Strategy and Planning	$ -	$ 850	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 850
Transformation Office - Establish PMO	$ -	$ 500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 500
Transformation Office - Juvenile Justice Detailed Assessment	$ -	$ 1,500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,500
Core UNITY Project - Phase 1	$ 10,449		$ 914	$ 1,118	$ 668	$ 604	$ 531	$ 1,061	$ -	$ 128	$ 15,472
Core UNITY Project - Phase 2	$ 7,930		$ 693	$ 848	$ 507	$ 459	$ 403	$ 805	$ -	$ 97	$ 11,742
Core UNITY Project - Phase 3	$ 8,314		$ 727	$ 889	$ 531	$ 481	$ 422	$ 844	$ -	$ 102	$ 12,310
Core UNITY Project - Phase 4	$ 2,538		$ 222	$ 272	$ 162	$ 147	$ 129	$ 258	$ -	$ 31	$ 3,758
Core UNITY Project - Phase 5	$ 4,672		$ 409	$ 500	$ 299	$ 270	$ 237	$ 475	$ 934	$ 57	$ 7,853
Sub-Total	$ 33,903	$ 2,850	$ 2,965	$ 3,627	$ 2,167	$ 1,961	$ 1,722	$ 3,444	$ 934	$ 414	$ 53,986
	$ 37,294	$ 3,135	$ 3,261	$ 3,990	$ 2,383	$ 2,157	$ 1,894	$ 3,788	$ 1,028	$ 455	$ 59,385
	$ 30,513	$ 2,565	$ 2,668	$ 3,264	$ 1,950	$ 1,765	$ 1,550	$ 3,099	$ 841	$ 373	$ 48,588

Alternative 1 – Status Quo: High-Level Benefits Analysis

With a status quo approach, DCFS has more options on how they choose to prioritize and approach the work associated with enhancing functionalities and providing the gap functionalities in scope. With these flexibilities, there is a large range of variations that can occur, variations that might have an impact on how the benefits stack up. Though, generically speaking, the benefits of a status quo approach can be expected to be:

- **Lower Immediate Costs:** avoiding significant upfront investments in new systems or technology.
- **Operational Continuity:** mostly maintaining established processes and minimizing disruption to day-to-day operations.
- **Visibility:** because changes can be made more independently function by function to the working system, it will be easier to make visible improvements quicker in months rather than years.
- **Familiarity:** developers, users already know the system, what works, what does not, along with knowing where the issues already are to fix and how to deal with the “quirks”
- **Risk Mitigation:** reducing the risk of project failure or unforeseen issues associated with major system changes.
- **State control:** DCFS can control which areas to target and when based solely on their defined priorities.
- **Minimal Data Conversion:** as this alternative implies the current system is kept in place, the data conversion effort can focus more on bringing county data that may exist elsewhere into the existing data model.
- **Time Saving:** modest time savings through some process automation, integrations with critical related systems, and electronic documentation standards.
- **Trust:** can start with areas of strength that current users trust and improve trust in data and reporting over time as functionality improves.

Considering these benefits, Alternative 1 is best suited for an organization who prioritizes a fast start with quick, concrete wins that are visible to stakeholders as this alternative offers the lowest upfront cost and the lowest risk. Contributing to the faster start and lower risk is that Alternative 1 would preclude the need for major data conversion.

As such, the Status Quo approach suits organizations that wish to maintain maximum control over the pace and timeline of planned updates and that wish to stick with a system they know and like. The assumption is though that this existing system is end of life or outdated beyond the ability to allow for the flexibilities and scalabilities intended.

To be considered successful from the broader set of stakeholders, this option would require that they have the trust that the system can be fixed. It also assumes that there isn’t too much technical debt that would magnify the challenge to recode business functions and therefore increase the costs. This would require a more intensive review of the existing code to know to what extent this could be an issue but was beyond the scope of this assessment.

Alternative 2 - One Vendor, Custom, Phased: Cost Estimate and Benefits Analysis

Alternative 2 – One Vendor, Custom, Phased: Cost Estimate and Timeline

Total Cost Range: $99 million – $121 million

Solution Strategy

A custom design approach as proposed in Alternative 2 is an approach tailored to specifically meet the unique needs and requirements of a child welfare agency. This Alternative involves developing or modifying low-code software platforms to better align with agency-specific processes and requirements. It allows agencies to address local policies, workflows, regulations, data collection, and reporting needs, alongside ensuring CCWIS compliance. Integration with existing systems is expected to be smoother by creating custom integrations/ interfaces and data exchanges. This approach is estimated to offer higher scalability and flexibility over time to accommodate changes in policy, practice, or technology. It also allows for custom reports and analytics for effective monitoring & decision-making specific to the agency's goals.

Procurement strategy

Alternative 2 proposes a single procurement approach for the entire modernization scope including CCWIS, CW-JJ the JJMS scope as well as any Data Warehouse (DW) and Analytics scope. This approach is aligned with a more traditional procurement approach which typically involves documenting a full set of requirements, packing them into a procurement with the entire scope contracted to a single vendor.

For smaller projects, there are still benefits to keeping solutions simple and more streamlined. Though for large complex modernization efforts - like the UNITY Modernization, consolidation of a considerable amount of responsibility into a single partner creates several challenges, including vendor lock-in where states become highly dependent on the concentrated knowledge and experience that the vendor has of the solution.

Such an approach most often leads to a large, multi-million-dollar contract awarded to a single vendor. Multiple states around the nation are known to have deployed this approach for the CCWIS functionality only, thus not including the JJMS scope in this one-vendor approach. While, for example, Tennessee's implementation includes some of the JJ functionality in CCWIS, to our knowledge, a full integration between CCWIS and the JJMS is a particularity of the NV approach.

Phasing strategy

Alternative 2 proposes the following phases:

- Four (4) phases for releasing the CCWIS functionality as follows:
  - Phases 1-3: CCWIS functionality inclusive of an integrated JJ Case Management functionality
  - Phase 4: Data warehousing, reporting, and analytics

- One (1) additional phase dedicated to the JJMS specific functionality.

This phasing strategy allows for pieces of the full functionality to be released in productions sooner and thus staggering efforts, adoption, training. Because of the intrinsic nature of a phased approach, this alternative adds additional scope related to:

- Creating interfaces between new system modules and existing systems of record and external systems to support interim states
- Additional testing/ regression testing for each new release
- Other redundancies (communication, etc.).
- Increases timelines requires additional time for foundational / overhead resources such as project management and change management.

Cost Estimation Assumptions for Alternative 2

- Phasing is as per the details above
- Assumes functionality is custom built on top of an existing public sector low code platform
- Assumes code from the existing platform will account for 25% of total code for the system, and that new or modified development will be required for 75% of the required functionality
- Assumes Agile Software Development Life Cycle of (SDLC).

Timeline

Based on the functionalities and approach associated with this Alternative, the estimated timeline for implementation is 3-5 years. In case DCFS desires to accelerate this timeline, a certain increase in estimated cost should be expected. This increased should not be immediately assumed to be linear.

Custom Phased High Level Cost Estimate

Project	DDI	Business Services	Enterprise Architecture	Project Management	Quality Assurance	People and Change	Data Integration	System Integration	Data Conversion	IV&V	Estimated Transformation Cost
	Total	Total	Total	Total	Total	Total	Total	Total	Total		Total
Transformation Office - Change Management Strategy and Planning	$ -	$ 850	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 850
Transformation Office - Change Management Strategy and Planning	$ -	$ 500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 500
Core UNITY Project - Phase 1	$ 20,854		$ 1,930	$ 2,388	$ 1,333	$ 1,930	$ 1,059	$ 2,118	$ 3,128	$ 764	$ 35,505
Core UNITY Project - Phase 2	$ 17,460		$ 1,616	$ 2,000	$ 1,116	$ 1,616	$ 887	$ 1,773	$ 2,619	$ 640	$ 29,727
Core UNITY Project - Phase 3	$ 17,960		$ 1,662	$ 2,057	$ 1,148	$ 1,662	$ 912	$ 1,824	$ 2,694	$ 658	$ 30,578
Core UNITY Project - Phase 4 - Reporting / Data	$ 7,904		$ 732	$ 905	$ 337	$ 732	$ 562	$ -	$ -	$ 97	$ 11,268
	$ 8,694	$ -	$ 805	$ 996	$ 370	$ 805	$ 618	$ -	$ -	$ 106	$ 12,395
	$ 7,114	$ -	$ 658	$ 815	$ 303	$ 658	$ 506	$ -	$ -	$ 87	$ 10,141
Sub-Total	**$ 64,179**	**$ 2,850**	**$ 5,940**	**$ 7,351**	**$ 3,933**	**$ 5,940**	**$ 3,420**	**$ 5,716**	**$ 8,441**	**$ 2,158**	**$ 109,927**
	$ 70,596	$ 3,135	$ 6,534	$ 8,086	$ 4,326	$ 6,534	$ 3,762	$ 6,287	$ 9,285	$ 2,373	$ 120,920
	$ 57,761	$ 2,565	$ 5,346	$ 6,616	$ 3,540	$ 5,346	$ 3,078	$ 5,144	$ 7,597	$ 1,942	$ 98,935

Alternative 2 – One Vendor, Custom, Phased: High Level Benefits

While a single vendor approach is exposing the state to more risk, such an approach has some possible benefits as summarized below:

- Time savings through streamlining procurements and vendors mix
- Leveraging the vendor's accumulated subject matter expertise
- Sophisticated delivery methodologies that reflect lessons learned over many years and complex projects.

Furthermore, a custom-built solution approach is promising the following benefits:

- **Tailored Solutions.** A custom approach allows the system to be designed specifically to meet the unique needs and workflows of the agency, ensuring better alignment with state's policies, practices, and regulations.
- **Enhanced User Satisfaction.** By involving end-users in the design and development process, the system can be made more user-friendly and practical for caseworkers and other staff, leading to higher user adoption and satisfaction.
- **Improved Efficiency.** Custom solutions can streamline processes and reduce redundant data entries, resulting in more efficient operations and allowing staff to spend more time on direct service delivery.
- **Better Data Quality and Reporting.** Tailored data collection and reporting tools can provide more accurate and relevant information for decision-making, compliance, and performance monitoring.
- **Scalability and Flexibility.** A custom approach allows for designing a system that is more easily maintained, and can evolve with changing needs, policies, and technology advancements, ensuring long-term viability.
- **Federal Alignment.** Agencies with well-customized systems may find they can directly build to federal standards / requirement to more easily access funding, meeting regulatory requirements, and achieving better outcomes for children and families.
- **Maintenance & Operations Cost Savings.** While these costs were not specifically collected or projected, newer technologies are easier to maintain than legacy systems. Lower cost in maintenance, licenses, and other software costs can likely be gained through retiring current legacy system(s). Also on infrastructure, hosting, or other IT hardware gained from implementing modern, cloud-based solutions.
- **Operational Business User Time Saving.** Time saving through some process automation, integrations with critical related systems, and electronic documentation standards gained from implementing modern, cloud-based solutions
- **Potential for increased state or ACF (IV-E or other) revenue** due to better data quality, improved federal reporting and compliance, and more accurate claiming
- **Trust.** It is possible that current mistrust of the existing system may not be able to be overcome. Moving to a completely new system may give the opportunity to build trust in data and reporting.

Alternative 3 - Multi-Procurement, COTS, Big Bang CCWIS: Cost Estimate and Benefits Analysis

Alternative 3 – Multi-Procurement, COTS, Big Bang CCWIS: Cost Estimate and Timeline

Total Cost Range: $64 million – $79 million

Solution Strategy

Leveraging a COTS solution where possible, Alternative 3 evaluates distinct solution components to harness specialized expertise and flexibility. This involves the selection of pre-built solutions that have already incorporated the core requirements of child welfare systems as described federally and experienced across multiple states. This alternative does not differentiate between the selection of one integrated COTS product, or a consortium of purpose-built modules that each address specific business functions. At minimum, this option assumes selection of optimized solutions from best of breed vendors for child welfare, data warehousing, and a Juvenile Justice Management System, but could also include multiple products being integrated for CCWIS modules through specialized solutions.

Procurement Strategy

Alternative 3 proposes an open and multi-procurement approach to encourage competitive procurement processes for each scope to attract diverse and innovative vendor responses:

- CCWIS & JJ Case Management: Procure COTS-based solutions covering all functional scope for CCWIS and integrated case management with Juvenile Justice
- Data Warehouse & Analytics: Separate procurement focused on data warehousing, reporting, and analytics to improve data management focused capabilities that can consolidate JJMS data once that is available.
- JJMS & Additional Data Warehouse Needs: Procure JJMS to meet all not case management requirements for Juvenile Justice (resource management, asset management, etc.).

This approach allows DCFS access to diversified pool of vendors and reduces dependency on a single entity, lowering the risk of significant setbacks.

Phasing Strategy

Alternative 3 proposes:

- A big bang approach for CCWIS and JJ Case Management
- A dedicated data warehouse and analytics phase
- A dedicated JJMS phase.

Cost Estimation Assumptions used for Alternative 3

- Assumes COTS solutions covering all CCWIS functions with shared Case Management for JJ
- Assumes big bang for CCWIS and support for JJ Case Management
- Assumes some overlapping of phasing between procurement projects (see roadmap)
- Assumes code that COTS out-of-the-box functionality will be available to support 50% of the total requirements, and that 50% of the total code will need to be developed to meet additional requirements

- Assumes Waterfall / Agile Hybrid Software Development Life Cycle of (SDLC) for each separate phase.

Timeline

Based on the functionalities and approach associated with this Alternative, the estimated timeline for implementation is 2-3 years. In case DCFS desires to accelerate this timeline, a certain increase in estimated cost should be expected. This increase should not be immediately assumed to be linear.

Big Bang COTS MOTS

Project	DDI	Business Services	Enterprise Architecture	Project Management	Quality Assurance	People and Change	Data Integration	System Integration	Data Conversion	IV&V	Estimated Transformation Cost
	Total	Total	Total	Total	Total	Total	Total	Total	Total		Total
Transformation Office - Change Management Strategy and Planning	**$ -**	**$ 850**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	$ 850
Transformation Office - Change Management Strategy and Planning	**$ -**	**$ 500**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	$ 500
Core UNITY Project - Core System	**$ 35,627**		**$ 3,298**	**$ 4,080**	**$ 3,036**	**$ 2,061**	**$ 1,809**	**$ 4,523**	**$ 5,344**	**$ 435**	$ 60,213
Core UNITY Project - Reporting / Data	**$ 5,984**		**$ 554**	**$ 685**	**$ 255**	**$ 346**	**$ 425**	**$ -**	**$ -**	**$ 73**	$ 8,323
	$ 6,582	$ -	**$ 609**	**$ 754**	**$ 280**	**$ 381**	**$ 468**	**$ -**	**$ -**	$ 80	$ 9,155
	$ 5,385	$ -	**$ 498**	**$ 617**	**$ 229**	**$ 312**	**$ 383**	**$ -**	**$ -**	$ 66	$ 7,490
Sub-Total	**$ 41,610**	**$ 2,850**	**$ 3,851**	**$ 4,766**	**$ 3,291**	**$ 2,407**	**$ 2,235**	**$ 4,523**	**$ 5,344**	**$ 508**	**$ 71,385**
	$ 45,771	$ 3,135	$ 4,237	$ 5,242	$ 3,620	$ 2,648	$ 2,458	$ 4,976	$ 5,878	$ 559	$ 78,524
	$ 37,449	$ 2,565	$ 3,466	$ 4,289	$ 2,962	$ 2,166	$ 2,011	$ 4,071	$ 4,810	$ 457	$ 64,247

Alternative 3 – Multi-Procurement, COTS, Big Bang CCWIS: High Level Benefits

Considering the multi-procurement aspect, the COTS/MOTS solution type and the big bang aspect for CCWIS functionality is aligned with lessons learned from other CCWIS implementation in the country could realize following benefits:

- Selection of “best in class” vendors for the specific procurement scope as each project requires different capabilities / skill sets. CCWIS COTS solution providers are likely not industry leaders in JJMS and data warehousing solutions.
- Enables the selection of vendors with specific expertise, resulting in higher quality and more efficient execution of each segment of the project.
- Diversifies dependencies as there is more than one implementation/solution vendor and as such decreases some of the risks associated with a single vendor scenario
- Value of future improvements gained from a more flexible and configurable system

By pursuing a purpose-built COTS/MOTS solution and implementing the core solution in one phase, the state to realize the following potential benefits:

- **Easier One Release Strategy** - Faster time-to-market supported by both the Big Bang implementation approach and the COTS solution type that balance well between customization and quicker deployment times
- **Rapid Switch:** Minimizes prolonged transition states, enabling immediate system consistency.
- **Unified Training:** Consolidates training efforts supporting a single cutover with users not having to distinguish what activities are to be done in the new systems versus the old system, facilitating easier user adoption and system learning.
- **Avoid Parallel Systems:** Reduces complexity, data quality issues, and costs associated with managing dual systems over an extended period.
- **Flexibility:** Allows for greater flexibility in project management, as each scope can be tailored and executed independently.
- **Risk Mitigation:** Distributes risk across multiple vendors. If one vendor underperforms, it does not necessarily jeopardize the entire project.
- **Scalability:** Facilitates scalability, as segments can be adjusted or rolled out in phases without affecting the entire project.
- **Potential for increased state or ACF (IV-E or other) revenue** due to better data quality, improved federal reporting and compliance, and more accurate claiming
- **Trust.** It is possible that current mistrust of the existing system may not be able to be overcome. Moving to a completely new system may give the opportunity to build trust in data and reporting.

Alternative 3 is well suited for organizations seeking a minimum investment in a comprehensive modernization solution, as it is the least expensive among alternatives for a new end to end solution. It is also the fastest from start to completion due to the big bang approach suggested

for the largest functionality scope: CCWIS. The value added in Alternative 3 is that the state would not be relying on a single vendor for such a comprehensive and diverse scope and would be able to stagger procurements. It also allows for a more streamlined funding request as the CCWIS scope is not entangled, procurement and cost-wise, in one big number.

Appendices

Appendix 1: Acronyms

Below is a list of acronyms used in the documentation of research for Cost Benefit Analysis for Modernized UNITY. This list is also part of Deliverable 3.5.3.6 Cost Benefit Analysis and is available on a shared location on the DCFS's Teams side under *Documents > General > UNITY Needs Assessment > Supporting Materials.*

Acronym		
ACF	Administration for Children and Families	Division of the United States Department of Health and Human Services that provides national leadership and creates opportunities for families to lead economically and socially productive lives
BA	Business Architecture	A discipline that represents and designs the holistic organizational structure, business processes, information flows, and technological infrastructure
COTS	Commercial Off the Shelf Solutions	No-code/Low-code software approach
CX	Customer Experience	A holistic account of customers' perceptions that result from all their interactions with an organization
CW	Child Welfare	A continuum of services designed to ensure that children are safe and that families have the necessary support to care for their children successfully, used here in the context of the functional area for DCFS child welfare programs
D&A	Data & Analytics	The ways organizations manage data to support all its uses, and analyze data to improve decisions, business processes and outcomes, such as discovering new business risks, challenges and opportunities
DDI	Development, Design, and Implementation	Critical phases in the lifecycle of a system, application, or project with distinct activities and goals that collectively ensure the successful creation, deployment, and operation of a product or system
DI	Data Integration	The process of combining and harmonizing data from multiple sources into a unified, coherent format that can be put to use for various analytical, operational and decision-making purposes.
DW	Data Warehousing	The process of collecting and managing data from a number of different sources in a secure, electronic storage of business data as a way to create a historical trove of data for future analysis and insight
FTE	Full Time Equivalent	An FTE is equal to the number of hours a full-time employee works for an organization
IaaS	Infrastructure as a Service	Service model that Provides virtualized computing resources over the internet

IFPUG	International Function Point Users Group	A worldwide, member-governed nonprofit organization that helps organizations improve their software development process through software sizing standards
IV&V	Independent Verification and Validation	Third-party oversight service
JJ	Juvenile Justice	A col-lec-tion of state and local court-based sys-tems whose pur-pose is to respond to young peo-ple who come into con-tact with law enforce-ment and are accused of break-ing the law, used here in the context of the functional area for DCFS juvenile justice program
JJMS	Juvenile Justice Management System	System that provides functionality to oversee and conduct all work pertaining to the management of juvenile justice assets and resources
M&O	Maintenance and Operations	The ongoing work required to keep a facility, system, or process running safely, reliably, and efficiently
MOTS	Modified Off the Shelf Solutions	No-code/Low-code software approach
NA	Not available	Information not available or not relevant
OCM	Organizational Change Management	Strategic approach to help organizations adapt to change and improve their effectiveness
PaaS	Product as a Service	Service model that delivers a platform for building, testing, deploying, and managing applications via the cloud
PMO	Project Management Office	Group that maintains and defines standards for project management with several functions, like ensuring that projects are completed on time, within budget, and to the required standard.
QA	Quality Assurance	Part of quality management focused on providing confidence that quality requirements will be fulfilled
QSM	Quantitative Software Management	Company that specializes in software estimation tools and project intelligence software within the software development industry and offers a suite of products designed for estimating, tracking, and benchmarking software projects
SaaS	Software as a Service	Service model in which a cloud computing environment is deployed and managed on a cloud infrastructure maintained by the vendor with subscription-based pricing
SDLC	Software Development Lifecycle	Systematic process that organizations use to design, build, test, and deploy software
SI	System Integrator	Vendor that builds computing services for clients by combining hardware, software, networking, and storage products
SLIM	Software Lifecycle Management	Business methodology that combines the best practices of Software Asset Management (SAM) and digitized procurement with the aim of delivering enhanced customer

		experience and value for the holistic, organization-wide administration and control of all software and cloud investments, covering the entire product lifecycle from the time of purchase, adoption, overall management, and through to retirement of the assets.
UAT	User Acceptance Testing	Gathering feedback from users to check if the system meets user needs

Appendix 2: List of Functional and Non-functional topics

List of functional topics / areas that DCFS and KPMG agreed to organize the work around are as follows:

1. Intake
2. Assessment / Investigation
3. Case Management
4. Case Review
5. Medical Case Management / Treatment
6. Foster Care Services for Application Licensing / Licensing Caseload
7. Placement, Stability & Permanency (Make, Maintain, Preserve Placement)
8. Adoptions (Case Management of)
9. Independent Living
10. Court Processing
11. Eligibility
12. Financial Management / Payment Processing
13. Provider Management
14. Child, Guardians, Parents, Resources, and Collateral Profile Management
15. Worker Workflows

List of non-functional topics/areas:

- Forms
- System Interfaces
- Reporting and Analytics
- Security
- Data Management and Data Quality

Appendix 3: List of meetings conducted and participants

Below is a list of meetings conducted in gathering research for Cost Benefit Analysis for Modernized UNITY. This list is also part of Deliverable 3.5.3.5 Cost Benefit Analysis and is available on the DCFS' Teams site under *Documents > General > UNITY Needs Assessment > Ad Hoc Meetings.*

Meeting Title				
UNITY MODERNIZATION: Prep Meeting for Alternatives and Cost Whiteboarding Exercise	11/5/2024	11:00 am – 12:00 pm PST	DCFS: Davor Milicevic (DCFS IT Manager), Srinivas Bokka (DCFS IT Applications Manager) KPMG: Venkat Krishnan (Engagement Delivery Partner), Vince Vienneau (Enterprise Architecture Lead), Iulia Pirvu (Project Manager), Grace Rich (Business Analysis & Modeling)	DCFS Teams site -> Documents > General > UNITY Needs Assessment > Ad Hoc Meetings Link: Ad Hoc Meetings
UNITY MODERNIZATION: Cost Work Session	11/19/2024	10:00 am – 11:00 am PST	DCFS: Davor Milicevic (DCFS IT Manager), Srinivas Bokka (DCFS IT Applications Manager) KPMG: Venkat Krishnan (Engagement Delivery Partner), Vince Vienneau (Enterprise Architecture Lead), Iulia Pirvu (Project Manager), Grace Rich (Business Analysis & Modeling)	DCFS Teams site -> Documents > General > UNITY Needs Assessment > Ad Hoc Meetings Link: Ad Hoc Meetings
UNITY MODERNIZATION: Bi-Weekly PM Check in	11/25/2024	1:00 pm – 1:30 pm PST	DCFS: Davor Milicevic (DCFS IT Manager), Srinivas Bokka (DCFS IT Applications Manager) KPMG: Venkat Krishnan (Engagement Delivery Partner), Vince Vienneau (Enterprise Architecture Lead), Iulia Pirvu (Project Manager), Tonya Bevard (Functional Lead & CW Subject Matter Expert), Grace Rich (Business Analysis & Modeling)	DCFS Teams site -> Documents > General > UNITY Needs Assessment > Bi-Weekly PM Check-Ins-> 11252024 Link: 11252024