Appendix B: Functional and Technical Requirements		
Table of Contents		
Tab No.	**Requirements Category**	**Number of Requirements**
1	Functional	17
2	Technical	12
	Total	**29**
Requirements Criticality Indicators		
Indicator	**Definition**	
Mandatory	Functionality is necessary for the system to support current or planned State business processes.	
Desirable	Functionality is desired, but not necessary, for the system.	
Vendor Response		
Response Indicators: When providing responses to the requirements, Vendors shall use the following response indicators:		**Instruction**
S	**Standard:** Feature/Function is included in the current software release and will be implemented by the planned phase go-live date as part of the proposal from Vendors in accordance with agreed-upon configuration planning with the State.	Vendors are encouraged, but not required, to provide additional information in the Comments column to further demonstrate the system's ability to meet the requirement.
F	**Future:** Feature/Function **will be available in a future software release** available to the State by **the phase implementation required,** at which point it will be implemented in accordance with agreed-upon configuration planning with the State.	If a response indicator of "F" is provided for a requirement that will be met in a future software release, the Vendor shall indicate the planned release version as well as the date the release will be available.
C	**Customization:** Feature/Function is **not included** in the current software release, and is not planned to be a part of a future software release. However, **this feature could be provided with custom modifications**. All related customization costs should be indicated in the Comments column next to the feature/function, and the total cost included in the Cost Proposal deliverable for Configuration and Customization.	If a response indicator of "C" is provided for a requirement that will be met through a custom modification, the Vendor shall include the cost of such a modification in its cost proposal.
T	**Third-Party:** Feature/Function is **not** included in the current software release, and is **not** planned to be a part of a future software release. However, this feature could be **provided with integration with a third-party system**. This system should be specified.	If a response indicator of "T" is provided for a requirement that will be met by integration with a third-party system, the Vendor shall identify this third-party system and include the cost to secure this system in its cost proposal.
N	**No: Feature/Function cannot be provided**.	Any blank response will be considered an "N".

Functional					
*Phase Implemented: Requirements for functionality first implemented in Phase 1 (by September 1, 2025) of the project will be marked as 1 and functionality first implemented or updated in Phase 2 (no later than July 1, 2026) will be marked as 2.					
Req. #	**Requirement Description**	**Mandatory/ Desirable**	**Phase Implemented per W. Va. Code §49-2-111c(b) language***	**Vendor Response**	**Comments**
Communication					
F.C.1	The Solution must include the following features in its messaging functionality: a. Allow authorized users to securely communicate and send messages among authorized users b. View message history	Mandatory	1	S	Cardinality's solution incorporates secure messaging capabilities that enable authorized users to communicate and exchange messages within the system. The messaging functionality also provides a comprehensive message history feature, allowing users to access and review past communications while maintaining data privacy and security through role-based access controls and encryption protocols. This approach promotes efficient collaboration and streamlined workflows across authorized personnel.
F.C.2	The Solution must include notifications to authorized users when information is new or tasks are due. Alerts should be provided when tasks require a user's attention or changes to the child's case are noted/documented (e.g., change to placement location).	Mandatory	1	S	Cardinality's solution features a robust notification and alert engine that delivers timely notifications to authorized users about new information, upcoming task deadlines, or actions requiring attention. Alerts are dynamically generated for critical updates, such as changes in a child's case, including placement location updates, keeping users informed and responsive to key developments in real-time. This supports effective case management and adherence to time-sensitive tasks.
F.C.3	The Solution must archive communication into the CCWIS, including but not limited to text, email, and/or chat, via a format or process that successfully interfaces with the CCWIS.	Mandatory	1	S	Cardinality's solution integrates communication archiving directly into the CCWIS by capturing and storing text, email, and chat records in a compatible format. The process leverages standard interfaces to facilitate seamless integration with the CCWIS, maintaining a comprehensive and accessible archive of all communications for reference, compliance, and reporting purposes. This approach supports effective case documentation and streamlined system operations.
F.C.4	The Solution should provide secure messaging functionality in multiple platforms, including but not limited to email, chat and/or text.	Desirable	1	S	Cardinality's solution offers secure messaging functionality across multiple platforms, including email, chat, and text. The messaging capabilities are designed to maintain data confidentiality and accessibility while supporting communication needs across diverse user preferences and operational contexts, promoting flexibility and adaptability in various environments.
F.C.5	The Solution should include the following features in its messaging functionality: a. File-share with authorized user(s)	Desirable	2	S	Cardinality's solution includes file-sharing capabilities within its messaging functionality, allowing authorized users to securely share documents and files. This feature supports collaborative workflows and facilitates the efficient exchange of information while maintaining strict access controls to protect data integrity and confidentiality.
Information Access					
F.I.1	As the Solution components becomes interfaced with the CCWIS, the Solution must pull/push information (i.e., function bidirectionally) with the CCWIS where the CCWIS is the sole source of any/all information and documentation - and archive of such information and documentation - for all foster cases.	Mandatory	2	S	Cardinality's solution is designed to interface bidirectionally with the CCWIS, enabling seamless push and pull of information. The CCWIS serves as the single source of truth for all foster case information and documentation, with the solution capturing and archiving data in alignment with this structure. This approach supports accurate data synchronization and comprehensive case management within the CCWIS framework.
F.I.2	The Solution must allow RBAC to access case record information in the CCWIS, such as education, medical, dental, mental health, psychology evaluation, and visitation records.	Mandatory	2	S	Cardinality's solution incorporates Role-Based Access Control (RBAC) to manage access to case record information in the CCWIS. This functionality enables authorized users to view specific records, including education, medical, dental, mental health, psychological evaluations, and visitation records, based on their roles. This approach safeguards sensitive information while supporting efficient and secure case management.

F.I.3	The Solution must allow RBAC to upload to the portal, to be stored in the CCWIS, any/all case documentation such as family plans, safety plans, photos, and verification documents.	Mandatory	2	S	Cardinality's solution incorporates Role-Based Access Control (RBAC) to regulate access to case record information in the CCWIS, including education, medical, dental, mental health, psychological evaluations, and visitation records. Additionally, the solution enables authorized users to upload various case documentation, such as family plans, safety plans, photos, and verification documents, to the portal for secure storage in the CCWIS, supporting comprehensive case management and data integrity.
F.I.4a	The Solution should allow authorized users to: a. Enter online/offline messaging (e.g., SMS/Email/In-App), to be uploaded to the CCWIS immediately (if online) or as soon as connectivity is restored (if offline) b. Video/audio conferencing with authorized users, and with a recording function	Desirable	1	S	Cardinality's solution provides authorized users with the capability to enter messages via SMS, email, or in-app channels, which are immediately uploaded to the CCWIS when online or queued for upload once connectivity is restored. Additionally, the solution supports video and audio conferencing among authorized users, complete with a recording feature for documentation and future reference, enhancing collaboration and communication efficiency.
F.I.4b	The Solution should allow authorized users to: a. Take a photo, video, or audio recording b. Document updates, such as completion of goals/tasks/steps c. Request and view upcoming meetings with case workers d. Upload verification documents (e.g., pay stubs, lease agreement, certificates of completion, etc.)	Desirable	2	S	Cardinality's solution enables authorized users to capture photos, videos, and audio recordings directly within the system and document updates, such as the completion of goals, tasks, and steps. Users can also request and view upcoming meetings with case workers and upload verification documents, such as pay stubs, lease agreements, and certificates of completion, facilitating streamlined case management and efficient communication.
F.I.5	The system should allow access to various document formats, including but not limited to: a. AVI b. BMP c. DOC d. DOCX e. JPEG f. JPEG g. JPG h. MP4 i. PDF j. TIFF	Desirable	2	S	Cardinality's Document management Feature supports access to a wide range of document formats, including AVI, BMP, DOC, DOCX, JPEG, JPG, MP4, PDF, TIFF, TXT, and XLS. This flexibility enables users to upload, view, and manage various file types efficiently, ensuring compatibility with diverse documentation and media requirements.
F.I.6	The Solution should allow authorized users digital signatures to be collected on documents that are stored in the CCWIS.	Desirable	2	S	Cardinality's solution includes functionality for collecting digital signatures from authorized users on documents, with signed documents securely stored in the CCWIS. This feature streamlines the approval process, enhances document authenticity, and maintains compliance with legal and regulatory requirements.
F.I.7	The Solution should provide primary information upload confirmation prior to the CCWIS interface, in relation to Technical requirement T.G.8.	Desirable	2	S	Cardinality's solution includes a primary information upload confirmation feature, allowing users to review and confirm data before it interfaces with the CCWIS. This functionality aligns with Technical Requirement T.G.8, ensuring data accuracy and providing users with an opportunity to validate uploads prior to integration with the system.
F.I.8	The Solution should allow authorized user(s) to access documentation including but not limited to the following examples: a. Educational evaluation/records b. Medical evaluation/records c. Dental evaluation/records d. Therapeutic/mental health records e. Home evaluations f. Visitation/family time records g. Case or family plan h. Safety Plan or Assessment i. Case worker contact log j. Court filing k. Demographic information k. Demographic information	Desirable	2	S	Cardinality's Role Base access control provides authorized users with secure access to a wide range of documentation, including educational, medical, dental, and therapeutic records; home evaluations; visitation and family time records; case and family plans; safety plans or assessments; case worker contact logs; court filings; and demographic information. This comprehensive access supports effective case management and informed decision-making while maintaining data privacy and security.
Scheduling					

F.S.1	The Solution should include a calendar module accessible for all authorized users that allows users to schedule events involved in the respective child's case (e.g., visitation sessions for foster child and biological parent/guardian). The user should be able to add, change, or delete items, including but not limited to: a. Appointments b. Non-emergency medical visits c. Guardian Ad Litem (GAL) d. MDT meetings e. Visitations f. Vacations g. Court dates h. SNS provider services	Desirable	2	S	Cardinality's solution includes a calendar module accessible to all authorized users, allowing them to schedule and manage events related to a child's case. Users can add, modify, or delete items such as appointments, non-emergency medical visits, Guardian Ad Litem (GAL) meetings, MDT meetings, visitations, vacations, court dates, and SNS provider services. This feature facilitates effective planning and coordination among all stakeholders involved in the case.
Reporting					
F.R.1	The Solution must create a performance report that shows the time measurement of user's responsiveness to questions or requests.	Mandatory	2	S	Cardinality's roboust reporting tool includes performance reporting capabilities that track and measure user responsiveness to questions or requests. These reports provide insights into response times, supporting accountability and identifying areas for improvement in communication and workflow efficiency.
F.R.2	The Solution should create performance reports through flexible reporting functionality to include both predesigned and ad hoc reporting.	Desirable	2	S	Cardinality's solution offers flexible reporting functionality that supports the creation of performance reports through both predesigned templates and ad hoc reporting options. This enables users to generate customized insights tailored to specific needs, while also providing ready-to-use reports for consistent performance monitoring and decision-making.

Technical					
*Phase Implemented: Requirements for functionality first implemented in Phase 1 (by September 1, 2025) of the project will be marked as 1 and functionality first implemented or updated in Phase 2 (no later than July 1, 2026) will be marked as 2.					
Req. #	**Requirement Description**	**Mandatory/ Desirable**	**Phase Implemented per W. Va. Code §49-2-111c(b) language***	**Vendor Response**	**Comments**
General					
T.G.1	The Solution must allow authorized administrators the capability to grant and deny user access at any time.	Mandatory	1	S	Using Role-Based Access Control (RBAC) feature, which enables authorized administrators to grant or deny user access at any time. This functionality allows for dynamic and secure management of user permissions, ensuring compliance with organizational policies and security requirements.
T.G.2	The Solution must allow role-based access control (RBAC) to manage user experience, features, and access and/or functionality.	Mandatory	1	S	Cardinality's solution utilizes the Role-Based Access Control (RBAC) feature to manage user experience, features, and access or functionality. This allows administrators to define roles and assign specific permissions, tailoring the user interface and functionality based on role-specific needs while maintaining security and streamlined system operations.
T.G.3	The Solution must be browser agnostic.	Mandatory	1	S	Cardinality's solution leverages its web-based architecture to ensure browser agnosticism, allowing users to access the system seamlessly across commonly used browsers such as Chrome, Edge, Safari, and Firefox. This flexibility enhances accessibility and user experience without dependency on a specific browser.
T.G.4	Recovery Time Objective (RTO) - In the event of an unplanned outage, the system shall be returned to live operation in 4 hours or less	Mandatory	1	S	Cardinality's solution meets the Recovery Time Objective (RTO) requirement through its disaster recovery framework and high-availability architecture. These include automated failover mechanisms, real-time data replication, and cloud-based redundancy strategies to restore live operations within 4 hours or less in the event of an unplanned outage, minimizing downtime and disruption to users.
T.G.5	Recovery Point Objective (RPO) - Data will be backed up in a manner that assures the system can always be restored with no loss of data	Mandatory	1	S	Cardinality's solution meets the Recovery Point Objective (RPO) requirement through its continuous data backup and replication processes. These features leverage cloud-based storage and real-time synchronization to ensure that data can always be restored without loss, maintaining complete system integrity and alignment with operational requirements.
T.G.6	The Solution must identify and flag duplicate entries of information.	Mandatory	2	S	Cardinality's solution addresses duplicate entry management using its data validation and de-duplication engine. This feature automatically scans and flags duplicate entries during data input or synchronization, helping maintain data integrity and reducing redundancies within the system.
T.G.7	The Solution should require permission access using a single sign-on (SSO).	Desirable	1	S	Cardinality's solution integrates with Single Sign-On (SSO) functionality to streamline access control by requiring authenticated users to log in once to access the system. Permission access is managed through integration with identity providers, ensuring secure and seamless authentication while reducing the need for multiple credentials.
T.G.8	The Solution should enable authorized users to access and enter information through a mobile device.	Desirable	1	S	Cardinality's solution leverages its mobile-responsive design and dedicated mobile application capabilities to enable authorized users to access and enter information using mobile devices. This feature ensures secure and efficient data interaction across various platforms, enhancing user accessibility and flexibility in different environments.

T.G.9	The Solution should allow RBAC to schedule mass or batch changes at an established time frame.	Desirable	2	S	Cardinality's solution incorporates Role-Based Access Control (RBAC) and batch processing tools that allow authorized users to schedule mass or batch changes within a predefined time frame. This feature facilitates efficient management of bulk updates while maintaining controlled access and adherence to security protocols.
T.G.10	The Vendor should resolve data input errors reported by users within two (2) business days from when the report was received.	Desirable	2	S	Cardinality's solution includes a ticketing and issue tracking system to manage and resolve data input errors reported by users. This feature ensures that reported issues are prioritized, tracked, and resolved within two business days, supporting timely and efficient error management.
	Security				
T.S.1	The Vendor and the Solution must meet all applicable State and Federal privacy, confidentiality, and security requirements. Per 45 CFR 1355.52 (d) (iii), the CCWIS data must "be exchanged and maintained in accordance with confidentiality requirements in Section 471 (a) (8) of the Act, and 45 CFR 205.50, and 42 42 U.S.C. 5106a (b) (2) (B) (viii) through (x) of the Child Abuse Prevention and Treatment Act, if applicable, and other applicable federal and state or tribal laws". The Contractor must ensure that all data in its possession meets the standards outlined in 45 CFR 1355.52 (d) (iii) and complies with the following list of Federal standards: a. Federal Information Security Risk Assessment (ISRA) Procedures b. CMS System Security Plan c. 42 CFR Parts 412, 413, 422, 433 d. 45 CFR Part 160 Administration e. 45 CFR Part 162 Privacy f. 45 CFR Part 164 Security g. Records Usage, Duplication, Retention, Re-disclosure, and Timely Destruction Procedures/Restrictions 5 U.S.C. 552a (o)(1)(F), (H), and (I) h. Internal Revenue Service (IRS) Publication 1075 compliance i. Privacy Act of 1974 at 5 U.S.C. 552a j. Federal Information Security Management Act (FISMA) k. SSA Information System Security Guidelines for federal, State, and local agencies l. Title XIX Confidentiality Rules m. CMS Standards and Conditions at 42 CFR 433.112 n. ACF CCWIS Design Requirements established in §1355.53 o. MARS-E (At a minimum MARS-E 2.0) p. Confidentiality requirements under Section 471(a)(8) of the Social Security Act q. Confidentiality/access requirements under Section 106(b)(2)(a)(v) of the Child Abuse Prevention and Treatment Act	Mandatory	1	S	Cardinality's solution complies with all applicable State and Federal privacy, confidentiality, and security requirements, aligning with the standards outlined in 45 CFR 1355.52(d)(ii). The solution incorporates a comprehensive security framework that adheres to federal regulations, including ISRA procedures, CMS System Security Plans, and compliance with MARS-E 2.0. Cardinality also ensures robust data governance, encryption, audit capabilities, and access controls to meet standards such as the Privacy Act of 1974, FISMA, IRS Publication 1075, and Title XIX Confidentiality Rules. These measures safeguard CCWIS data exchange and maintenance, supporting compliance with all listed federal standards and ensuring data confidentiality, integrity, and secure access.
T.S.2	The Solution should allow a default access level for assigned users of a multi-disciplinary team (MDT) prior to the MDT meeting.	Desirable	2	S	Cardinality's solution leverages Role-Based Access Control (RBAC) to assign default access levels to users of a multi-disciplinary team (MDT) prior to MDT meetings. This feature ensures that team members have appropriate access to relevant information, facilitating preparation and collaboration while maintaining security and confidentiality of sensitive data.

Attachment A

FEDERAL FUNDS ADDENDUM

2 C.F.R. §§ 200.317 – 200.327

Purpose: This addendum is intended to modify the solicitation in an attempt to make the contract compliant with the requirements of 2 C.F.R. §§ 200.317 through 200.327 relating to the expenditure of certain federal funds. This solicitation will allow the State to obtain one or more contracts that satisfy standard state procurement, state federal funds procurement, and county/local federal funds procurement requirements.

Instructions: Vendors who are willing to extend their contract to procurements with federal funds and the requirements that go along with doing so, should sign the attached document identified as: "REQUIRED CONTRACT PROVISIONS FOR NON-FEDERAL ENTITY CONTRACTS UNDER FEDERAL AWARDS (2 C.F.R. § 200.317)"

Should the awarded vendor be unwilling to extend the contract to federal funds procurement, the State reserves the right to award additional contracts to vendors that can and are willing to meet federal funds procurement requirements.

Changes to Specifications: Vendors should consider this solicitation as containing two separate solicitations, one for state level procurement and one for county/local procurement.

State Level: In the first solicitation, bid responses will be evaluated with applicable preferences identified in sections 15, 15A, and 16 of the "Instructions to Vendors Submitting Bids" to establish a contract for both standard state procurements and state federal funds procurements.

County Level: In the second solicitation, bid responses will be evaluated with applicable preferences identified in Sections 15, 15A, and 16 of the "Instructions to Vendors Submitting Bids" omitted to establish a contract for County/Local federal funds procurement.

Award: If the two evaluations result in the same vendor being identified as the winning bidder, the two solicitations will be combined into a single contract award. If the evaluations result in a different bidder being identified as the winning bidder, multiple contracts may be awarded. The State reserves the right to award to multiple different entities should it be required to satisfy standard state procurement, state federal funds procurement, and county/local federal funds procurement requirements.

State Government Use Caution: State agencies planning to utilize this contract for procurements subject to the above identified federal regulations should first consult with the federal agency providing the applicable funding to ensure the contract is complaint.

County/Local Government Use Caution: County and Local government entities planning to utilize this contract for procurements subject to the above identified federal regulation should first consult with the federal agency providing the applicable funding to ensure the contract is complaint. For purposes of County/Local government use, the solicitation resulting in this contract was conducted in accordance with the procurement laws, rules, and procedures governing the West Virginia Department of Administration, Purchasing Division, except that vendor preference has been omitted for County/Local use purposes and the contract terms contained in the document entitled "REQUIRED CONTRACT PROVISIONS FOR NON-FEDERAL ENTITY CONTRACTS UNDER FEDERAL AWARDS (2 C.F.R. § 200.317)" have been added.

FEDERAL FUNDS ADDENDUM

REQUIRED CONTRACT PROVISIONS FOR NON-FEDERAL ENTITY CONTRACTS UNDER FEDERAL AWARDS (2 C.F.R. § 200.317):

The State of West Virginia Department of Administration, Purchasing Division, and the Vendor awarded this Contract intend that this Contract be compliant with the requirements of the Procurement Standards contained in the Uniform Administrative Requirements, Cost Principles, and Audit Requirements found in 2 C.F.R. § 200.317, et seq. for procurements conducted by a Non-Federal Entity. Accordingly, the Parties agree that the following provisions are included in the Contract.

1. **MINORITY BUSINESSES, WOMEN'S BUSINESS ENTERPRISES, AND LABOR SURPLUS AREA FIRMS:** (2 C.F.R. § 200.321)

    a. The State confirms that it has taken all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible. Those affirmative steps include:

        (1) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
        (2) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
        (3) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
        (4) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises;
        (5) Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce; and
        (6) Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed in paragraphs (1) through (5) above.

    b. Vendor confirms that if it utilizes subcontractors, it will take the same affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible.

2. **DOMESTIC PREFERENCES:** (2 C.F.R. § 200.322)

    a. The State confirms that as appropriate and to the extent consistent with law, it has, to the greatest extent practicable under a Federal award, provided a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United

States (including but not limited to iron, aluminum, steel, cement, and other manufactured products).

b. Vendor confirms that will include the requirements of this Section 2. Domestic Preference in all subawards including all contracts and purchase orders for work or products under this award.

c. Definitions: For purposes of this section:

(1) "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
(2) "Manufactured products" means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

3. **BREACH OF CONTRACT REMEDIES AND PENALTIES:**
(2 C.F.R. § 200.327 and Appendix II)

(a) The provisions of West Virginia Code of State Rules § 148-1-5 provide for breach of contract remedies, and penalties. A copy of that rule is attached hereto as Exhibit A and expressly incorporated herein by reference.

4. **TERMINATION FOR CAUSE AND CONVENIENCE:**
(2 C.F.R. § 200.327 and Appendix II)

(a) The provisions of West Virginia Code of State Rules § 148-1-5 govern Contract termination. A copy of that rule is attached hereto as Exhibit A and expressly incorporated herein by reference.

5. **EQUAL EMPLOYMENT OPPORTUNITY:**
(2 C.F.R. § 200.327 and Appendix II)

Except as otherwise provided under 41 CFR Part 60, and if this contract meets the definition of "federally assisted construction contract" in 41 CFR Part 60–1.3, this contract includes the equal opportunity clause provided under 41 CFR 60–1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 FR 12319, 12935, 3 CFR Part, 1964–1965 Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

6. **DAVIS-BACON WAGE RATES:**
(2 C.F.R. § 200.327 and Appendix II)

Vendor agrees that if this Contract includes construction, all construction work in excess of $2,000 will be completed and paid for in compliance with the Davis–Bacon Act (40 U.S.C. 3141–3144, and 3146–3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction"). In accordance with the statute, contractors must:

(a) pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor.
(b) pay wages not less than once a week.

A copy of the current prevailing wage determination issued by the Department of Labor is attached hereto as Exhibit B. The decision to award a contract or subcontract is conditioned upon the acceptance of the wage determination. The State will report all suspected or reported violations to the Federal awarding agency.

7. **ANTI-KICKBACK ACT:**
(2 C.F.R. § 200.327 and Appendix II)

Vendor agrees that it will comply with the Copeland Anti-KickBack Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States"). Accordingly, Vendor, Subcontractors, and anyone performing under this contract are prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The State must report all suspected or reported violations to the Federal awarding agency.

8. **CONTRACT WORK HOURS AND SAFETY STANDARDS ACT**
(2 C.F.R. § 200.327 and Appendix II)

Where applicable, and only for contracts awarded by the State in excess of $100,000 that involve the employment of mechanics or laborers, Vendor agrees to comply with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, Vendor is required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

9. **RIGHTS TO INVENTIONS MADE UNDER A CONTRACT OR AGREEMENT.**
(2 C.F.R. § 200.327 and Appendix II)

If the Federal award meets the definition of "funding agreement" under 37 CFR § 401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.

10. **CLEAN AIR ACT**
(2 C.F.R. § 200.327 and Appendix II)

Vendor agrees that if this contract exceeds $150,000, Vendor is to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401–7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251–1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

11. **DEBARMENT AND SUSPENSION**
(2 C.F.R. § 200.327 and Appendix II)

The State will not award to any vendor that is listed on the governmentwide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

12. **BYRD ANTI–LOBBYING AMENDMENT**
(2 C.F.R. § 200.327 and Appendix II)

Vendors that apply or bid for an award exceeding $100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non–Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non–Federal award.

13. **PROCUREMENT OF RECOVERED MATERIALS**
(2 C.F.R. § 200.327 and Appendix II; 2 C.F.R. § 200.323)

Vendor agrees that it and the State must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the

Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds $10,000 or the value of the quantity acquired during the preceding fiscal year exceeded $10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

14. **PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT.**
(2 C.F.R. § 200.327 and Appendix II; 2 CFR § 200.216)

Vendor and State agree that both are prohibited from obligating or expending funds under this Contract to:

(1) Procure or obtain;
(2) Extend or renew a contract to procure or obtain; or
(3) Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115–232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

(i) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
(ii) Telecommunications or video surveillance services provided by such entities or using such equipment.
(iii) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

In implementing the prohibition under Public Law 115–232, section 889, subsection (f), paragraph (1), heads of executive agencies administering loan, grant, or subsidy programs shall prioritize available funding and technical support to assist affected businesses, institutions and organizations as is reasonably necessary for those affected entities to transition from covered communications equipment and services, to procure replacement equipment and services, and to ensure that communications service to users and customers is sustained.

State of West Virginia

By: _____

Printed Name: _____

Title: _____

Date: _____

Vendor Name: Elixir Lab USA Inc. d/b/a Cardinality.ai

By: Anna Harper

Printed Name: Anna Harper

Title: Chief Administrative Officer

Date: 01/27/2025

EXHIBIT A To:
REQUIRED CONTRACT PROVISIONS FOR NON-FEDERAL ENTITY CONTRACTS UNDER FEDERAL AWARDS (2 C.F.R. § 200.317):

W. Va. CSR § 148-1-5

West Virginia Code of State Rules
Title 148. Department of Administration
Legislative Rule (Ser. 1)
Series 1. Purchasing

W. Va. Code St. R. § 148-1-5
§ 148-1-5. Remedies.
Currentness

5.1. The Director may require that the spending unit attempt to resolve any issues that it may have with the vendor prior to pursuing a remedy contained herein. The spending unit must document any resolution efforts and provide copies of those documents to the Purchasing Division.

5.2. Contract Cancellation.

5.2.1. Cancellation. The Director may cancel a purchase or contract immediately under any one of the following conditions including, but not limited to:

5.2.1.a. The vendor agrees to the cancellation;

5.2.1.b. The vendor has obtained the contract by fraud, collusion, conspiracy, or is in conflict with any statutory or constitutional provision of the State of West Virginia;

5.2.1.c. Failure to honor any contractual term or condition or to honor standard commercial practices;

5.2.1.d. The existence of an organizational conflict of interest is identified;

5.2.1.e. Funds are not appropriated or an appropriation is discontinued by the legislature for the acquisition;

5.2.1.f. Violation of any federal, state, or local law, regulation, or ordinance, and

5.2.1.g. The contract was awarded in error.

5.2.2. The Director may cancel a purchase or contract for any reason or no reason, upon providing the vendor with 30 days' notice of the cancellation.

5.2.3. Opportunity to Cure. In the event that a vendor fails to honor any contractual term or condition, or violates any provision of federal, state, or local law, regulation, or ordinance, the Director may request that the vendor remedy the contract breach or legal violation within a time frame the Director determines to be appropriate. If the vendor fails to remedy the contract breach or legal violation or the Director determines, at his or her sole discretion, that such a request is unlikely to yield a satisfactory result, then he or she may cancel immediately without providing the vendor an opportunity to perform a remedy.

5.2.4. Re-Award. The Director may award the cancelled contract to the next lowest responsible bidder (or next highest scoring bidder if best value procurement) without a subsequent solicitation if the following conditions are met:

5.2.4.a. The next lowest responsible bidder (or next highest scoring bidder if best value procurement) is able to perform at the price contained in its original bid submission, and

5.2.4.b. The contract is an open-end contract, a one-time purchase contract, or a contract for work which has not yet commenced.

Award to the next lowest responsible bidder (or next highest scoring bidder if best value procurement) will not be an option if the vendor's failure has in any way increased or significantly changed the scope of the original contract. The vendor failing to honor contractual and legal obligations is responsible for any increase in cost the state incurs as a result of the re-award.

5.3. Non-Responsible. If the Director believes that a vendor may be non-responsible, the Director may request that a vendor or spending unit provide evidence that the vendor either does or does not have the capability to fully perform the contract requirements, and the integrity and reliability necessary to assure good faith performance. If the Director determines that the vendor is non-responsible, the Director shall reject that vendor's bid and shall not award the contract to that vendor. A determination of non-responsibility must be evaluated on a case-by-case basis and can only be made after the vendor in question has submitted a bid. A determination of non-responsibility will only extend to the contract for which the vendor has submitted a bid and does not operate as a bar against submitting future bids.

5.4. Suspension.

5.4.1. The Director may suspend, for a period not to exceed 1 year, the right of a vendor to bid on procurements issued by the Purchasing Division or any state spending unit under its authority if:

5.4.1.a. The vendor has submitted a bid and then requested that its bid be withdrawn after bids have been publicly opened.

5.4.1.b. The vendor has exhibited poor performance in fulfilling his or her contractual obligations to the State. Poor performance includes, but is not limited to any of the following: violations of law, regulation, or ordinance; failure to deliver timely; failure to deliver quantities ordered; poor performance reports; or failure to deliver commodities, services, or printing at the quality level required by the contract.

5.4.1.c. The vendor has breached a contract issued by the Purchasing Division or any state spending unit under its authority and refuses to remedy that breach.

5.4.1.d. The vendor's actions have given rise to one or more of the grounds for debarment listed in W. Va. Code § 5A-3-33d.

5.4.2. Vendor suspension for the reasons listed in section 5.4 above shall occur as follows:

5.4.2.a. Upon a determination by the Director that a suspension is warranted, the Director will serve a notice of suspension to the vendor.

5.4.2.b. A notice of suspension must inform the vendor:

5.4.2.b.1. Of the grounds for the suspension;

5.4.2.b.2. Of the duration of the suspension;

5.4.2.b.3. Of the right to request a hearing contesting the suspension;

5.4.2.b.4. That a request for a hearing must be served on the Director no later than 5 working days of the vendor's receipt of the notice of suspension;

5.4.2.b.5. That the vendor's failure to request a hearing no later than 5 working days of the receipt of the notice of suspension will be deemed a waiver of the right to a hearing and result in the automatic enforcement of the suspension without further notice or an opportunity to respond; and

5.4.2.b.6. That a request for a hearing must include an explanation of why the vendor believes the Director's asserted grounds for suspension do not apply and why the vendor should not be suspended.

5.4.2.c. A vendor's failure to serve a request for hearing on the Director no later than 5 working days of the vendor's receipt of the notice of suspension will be deemed a waiver of the right to a hearing and may result in the automatic enforcement of the suspension without further notice or an opportunity to respond.

5.4.2.d. A vendor who files a timely request for hearing but nevertheless fails to provide an explanation of why the asserted grounds for suspension are inapplicable or should not result in a suspension, may result in a denial of the vendor's hearing request.

5.4.2.e. Within 5 working days of receiving the vendor's request for a hearing, the Director will serve on the vendor a notice of hearing that includes the date, time and place of the hearing.

5.4.2.f. The hearing will be recorded and an official record prepared. Within 10 working days of the conclusion of the hearing, the Director will issue and serve on the vendor, a written decision either confirming or reversing the suspension.

5.4.3. A vendor may appeal a decision of the Director to the Secretary of the Department of Administration. The appeal must be in writing and served on the Secretary no later than 5 working days of receipt of the Director's decision.

5.4.4. The Secretary, or his or her designee, will schedule an appeal hearing and serve on the vendor, a notice of hearing that includes the date, time and place of the hearing. The appeal hearing will be recorded and an official record prepared. Within 10 working days of the conclusion of the appeal hearing, the Secretary will issue and serve on the vendor a written decision either confirming or reversing the suspension.

5.4.5. Any notice or service related to suspension actions or proceedings must be provided by certified mail, return receipt requested.

5.5. Vendor Debarment. The Director may debar a vendor on the basis of one or more of the grounds for debarment contained in W. Va. Code § 5A-3-33d or if the vendor has been declared ineligible to participate in procurement related activities under federal laws and regulation.

5.5.1. Debarment proceedings shall be conducted in accordance with W. Va. Code § 5A-3-33e and these rules. A vendor that has received notice of the proposed debarment by certified mail, return receipt requested, must respond to the proposed debarment within 30 working days after receipt of notice or the debarment will be instituted without further notice. A vendor is deemed to have received notice, notwithstanding the vendor's failure to accept the certified mail, if the letter is addressed to the vendor at its last known address. After considering the matter and reaching a decision, the Director shall notify the vendor of his or her decision by certified mail, return receipt requested.

5.5.2. Any vendor, other than a vendor prohibited from participating in federal procurement, undergoing debarment proceedings is permitted to continue participating in the state's procurement process until a final debarment decision has been reached. Any contract that a debarred vendor obtains prior to a final debarment decision shall remain in effect for the current term, but may not be extended or renewed. Notwithstanding the foregoing, the Director may cancel a contract held by a debarred vendor if the Director determines, in his or her sole discretion, that doing so is in the best interest of the State. A vendor prohibited from participating in federal procurement will not be permitted to participate in the state's procurement process during debarment proceedings.

5.5.3. If the Director's final debarment decision is that debarment is warranted and notice of the final debarment decision is mailed, the Purchasing Division shall reject any bid submitted by the debarred vendor, including any bid submitted prior to the final debarment decision if that bid has not yet been accepted and a contract consummated.

5.5.4. Pursuant to W.Va. Code § 5A-3-33e(e), the length of the debarment period will be specified in the debarment decision and will be for a period of time that the Director finds necessary and proper to protect the public from an irresponsible vendor.

5.5.5. List of Debarred Vendors. The Director shall maintain and publicly post a list of debarred vendors on the Purchasing Division's website.

5.5.6. Related Party Debarment. The Director may pursue debarment of a related party at the

same time that debarment of the original vendor is proceeding or at any time thereafter that the Director determines a related party debarment is warranted. Any entity that fails to provide the Director with full, complete, and accurate information requested by the Director to determine related party status will be presumed to be a related party subject to debarment.

5.6. Damages.

5.6.1. A vendor who fails to perform as required under a contract shall be liable for actual damages and costs incurred by the state.

5.6.2. If any commodities delivered under a contract have been used or consumed by a spending unit and on testing the commodities are found not to comply with specifications, no payment may be approved by the Spending Unit for the merchandise until the amount of actual damages incurred has been determined.

5.6.3. The Spending Unit shall seek to collect damages by following the procedures established by the Office of the Attorney General for the collection of delinquent obligations.

Credits

History: Filed 4-1-19, eff. 4-1-19; Filed 4-16-21, eff. 5-1-21.

Current through register dated May 7, 2021. Some sections may be more current. See credits for details.
W. Va. C.S.R. § 148-1-5, WV ADC § 148-1-5

EXHIBIT B To:
REQUIRED CONTRACT PROVISIONS FOR NON-FEDERAL ENTITY CONTRACTS UNDER FEDERAL AWARDS (2 C.F.R. § 200.317):

Prevailing Wage Determination

[ ] – Not Applicable Because Contract Not for Construction

[ ] – Federal Prevailing Wage Determination on Next Page

Business Continuity & Disaster Recovery Policy

Contents

1. Objective

The objective of this policy is to provide guidelines for Elixir Lab USA Inc.'s business continuity and disaster recovery. The document prescribes the requirements to plan for recovery during disasters so that business commitments to customers can always be met.

2. Scope

This document is applicable to all processes and operations in Elixir Lab USA Inc. within the scope of the ISMS.

3. Policy statement

Elixir Lab USA Inc. is committed to ensuring the highest level of service to its customers. Thus continuity of operations in a secure manner must be planned for and embedded in the organization's business continuity management and disaster recovery planning activities.

4. Information Security Aspect of Business Continuity Management

4.1 Information Security Continuity

4.1.1 Planning Information Security Continuity

- The organization-wide Information security processes shall include Information Security requirements to help ensure that confidentiality, integrity, and availability of critical information assets shall be preserved even in the event of a business disruption or disaster.
- Elixir Lab USA Inc. shall identify recovery guidelines that can be taken as a baseline reference to classify mission-critical systems and develop recovery and restoration plans.
- A strategy plan shall be developed for the overall business continuity/disaster recovery approach. Information security controls applicable during BAU (Business as usual) scenarios shall be relevant even during disaster scenarios. All exceptions shall need approval from the Information Security Officer and senior management.

4.1.2 Implementing Information Security Continuity

- Elixir Lab USA Inc. shall ensure that an adequate framework is in place to prepare for, mitigate, and respond to a disruptive event using personnel with the necessary authority, experience, and competence.

- Elixir Lab USA Inc. shall identify personnel with the necessary responsibility, authority, and competence to manage an incident and maintain information security.
- Elixir Lab USA Inc. should consider the development and approval of comprehensive and well-documented plans, response strategies, and recovery procedures to effectively manage and mitigate the impact of any potential disruptive event.

4.1.3 Verify, Review & Evaluate Information Security Continuity

- Information security controls for all business continuity sites and systems shall be reviewed and verified. Business continuity plans shall be tested and updated regularly to ensure they are up-to-date and effective.
- The roles and responsibilities for both information systems' contingency planning and recovery shall be reviewed and updated at least annually.

4.2 Redundancies

- Elixir Lab USA Inc. shall identify business requirements for the availability of information systems.
- Redundant components or architectures shall be considered wherever availability cannot be guaranteed using the existing systems architecture.
- Redundant information systems shall be tested to ensure the successful failover from one component to another.

5. Document Security Classification

Company Internal (please refer to the Data Classification policy for more details).

6. Non-Compliance

Compliance with this policy shall be verified through various methods, including but not limited to automated reporting, audits, and feedback to the policy owner. Any staff member found to be in violation of this policy may be subject to disciplinary action, up to and including termination of employment or contractual agreement. The disciplinary action shall depend on the extent, intent, and repercussions of the specific violation.

7. Responsibilities

The Information Security Officer is responsible for approving and reviewing policy and related procedures. Supporting functions, departments, and staff members shall be responsible for implementing the relevant sections of the policy in their area of operation.

8. Schedule

This document shall be reviewed annually and whenever significant changes occur in the organization.

End of Business Continuity & Disaster Recovery Policy. For version history, please see the next page.

Version history

Version	Log	Date
	No version history available	

Business Continuity Plan

Contents

1. Objective

The objective of this business continuity plan is to prepare Elixir Lab USA Inc. in the event of extended service outages caused by factors beyond our control (e.g., natural disasters, man-made events), and to restore services to the widest extent possible within an acceptable time frame.

2. Scope

The scope of this plan is limited to business continuity and disaster recovery of Elixir Lab USA Inc.'s production infrastructure.

3. Plan Objectives

- Serves as a guide for the recovery teams of Elixir Lab USA Inc..
- References and points to the location of critical data.
- Provides procedures and resources needed to assist in recovery.
- Identifies vendors and customers that must be notified in the event of a disaster.
- Assists in avoiding confusion experienced during a crisis by documenting, testing, and reviewing recovery procedures.

4. Assumptions

- Key people (team leaders or alternates) will be available following a disaster.
- A national disaster such as a nuclear war is beyond the scope of this plan.
- This document and all vital records are stored in a secure off-site location and not only survive the disaster but are accessible immediately following the disaster.
- Each support organization will have its own plan consisting of unique recovery procedures, critical resource information, and procedures.

5. Disaster Definition

Any loss of utility service (power, water), connectivity (system sites), or catastrophic event (weather, natural disaster, vandalism) that causes an interruption in the service provided by Elixir Lab USA Inc. operations. The plan identifies vulnerabilities and recommends measures to prevent extended service outages.

6. Preparation for Disaster Recovery & Business Continuity

- It is essential that frequent backups are taken, and backups are stored at a redundant location to facilitate restoration in case of a disaster.

- A backup restoration exercise should be performed by the Infra Operations Person with help from the engineering team.
- The Information Security Officer should ensure that a disaster recovery mock drill is conducted by the Engineering team, which will then allow them to invoke this plan effectively. This exercise may be a tabletop exercise based on the availability commitments.
- If required, through the disaster recovery exercise, the Engineering team should evaluate the following:
    - Recovery time objective
    - Recovery point objective

7. Instructions for Using the Plan

7.1 Invoking the Plan

This plan becomes effective when a disaster occurs.

7.2 Disaster Declaration

The Information Security Officer and/or Engineering Head is responsible for declaring a disaster and activating the various recovery teams as outlined in this plan.

In a major disaster situation affecting multiple business units, the decision to declare a disaster will be determined by senior management. The Engineering Team will respond based on the directives specified by senior management.

7.3 Plan Review & Maintenance

This document and the disaster recovery mock drill must be reviewed at least once annually.

7.4 Notification of Incident/Disaster

- In cases of technical incidents, the Infra Operations Person/On-Call Engineer personnel should contact the Information Security Officer.
- For any operational incident, it is the responsibility of the user/employee to report it as soon as possible through Sprinto App and/or other means like e-mail or telephone, as applicable.
- The Information Security Officer should be notified promptly when any of the following conditions exist:
    - Any server is down for three or more hours.
    - Any problem at any system that would cause the above condition to be present or there is a certain indication that the above condition is about to occur.
- The Information Security Officer should contact the respective Elixir Lab USA Inc. Business heads and report that a disaster has taken place.

- Once a disaster has been declared, it must follow the incident management procedure and change management procedures while trying to bring back the availability of services.
- Declare a disaster only if the situation is not likely to be resolved within predefined time frames. The person who is authorized to declare a disaster must also have at least one backup person who is also authorized to declare a disaster in the event the primary person is unavailable.
- It is the responsibility of the Information Security Officer to ensure the event of a disaster and the successful recovery are communicated to relevant stakeholders, customers, and regulatory bodies as applicable.

8. Document Security Classification

Company Internal (please refer to the Data Classification policy for details).

9. Non-Compliance

Compliance with this policy shall be verified through various methods, including but not limited to automated reporting, audits, and feedback to the policy owner. Any staff member found to be in violation of this policy may be subject to disciplinary action, up to and including termination of employment or contractual agreement. The disciplinary action shall depend on the extent, intent, and repercussions of the specific violation.

10. Responsibilities

The Information Security Officer is responsible for approving and reviewing policy and related procedures. Supporting functions, departments, and staff members shall be responsible for implementing the relevant sections of the policy in their area of operation.

11. Schedule

This document shall be reviewed annually and whenever significant changes occur in the organization.

End of Business Continuity Plan. For version history, please see the next page.

Version history

Version	Log	Date
	No version history available	

Child Welfare Mobile Application Communication Software

RFP Number : CRFP 0511 BSS2500000001

Cardinality's Technical Response to West Virginia Department of Human Services

Child Welfare Mobile Application Communication Software RFP

Submitted by	**Submitted to**
Elixir Lab USA Inc (d/b/a Cardinality.ai) 267 Kentlands Boulevard Suite #5092 Gaithersburg, MD 20878 Email: sales@cardyai.com www.Cardyai.com	Crystal Hustead 2019 Washington Street, East Charleston, WV 25305 Fax: (304) 558-3970 Email: crystal.g.hustead@wv.gov

Cardinality.ai

This proposal contains information that shall not be disclosed by the customer and shall not be duplicated, used, or disclosed in whole or in part for any reason other than to evaluate this proposal. If, however, a contract is awarded to Elixir Lab USA Inc as a result of or in connection with the submission of this proposal, the customer shall have the right to duplicate, use, or disclose the data to the extent provided

Title page

RFP subject number	:	Request for Proposal. CRFP 0511 BSS2500000001
Vendor's name	:	Elixir Lab USA Inc. d/b/a Cardinality.ai
Business address	:	267 Kentlands Boulevard Suite #5092, Gaithersburg, MD 20878
Telephone number	:	(513) 907-1068
Name of contact person	:	Anna Harper, Chief Administrative Officer
E-mail address	:	sales@cardyai.com

Vendor signature:

06-Feb-2025
Date

Table of Contents

1. Cover letter

Kind Attn.: Crystal Hustead - Purchasing Division **February 6, 2025**
West Virginia state

Dear Crystal Hustead,

RE: Cardinality's response to **RFP CRFP 0511 BSS2500000001** for Child Welfare Mobile Application Communication Software

Cardinality.ai (Cardinality) is pleased to submit this response to the RFP# **CRFP 0511 BSS2500000001** for the West Virginia Department of Human services. Based on the scope of work provided, Cardinality will demonstrate how the features and capabilities of our pre-built **EmpowerFamily Child Welfare (EF-CW)** solution are uniquely aligned with the needs of the WV Mobile Application communication Software **(WV-MACS)**.

Cardinality offers a **modern and secured SaaS solution built on a low code platform purpose-built for Government.** The **Communications module** of our **Comprehensive EF-CW solution** will be configured as the new external facing portal enabling bi-directional data exchanges with the PATH system to improve the communication experience. The **WV-MACS** solution provides **intuitive user experience** effectively **reducing training efforts and increasing user adoption**. Our solution is pre-built to facilitate rapid modernization with minimal customization requirements and leverages **modern technologies like AI, rules engine, workflows designers,** etc. to provide high degree of **automation and program integrity**. It will be delivered as a Software-as-a-Service (**SaaS**) model, freeing up agency IT staff to better support agency operations. This also facilitates perpetual access to cutting-edge technology without the burden of ownership. The solution comes with **dashboards and reports out-of-the box along with the self-serve capabilities** that will empower users to get access to additional reports and metrics easily.

Cardinality is excited to collaborate with **Cyquent Inc.** on this project, with Cardinality serving as the Prime Contractor and Cyquent as the Sub-contractor, together referred to as **Team Cardinality**. Cardinality, as the **solution provider**, will lead the implementation with a focus on project management, configuration, customization, Integration, and deployment. Cyquent, **a leading IT strategic services provider**, enhances the team's capabilities by prioritizing Testing and Post implementation support.

Cardinality has previously submitted our response to RFI# CRFI 0511 BSS2300000001, released in 2023 for a web-based communication system and have successfully conducted our product demonstration with WV DHS, highlighting the capabilities of our solution.

Within this proposal response, Team Cardinality will share how the features and functionality of our low code Empower platform meet all West Virginia DHS requirements. We value this opportunity to submit our proposal and are excited about the possibility of collaborating with WV DHS. Should you have any questions or require further information, please do not hesitate to contact me at **317-629-7054** or sales@cardyai.com.

Best Regards,

Kevin Jones

Kevin Jones, Chief Operating Officer (COO)
Elixir Lab USA Inc. (d/b/a Cardinality.ai)

2. Executive Summary

Team Cardinality fully supports the West Virginia Department of Human Services (WV DHS) in enhancing communication and collaboration among stakeholders to strengthen the State's foster care system. The agency's need for the **WV-MACS Mobile Application Communication Software** is met by deploying the **communication module** of our pre-built **EmpowerFamily Child Welfare (EF-CW)** solution, integrated with our innovative **Gap-based implementation** model. With a track record of successful implementations across multiple states, Team Cardinality is confident in our ability to deliver a cloud-based and modular solution on time and within budget. Built on EmpowerPlatform—the only low-code platform purpose-built for government agencies—it is uniquely designed to align with the needs of the Child Welfare Mobile Application Communication project.

Our solution, developed in collaboration with experts in Health and Human Services (HHS) and Children and Family Services, is shaped by strategic partnerships and tailored specifically to meet the needs of WV DHS. Our partnership with SanMar, a nonprofit organization focused on family and community services in Maryland, has further strengthened our solution. Our successful implementation of EF-CW and EF-CWFC for state agencies in Indiana, Maryland, Hawaii, and Georgia further establishes Team Cardinality as a trusted and experienced partner for WV DHS.

With Cardinality, the agency will be empowered with the unparalleled flexibility to bring specific functionality live while coexisting with legacy systems, due to the inherent modularity of our system. We demonstrated this flexibility and modularity in Georgia with our Foster Care portals. The pilot was launched within 3 months of kickoff and went live statewide within 6 months, all while coexisting with the legacy SHINES system.

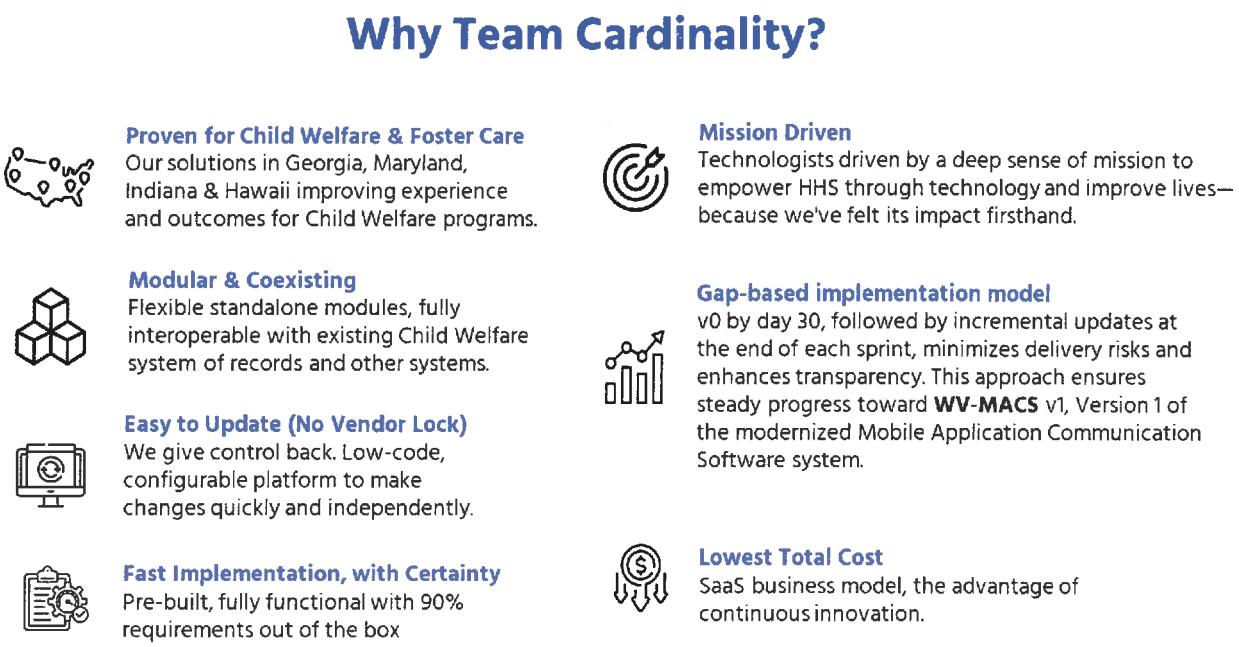

Figure 1: Team Cardinality's Key Differentiators

Our goal is not only to empower the agency workers after go-live but also during the implementation using our gap-based implementation model that provides v0 within 30 days and incremental versions every sprint, reducing risk while also providing ongoing support throughout the life of the solution.

Cardinality's **WV-MACS** solution offers a high degree of configurability and ease of updates to enable the solution to evolve with DHS's unique and changing needs. We do all of this while providing the lowest total cost of ownership. Our pre-built solution and innovative gap-based implementation model are designed to serve you better so that you can better serve children and families living in the State of West Virginia. This gap-based implementation model, with incremental releases at the end of each sprint, will significantly reduce delivery risks while maintaining transparency in our progress toward the go-live milestone.

We, **Team Cardinality,** consist of **Cardinality.ai**, and **Cyquent Inc. (MBE)**. Cardinality is the solution provider and will implement the necessary functionality by leveraging our pre-built EF-CW solution, while Cyquent Inc. is our trusted partner for delivering the necessary IT services, smooth project implementation, and ongoing maintenance. Our team's mission aligns well with the WV DHS's goal of enhancing the State's foster care system.

Our Understanding of the Scope of Work

Cardinality recognizes that the Agency's initiative is a comprehensive effort to modernize and enhance the child welfare system through the development of a secure, external-facing self-service portal. Our **WV-MACS** solution serves as the central hub for collaboration among caseworkers, foster parents, biological guardians, CPAs, SNS providers, and MDT members. The WV-MACS solution is designed to streamline communication, facilitate secure document sharing and management, integrate real-time data with the existing PATH system, and offer robust scheduling and reporting capabilities.

The acquisition of a WV-MACS solution is set to optimize outcomes, streamline operations, and enhance collaboration through the following key objectives:

- **Strengthens Communication & Collaboration: Cardinality's WV-MACS solution** built on Empower Platform offers a secure, role-based access portal where authorized users can log in and interact with case-related data. The system provides intuitive interfaces for viewing court documents, case plans, and for electronically signing forms. It utilizes robust encryption protocols for all user interactions, ensuring that every session is protected, and that sensitive data remains confidential throughout its lifecycle.
- **Optimizes Document Management:** The solution is designed with advanced document management capabilities that support both uploading and downloading of critical case documents. Built-in validation features prompt users to verify details—such as confirming that the correct file is being associated with the appropriate case—thereby reducing the risk of human error. Version control and audit trails are also available, so every document upload, update, or download is tracked and documented for accountability and accuracy.
- **Integrates with Existing Systems:** Cardinality's solution incorporates secure APIs that facilitate two-way data sharing with the PATH system. This integration means that any updates in case information on one system are immediately reflected in the other, eliminating the need for duplicate data entry. The integration architecture is modular, which allows for flexibility and scalability, while maintaining data consistency across platforms.
- **Supports Comprehensive Scheduling:** The solution features a robust calendar module that supports various types of appointments, including visitation sessions, SNS appointments, court dates, and MDT meetings. Users can schedule, reschedule, and view appointments within an

integrated dashboard. Automated reminders and notifications are part of the system's capabilities, which helps coordinate events and minimizes the risk of scheduling conflicts or missed appointments.

- **Delivers Actionable Analytics and Reporting:** MicroStrategy, an integrated analytics engine within WV-MACS provides real-time dashboards and the ability to generate scheduled reports. These tools allow the Agency to monitor team responsiveness, track case updates, and obtain insights into overall system performance. Customizable reporting features enable stakeholders to focus on key performance indicators, thereby supporting data-driven decision-making across the child welfare system.
- **Adheres to Regulatory and Hosting Standards:** Cardinality's solution is deployed in AWS GovCloud within the U.S. data centers that comply with all applicable regulatory and data security standards. Regular security audits and compliance checks are conducted, and the solution is supported by multiple non-production environments for development, testing, and staging purposes.

Through the execution and successful delivery of this solution, WV DHS can expect to achieve:

Digital Transformation and Modernization

- **Comprehensive Digital Modernization**: Leverage our low-code platform, electronic document management system, and AI-powered automation to eliminate inefficiencies, reduce paper usage, and enhance customer service.
- **Cloud-Powered Efficiency**: Leverage AWS cloud infrastructure and AI-driven analytics to enhance program tasks, streamline workflows, and deliver real-time data access, improving decision-making and outcomes for children.
- **Faster, Cost-effective Implementation**: Get 70% of your listed requirements out-of-the-box, 30% met with configurations & customizations - ensuring implementation on time and within the budget.

Enhanced Decision Making and Outcomes

- **Data Driven Decision Making**: Nudges, Recommendations, and Insights powered by Cardy AI, our responsible and explainable AI engine, improve & accelerate outcomes while being trustworthy.
- **Optimize Workload**: Real-time dashboards show caseworker workload, allowing for optimal resource allocation and prioritization of urgent cases. Automated nudges and reminders drive timely and effective actions and outcomes.

Efficient Case Management

- **Efficient Case Management**: Dynamic workflows by case type, automated data collection, case and person correlation, and pre-filled forms to reduce errors and improve efficiency.
- **Improved Caseworker Efficacy**: Accelerates caseworker adoption through an intuitive and AI-enabled interface, minimizing training needs. Additionally, features like speech-to-text, document digitization, and offline access enhance speed and convenience.
- **Accurate Data Entry**: Real-time validations, mandatory field indicators, and third-party address verification ensure that every piece of information is validated.

Secure and Compliant Operations

- **Secure and Accountable**: FedRAMP-ready security standards, with strong data & API encryption methods and protocols. RBAC ensures only authorized access, and a comprehensive audit trail framework ensures accountability.
- **Compliance Assurance**: Pre-built solution & workflows that meet Federal guidelines and FFP eligibility, with out-of-the-box reports and audit mechanisms for compliance.
- **Ownership and Control**: Own your configurations and data, stored in SQL-based data structures, with 100% access without dependency. Also, full access to source code for security reviews and emergency updates. No forced updates with our flexible deployment planning that involves the agency.

Configurability and Self-Service

- **Configurable and Modular Architecture**: Easily add or modify forms, workflows, preferences, role-based access controls, appearance, and more to fit your evolving needs. Integrates securely with other WV DHS external systems through APIs.
- **Self-Service Empowerment**: Secure portals for clients, providers, and legal resources offer streamlined access to case histories, essential documents, and support services, ensuring children and families stay informed and connected throughout their interactions with the agency.
- **Empower your Workforce with Out-of-the-Box KMS / LMS:** Cardinality's integrated KMS/LMS fosters continuous learning and provides immediate access to critical knowledge, keeping your team skilled and informed.

The Solution: WV-MACS (Communication module of EF-CW Solution)

After a comprehensive review of WV DHS's goals, Team Cardinality is excited to propose configuring the Communication module of our pre-built EmpowerFamily Child Welfare (EF-CW) Solution, built on a low-code Empower platform, to meet DHS specific needs as shown in Figure 2.

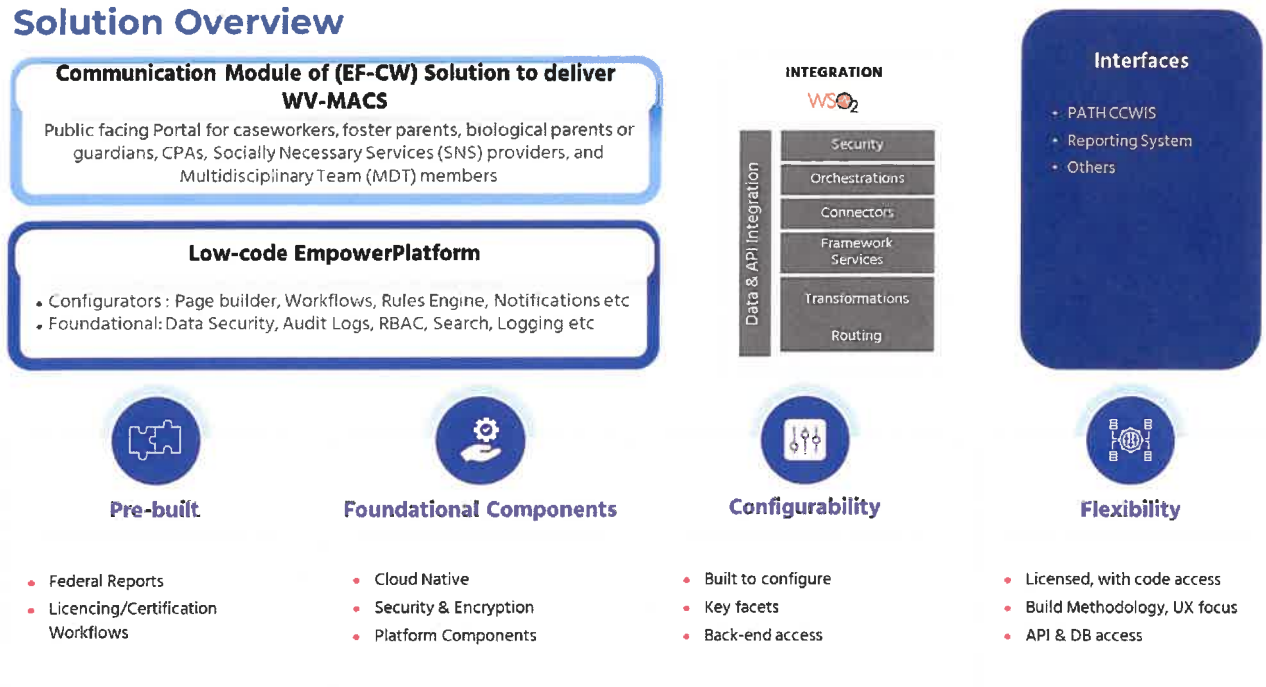

Figure 2: Solution Overview - WV MACS

Designed to foster efficient communication, improve stakeholder collaboration, and maintain data integrity, the WV-MACS solution is uniquely positioned to deliver transformative value to WV DHS. Our solution meets the outlined requirements through key features:

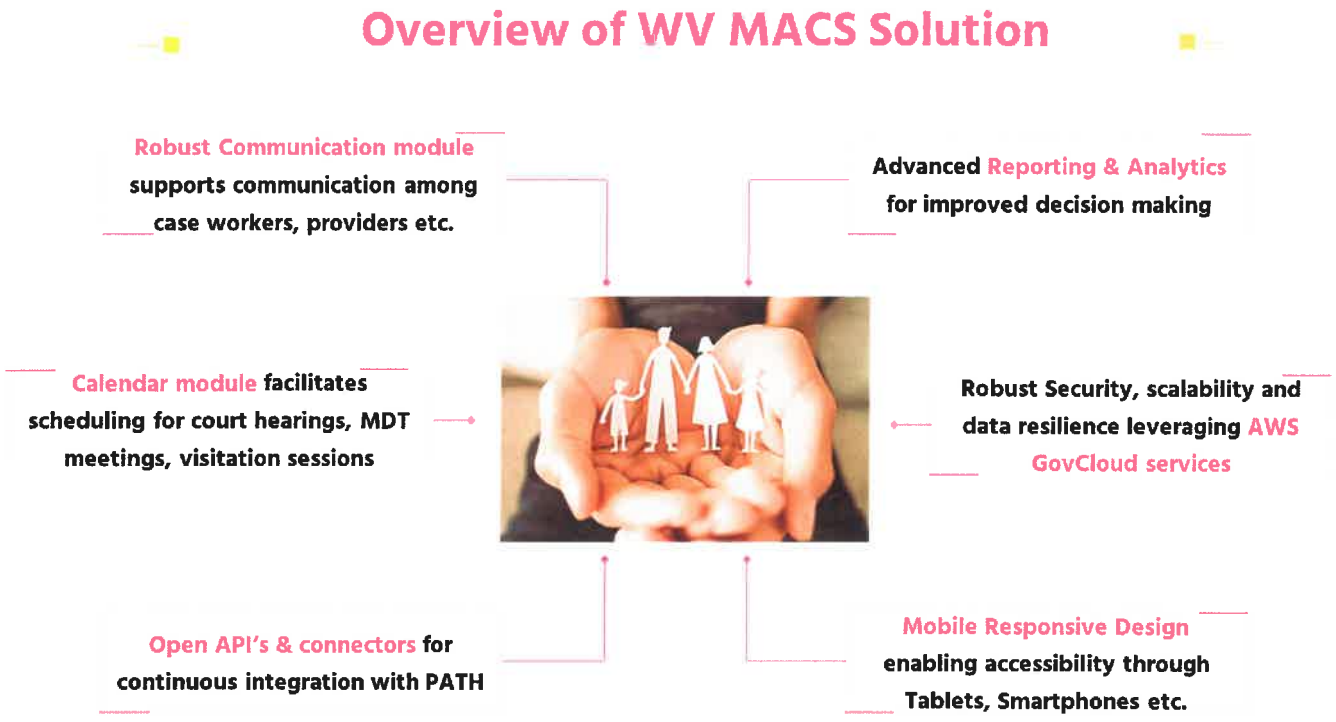

Figure 3: Key features of WV-MACS solution

Experience delivering similar scope of work:

Implementation in Georgia DHS: Team Cardinality has successfully implemented an exact solution in Georgia, delivering substantial results within a short timeframe. Our foster care provider management solution and self-serve portals for multi-channel communication between various stakeholders, for the Georgia Department of Human Services (GA DHS) is an example of how our agile approach using EmpowerPlatform addressed legacy system gaps, enabling real-time data exchange. Phase 1 of an integrated portal for foster, biological parents and CASA volunteers was implemented in a record time of three months, with phase 2 and mobile app roll out in the next 5 months. Key statistics around number of users across different personas include:

- Biological Parents and Foster Parents: 2150+
- CASA Volunteers and Staff: 1220+
- Agency Worker: 970+

By September 2024, over 7,500 external users and more than 3,000 Georgia DHS caseworkers had been onboarded, enabling real-time digital communication and information sharing to enhance the safety and well-being of children.

Proven in Maryland: Cardinality's configurable low-code platform with multiple functional modules providing capabilities around workflows, assessments, analytics, APIs, etc. was leveraged to build a modern, intuitive & mobile-friendly Child, Juvenile & Adult Management System, components of which

were also leveraged by other applications that were being modernized. Maryland is one of only 4 states in the US which has achieved the CCWIS status. The program saw improved outcomes such as 70% reduction in cases with recurring child maltreatment, a 25% decrease in removals (per 1,000 children), and a commendable 22% reduction in post-reunification foster care re-entry a year after going live statewide.

Implementation Timeline:

The pre-built EF-CW solution, combined with our innovative gap-based implementation model, is designed to exceed WV DHS's needs and implementation expectations. This unique and proven model is tailored to address any functional gaps between WV DHS's specific requirements and our Solution's existing capabilities.

In the initial phase, we conduct in-depth discovery sessions to assess the unique needs and workflows of WV DHS, allowing us to identify and prioritize any functional gaps. Our incremental approach enables each sprint to focus on resolving and integrating these gaps, resulting in a comprehensive solution that fully aligns with WV DHS's operational and reporting requirements by the final release.

Anticipating that the project would kick off in April 2025, Team Cardinality will deliver the latest version, **EF-CW V2025.4.1**, to WV DHS within 30 days of project kickoff. This will serve as the baseline version for the modern West Virginia Mobile Application Communication Software **(WV-MACS v0).** This baseline version will be used for conducting discovery sessions, and gaps will be incrementally addressed using our gap-based implementation model.

EF-CW V2025.4.1 will serve as the **WV-MACS Version 0 (v0)**, and during Sprint 1, we will address some of the identified gaps and update v0 to v0.1, making incremental progress toward WV-MACS Version1 (v1), the planned go-live version. This iterative process will continue through each sprint, resulting in intermediate versions such as v0.2, v0.3, and so on. Throughout the DDI process, we will deliver incremental progress toward the go-live version, **WV-MACS v1** (WV DHS's modern Mobile Application Communication Software-Phase 1), which is targeted for completion by Aug 2025 and **WV-MACS v2 (Phase 2)** completion by Dec' 2025.

Our implementation follows a structured approach for both Phase 1 and Phase 2 deliverables:

- **Initiate & Discover:** In this phase, we will launch the project, engage with key stakeholders, and finalize detailed requirements to align all parties and facilitate a clear project roadmap.
- **Configure & System Integration:** During this phase, we will focus on Installation and Environmental setup, configuration & customization, Integration tasks will also be performed to enable smooth connectivity and data consistency across systems.
- **Testing and UAT:** Various testing activities will be initiated in parallel with Configure and System Integration activities, ending with User Acceptance Testing after each spring. These include but are not limited to Unit Testing, System Integration Testing, Regression Testing, Performance Testing, etc.
- **Training:** We will initiate various Training related activities, such as preparing training materials, training plans, etc., in parallel with other activities. The goal will be to provide comprehensive training to users, enabling them to be fully equipped and confident in using the new system effectively upon deployment.

- **Go-live:** Phase 1 will go-live within 5 months from contract start date and Phase 2 will go-live within 9 months from contract start date. Following the Go-Live, we will provide one month of hypercare support to enable an effortless user experience and smooth adoption of the modernized system. This focused support period will address any immediate post-launch needs, enabling users to be fully supported as they transition to the new system.

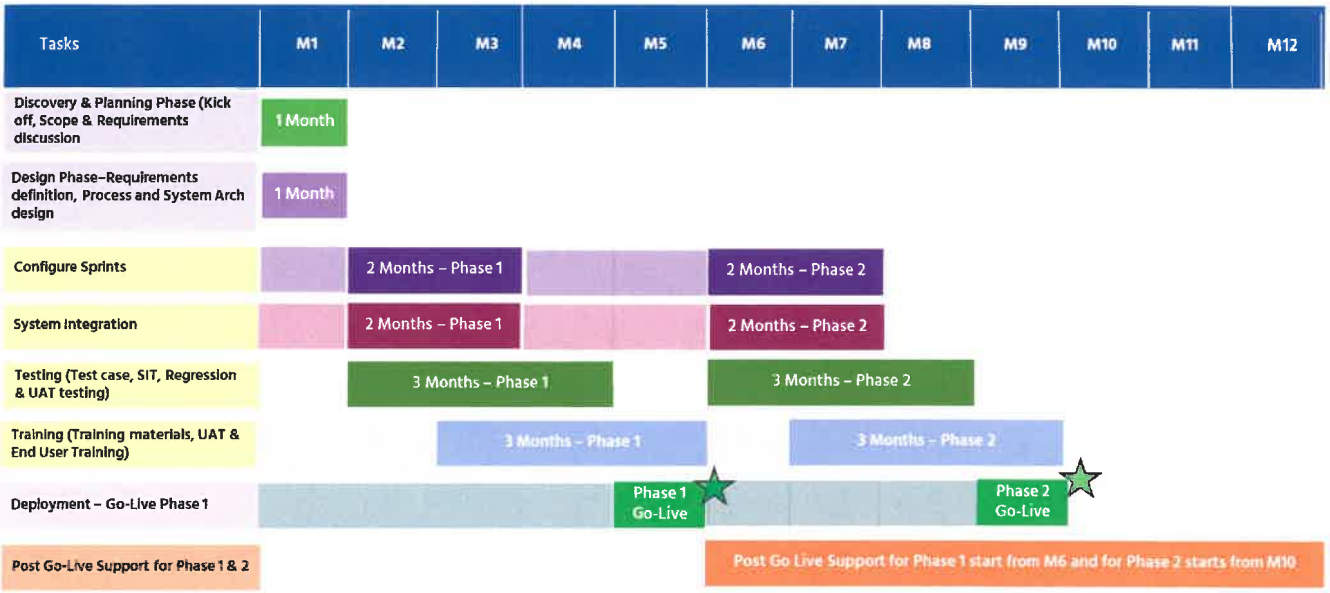

Figure 4: Implementation timeline

Key Personnel

Team Cardinality is committed to assembling a dynamic, skilled, and inclusive team to enable the successful delivery of the WV-MACS Solution for the West Virginia Department of Human Services (DHS). **Figure 5** below depicts the Organization chart of the proposed project team. The resumes of key personnel are available in the "**Resumes of Proposed Key Personnel**" section of this response document.

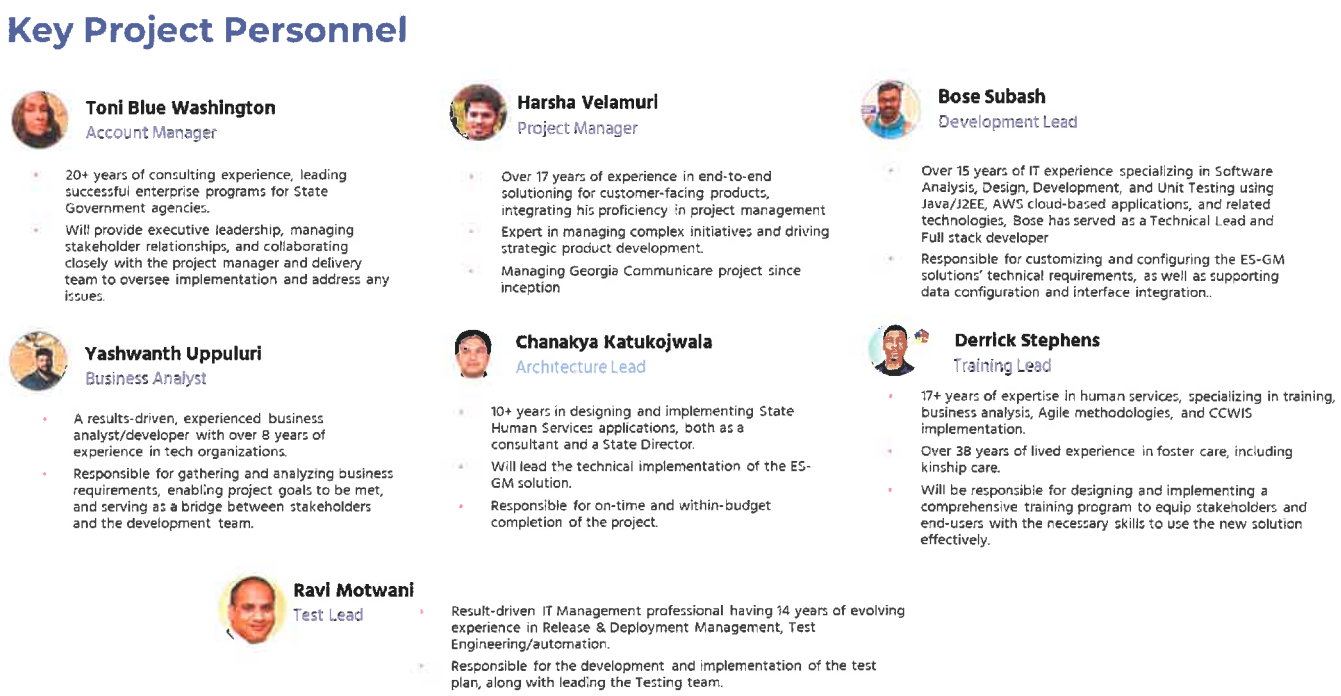

Figure 5: Organizational Chart - Proposed Project Team

Value Proposition:

The WV-MACS solution, built on the Empower Platform, stands out as the only low-code platform pre-built for government agencies. Our pre-built solution offers engaging and intuitive consumer-grade experiences, enabling DHS to deliver the right services to the right people at the right time. Partnering with Team Cardinality enables West Virginia DHS to achieve its goals reliably, cost-effectively, and in full compliance with regulations.

We bring invaluable experience from implementing similar solutions in states like Georgia, Maryland and Indiana, and are currently deploying solutions in states of Wyoming and Hawaii. Our ongoing success in assisting similar agencies demonstrates our capability in managing large projects within the evolving regulatory environment.

Our mission-driven approach, combined with an easy-to-configure and maintain solution, empowers agency staff to focus on child welfare processes efficiently and effectively. We achieve this through:

- **AI-powered (responsibly):** We enable our AI tool, Cardy AI, to be free from bias or detrimental decisions, and to remain accountable to humans. All critical decisions are reviewed manually, with algorithms that are easily understood and explainable.
- **Easy to Update (no vendor lock-in):** Unlike legacy vendors who build hard-coded software that necessitates engagement for every minor change, our configurable solution allows agencies to make changes quickly and independently—right when needed.
- **Intuitive (built for real people):** While most complex systems require weeks of training and can frustrate workers, our technology is designed by HHS for HHS. We know the daily

challenges faced by workers and have created a user experience that eliminates hurdles and helps them work faster and better every day. Our solution features an embedded AI assistant and 'how-to' videos, requiring no training at all and aligning with the way real HHS teams think and operate.

- **360 View Data Model & Data Sharing:** Our low code Empower Platform and Empower Family solutions are built on a robust data model and architecture designed to establish a smooth communication system to be used across the teams of people who support children in foster care. With secure, de-identified data sharing and insightful analytics, we will be able to empower your agency to gain a deeper understanding of the needs and experiences of the children and families you serve.

We are confident that our solution and implementation model strike the perfect balance between innovative features, flexibility, and a strong risk mitigation framework, facilitating a timely and budget-friendly solution for West Virginia DHS. As you delve deeper into our RFP response, our dedication and commitment towards DHS mission success will become increasingly evident. We eagerly anticipate partnering with you on this transformative journey.

Team Cardinality affirms its intention and willingness to enter into a contract with West Virginia DHS based on the proposal submitted in response to this RFP.

3. Response to Project Goals and Objectives (§ 4.2.1)

3.1 Authorized users to use the Solution to access information and documents and communicate through a secure connection. The intent of the portal is to allow authorized users of a foster child's case to see court documents, case plans, and other case related documents; and electronically sign forms (e.g., release forms) (RFP section 4.2.1.1.1)

Cardinality's WV-MACS solution provides a secure, role-based web portal that is optimized for mobile browsers, allowing authorized users to access case-specific information and documents. This solution is designed to interact with the PATH CCWIS system via secure APIs—preferably using WS02—to fetch the necessary child information in real time.

Key features include:

Secure Access and Document Viewing:

Authorized users—including caseworkers, foster parents, biological parents, service providers, and legal partners—can log in through a protected connection to view approved court documents, case plans, and other critical records. An advanced Electronic Document Management System (EDMS) organizes these documents by tagging them with relevant metadata (e.g., case ID, document type, timestamps) for efficient retrieval as shown in **Figure 6.**

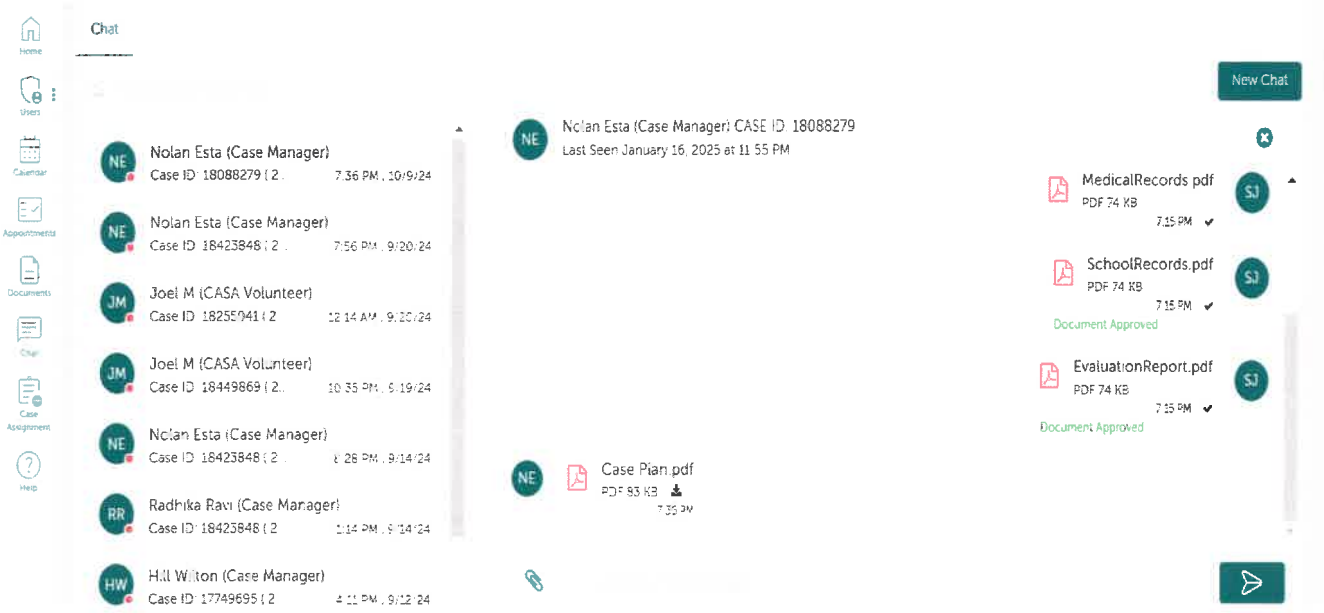

Figure 6: Communication module for real time collaboration

Robust Communication Module:

The platform includes a communication module that supports real-time collaboration among stakeholders. This module not only facilitates secure messaging and data sharing but also provides detailed contact information for responsible parties, ensuring coordinated decision-making across the child welfare process as shown in **Figure 7.**

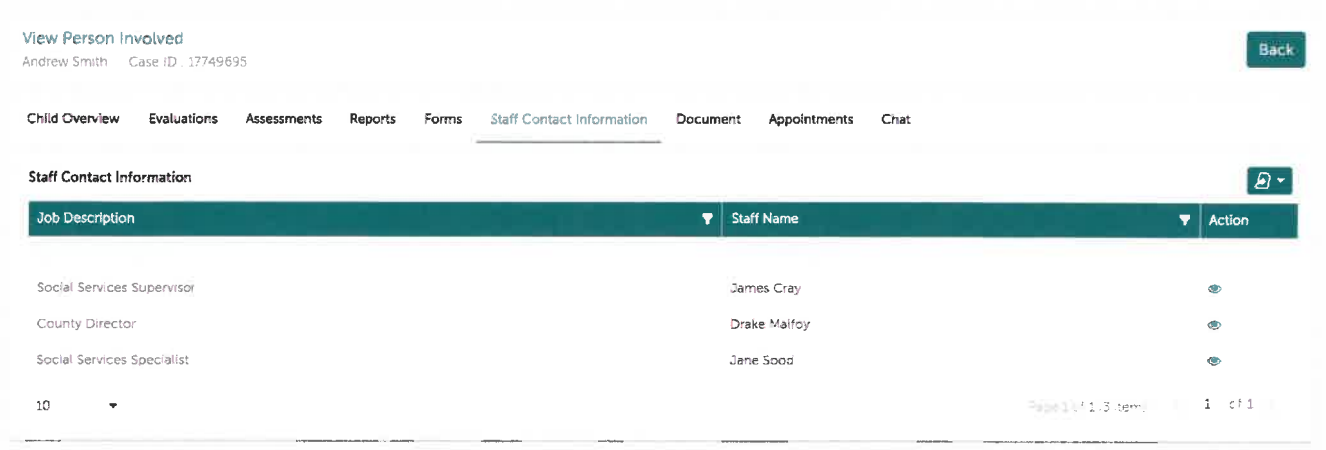

Figure 7: Contact information associated with the communication module

Electronic Form Management and Digital Signatures:

A configurable form builder is integrated into the solution, allowing users to create, manage, and electronically sign forms (e.g., release forms). Secure electronic signature frameworks and APIs are employed to simplify workflows and reduce paperwork while complying with regulatory standards.

Integration with PATH CCWIS:

The solution establishes a secure connection with the PATH CCWIS system using robust, API-based integration—preferably through WS02—allowing the portal to fetch up-to-date child information as required. This integration minimizes redundant data entry and streamlines the process for accessing critical case details.

Cardinality's WV-MACS solution delivers a user-friendly, secure web portal accessible via mobile browsers, with strong integration capabilities with the PATH system. This approach effectively supports the safe access, management, and sharing of foster care case information while enhancing collaboration among all stakeholders.

3.2 Authorized users to utilize the Solution to upload and download information. The intent is for the portal to allow collaboration and access to case records, appointments, and communication. ((RFP section 4.2.1.1.2)

The WV-MACS solution provides comprehensive capabilities for authorized users to upload, download, and manage case-specific information securely. At its core is an embedded **Enterprise Document Management System (EDMS)**, which allows tagging and packaging all related documentation for both current and future use. The EDMS includes archival, retrieval, and expunging capabilities and can integrate effortlessly with any Document Management System (DMS) chosen by the agency, either immediately or in the future. Utilizing AI-based document classification powered by Natural Language Processing (NLP) and Machine Learning (ML), the system automates the categorization of documents, reading both structured and unstructured data to assign accurate tags. This intelligent classification process addresses challenges such as scalability and manual errors, streamlining the document management process in case management applications. The EDMS lifecycle is depicted in **Figure 8.**

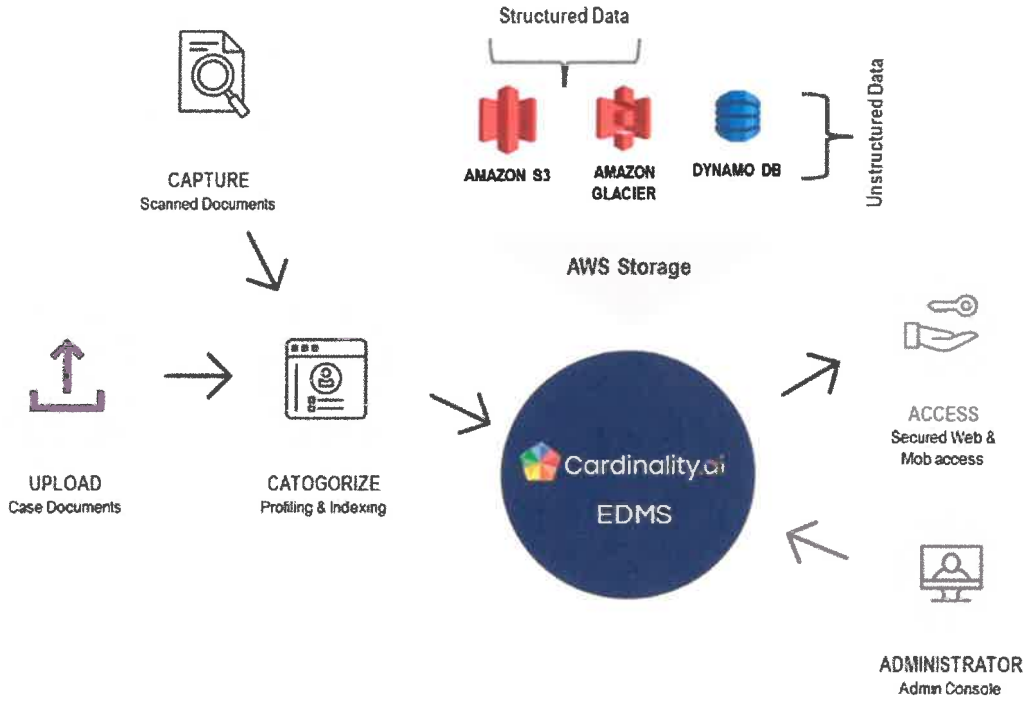

Figure 8: EDMS entire life cycle

The system supports document uploads in a variety of formats, including PDF, TIF, JPG, PNG, WAV, WMA, AAC, WMV, M4V, and Microsoft Office formats. Each uploaded document is enriched with customizable metadata fields such as title, category, sub-category, description, document type, author, and timestamp, facilitating efficient organization and searchability. The modular document upload component can be smoothly integrated with any business function or module, providing flexibility across the solution. Metadata provides additional context, enabling users to locate documents using keywords, chronology, or topic-based searches. The EDMS also supports secure digital storage, indexing documents by unique identifiers, creation time, author, and document thumbprints, facilitating traceability and accessibility.

In addition to document management, the case management module enhances collaboration by enabling authorized users to access case records and related documentation efficiently. The case management module will provide secure and efficient access to case records and related documentation, enabling the child welfare stakeholders to view, update, and share information as needed. This capability streamlines workflows and promotes smooth communication, enabling users to collaborate on case-related activities in real-time. By centralizing case records and integrating them with the existing CCWIS/PATH system, the module minimizes delays, reduces redundancies, and supports informed decision-making, ultimately enhancing the overall efficiency and effectiveness of case management in child welfare processes. **Figure 9** depicts the "Upload Screen" where case workers can upload the documents and **Figure 10** depicts how the cases are assigned to a case worker.

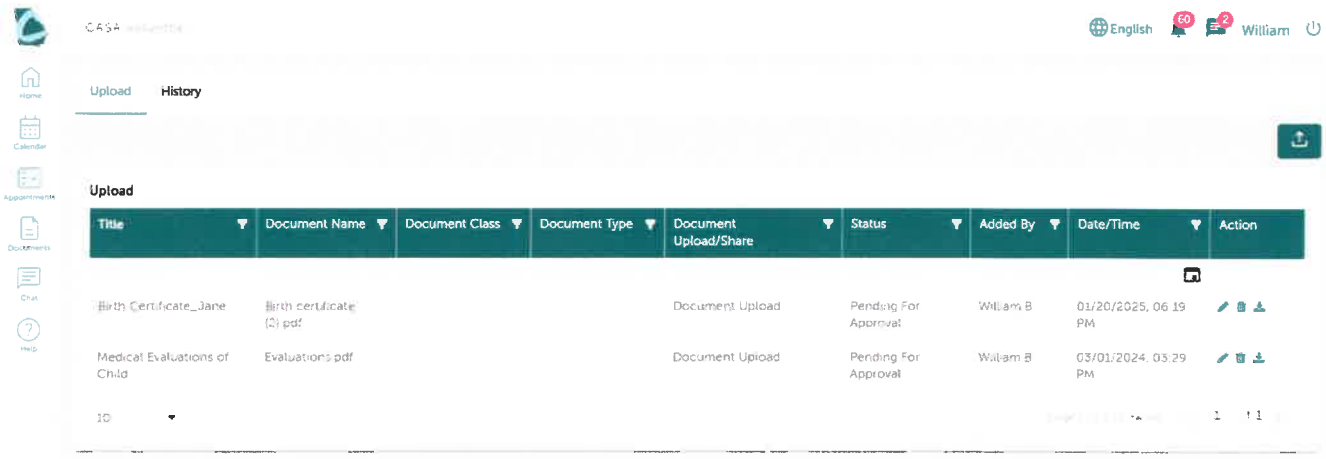

Figure 9: List of uploaded documents

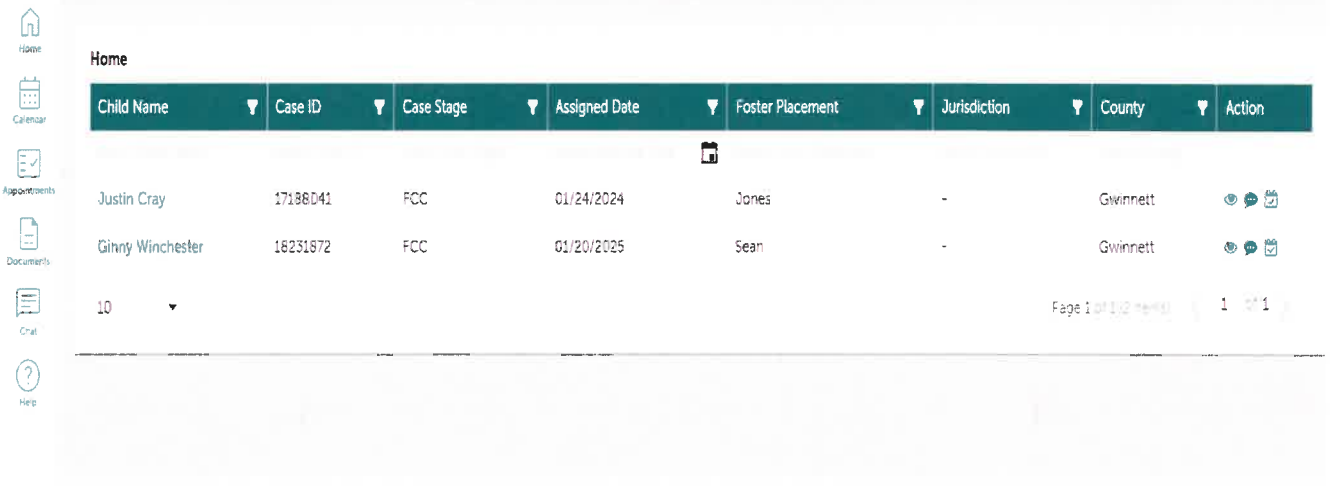

Figure 10: Assigned cases

The case management module of our solution includes a powerful Case Search feature designed to streamline the process of finding specific cases. Users can input search criteria such as case ID, client name, or other relevant parameters to quickly locate the desired case. The search results are displayed in a clear and organized format, enabling users to efficiently identify and access the relevant case records as shown in **Figure 11**. This functionality will save time, enhance productivity, and make sure that only authorized users can retrieve the necessary information promptly to support case-related activities and decision-making.

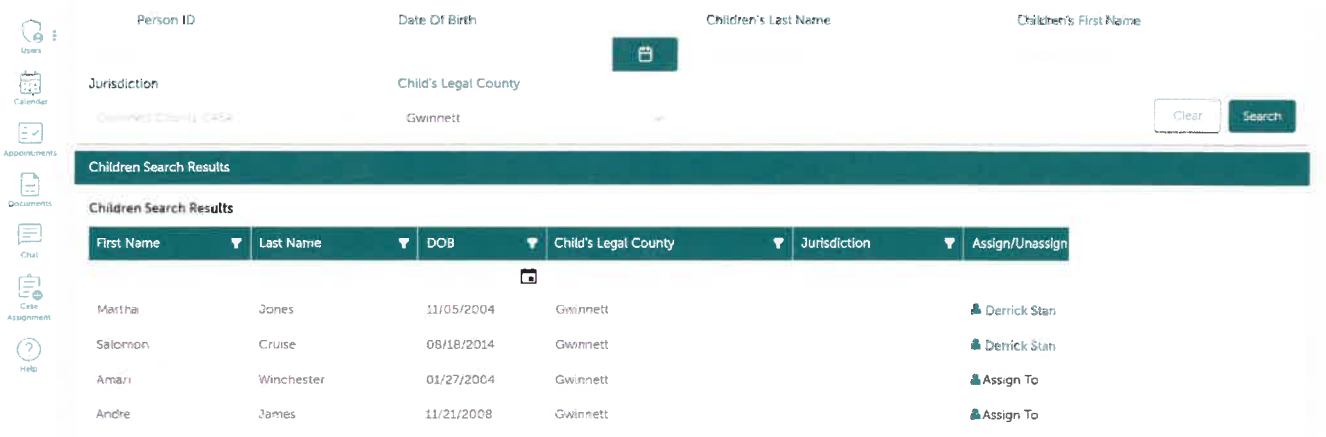

Figure 11: Case search feature

This enables caseworkers, foster parents, biological parents, multidisciplinary team (MDT) members, and other users to have a unified view of critical case details as shown in **Figure 12**. The scheduling module facilitates the management of appointments, such as court hearings, visitations, and team meetings, providing a centralized calendar for better coordination. Furthermore, the communication module allows secure, real-time collaboration between case participants, supporting smooth interaction.

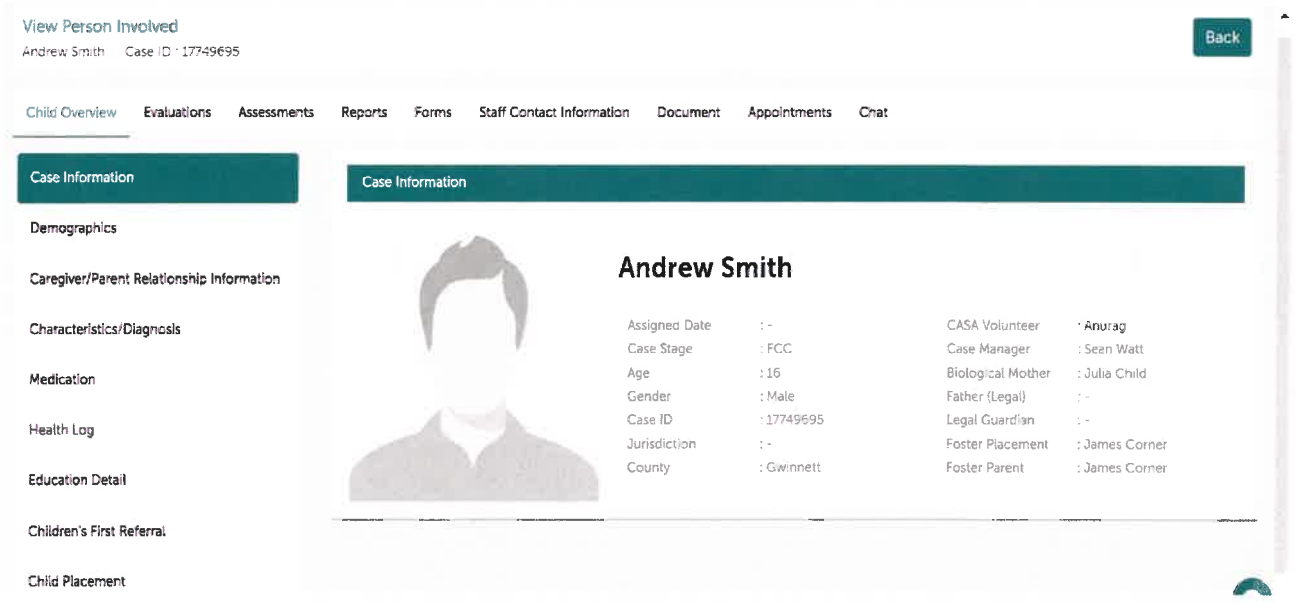

Figure 12: Case details screen

3.3 The Solution should help prevent user error with document uploading to any case. For example, a user uploads the wrong psychiatric evaluation to a case, and the Solution asks the user to confirm the correct file and/or case before completing the transaction. (RFP section 4.2.1.1.3)

The WV-MACS solution will incorporate an Enterprise Document Management System (EDMS) and Cardy AI, which uses Natural Language Processing and Machine Learning to minimize errors during document uploads. The EDMS will be able to validate documents by checking metadata such as case ID, document type, and timestamps to enable them to be correctly linked to the appropriate case. With Cardy AI, the solution will be able to further analyze document content in real-time, classify and verify it to identify any mismatches. For example, if a psychiatric evaluation is uploaded to the wrong case, the system reviews the content and metadata, flags the issue, and prompts the user to confirm or correct the upload before proceeding.

The solution also uses a workflow and business rules engine powered by Drools to apply validation rules and conduct automated checks throughout the upload process. The user interface includes tooltips to provide contextual guidance and prompts to help users verify their file selection and its association with the intended case. If the system detects an issue, it sends alerts via our notifications and alerts module, providing clear instructions for resolving that problem. Access to upload functionality is controlled by Role-Based Access Control (RBAC), which enables only authorized users to perform these actions, further reducing the likelihood of errors.

In the example scenario, if a psychiatric evaluation is uploaded to the wrong case, Cardy AI's real-time content checks and metadata validations will be able to detect the error and flag it immediately. The user will be prompted to confirm the upload and correct any discrepancies. If the issue remains unresolved, a notification can be sent to enable it to be addressed. This process helps maintain accurate record-keeping, prevents user errors, and supports the integrity of case management operations.

3.4 Authorized users to utilize calendar functionality that allows users to schedule visitation sessions for children and parents, SNS appointments, meetings with GALs, court dates, and MDT meetings. (RFP section 4.2.1.1.4)

Cardinality's WV-MACS solution includes a highly configurable scheduling module that supports the scheduling of critical events such as visitation sessions for children and parents, Socially Necessary Services (SNS) appointments, meetings with Guardians ad Litem (GALs), court dates, and Multidisciplinary Team (MDT) meetings. By leveraging an integrated calendar system, our solution enables smooth scheduling, documentation, and tracking of action items within the case plan.

The solution features a shared calendar for collaborative scheduling, which enhances communication and coordination between foster parents, DHS staff, and other stakeholders. The Calendar View displays all appointments, allowing users to view events by day, week, or month for clarity and accessibility. Additionally, the module integrates with external systems such as Microsoft Office 365 Outlook, enabling automatic synchronization of court dates and other key events into users' calendars. This facilitates real-time updates, efficient time management, and reduced manual errors. Stakeholders can propose, view, and confirm hearing dates directly within the system, streamlining the scheduling process for appeals and court sessions, which is critical for improving the efficiency and timeliness of foster care operations in West Virginia.

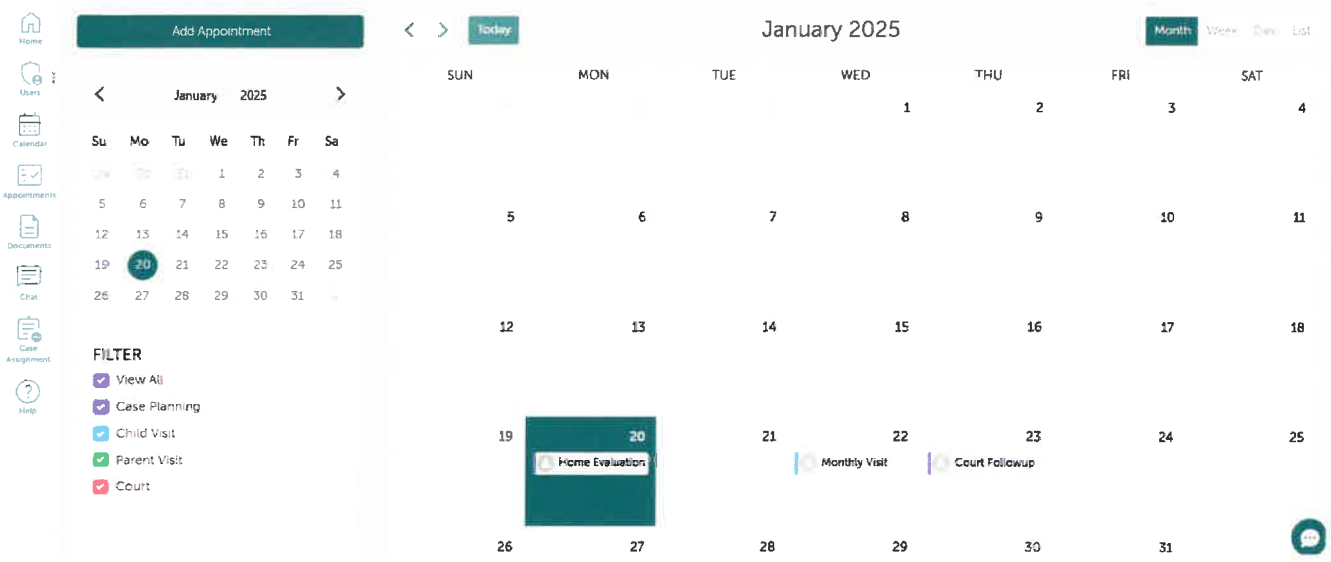

Figure 13: Calendar screen

The user-centric design of the scheduling module as shown in **Figure 13** allows for intuitive interaction, with continuous user interfaces enabling all scheduling-related functions to be performed without losing the context of the workflow. This design supports creating, assigning, and tracking tasks linked to scheduled events, fostering a collaborative and progressive approach to case management. By automating scheduling processes and supporting group decision-making through templates and indicators, the solution enables every stakeholder to remain informed and engaged. The integration of robust tools for task scheduling, workload balancing, resource allocation, and performance monitoring further empowers the DHS to enhance agency efficiency and enable optimal resource utilization. With its ability to synchronize across platforms, document actions, and maintain shared calendars, the WV-MACS solution delivers a comprehensive, user-friendly scheduling solution tailored to the needs of West Virginia's child welfare system.

3.5 All authorized users are able to make non-medical related requests, including but not limited to vacation requests or haircut requests. (RFP section 4.2.1.1.5)

Cardinality's WV-MACS solution enables authorized users to make non-medical requests, such as vacation or haircut requests, through its integrated Case Management Module. For instance, a foster parent can log a non-medical request via the portal, which is automatically tagged as a non-medical request and assigned as a task in the Task Management Module. Notifications will be sent to the caseworker for review and approval through the Notification and Alerts Module. Upon approval, the Scheduling Module helps plan the appointment, while the Provider Management Module coordinates with Socially Necessary Services (SNS) providers for required resources.

The solution leverages advanced technology for smooth processing. The solution's UI enables foster parents to submit requests through an interactive portal. Our solution will be using AWS Lambda to process the submission, categorize it as a non-medical request, and trigger the next steps. The Drools Rules Engine applies predefined approval workflows, determining whether caseworker or administrative review is required. Notifications are managed through our Notifications and Alerts module, enabling all

relevant parties to be informed of request statuses. Request details, including metadata, are securely stored in Amazon RDS, while any uploaded supporting documents are stored in Amazon S3 for easy access and compliance. This integrated approach facilitates efficient handling of non-medical requests, improving coordination and user experience.

3.6 The Agency to utilize Solution-generated reports to understand the responsiveness of team members to questions or requests and the average time it takes for authorized Agency users to update the information. (RFP section 4.2.1.1.6)

Cardinality's WV-MACS solution includes a robust Reporting Module **(MicroStrategy)** designed to provide actionable insights into the responsiveness of team members to questions or requests and the average time it takes for authorized users to update information. Standard reports, including key performance indicators (KPIs), can be generated to assess team performance and operational efficiency, leveraging our OEM partnership with MicroStrategy and the capability of the solution to integrate smoothly with advanced business intelligence tools such as Power BI, Tableau. This flexible reporting capability enables the generation of both pre-built and adhoc reports to meet diverse business needs, with advanced charting and visualization tools that are intuitive and require minimal training.

The Reporting Module supports pre-built reports aligned with current West Virginia DHS report outputs, providing users with readily available templates that can be exported into multiple formats, including Microsoft Excel and Adobe PDF. Team members' actions, such as responses to questions or requests, will be captured through the Case Management Module or Task Management Module, with timestamps recorded for every action. Notifications and acknowledgments are tracked via the Notification and Alerts Module, and AWS Lambda will be used to process this data to calculate KPIs like response times and update frequencies. This processed data is stored securely in Amazon RDS and visualized using tools like MicroStrategy for insightful analytics.

Reports can be accessed through the portals, offering interactive filters and configurable views, enabling users to drill down into specific details. The solution's flexibility enables the agency to generate comprehensive reports tailored to operational needs, combining pre-built/standard reports with adhoc configuration to enhance decision-making and streamline team responsiveness. These capabilities empower the agency to monitor performance effectively, improve service delivery, and align with the state's child welfare operational goals.

4. Project Phases

4.1 Project Phases: The Agency's objective is to implement the Solution in phases. Table 2 below outlines high-level project phases, the major efforts and deliverables involved during those phases, and the outcomes the Agency anticipates that the Vendor will achieve during these phases. ((RFP section 4.2.1.2)

4.2 Project Deliverables: The Agency anticipates that the Vendor will supply the deliverables listed in Table 2 below. Vendors should provide a narrative describing their approach to the major efforts and deliverables in their technical proposal. As part of the response, Vendors should include a draft Implementation Plan, including a project timeline that aligns with the Vendor information submitted in the Appendix C: Cost Proposal Form, Project Deliverables worksheet.

Vendors should also include a copy of their project management plan outline, including at a minimum, sections for Scope, Quality, Resource, and Risk and Issue Management that will be finalized during project planning. (RFP section 4.2.1.3)

Implementation Approach

Cardinality's **work plan** for the implementation of the **WV-MACS** will ensure that both **Phase 1 (Messaging and Other Communication Capability)** and **Phase 2 (Visitation Appointments, Travel and other services, Court hearings, meetings with GALs, MDT meetings, File Upload, Calendaring, Reporting)** are completed within the designated contract periods. This work plan will include a detailed timeline that displays each major activity, task, and corresponding deadlines. Cardinality will assign clear responsibilities for each task and highlight any work delegated to subcontractors. ***Cardinality is pleased to submit a sample Project Management plan as a separate attachment for the agency's review.***

1. Work Plan Overview

The work plan is divided into two major phases:

- **Phase 1:** Development and Go-Live of Messaging and Other Communication Capability
- **Phase 2:** Development and Go-Live of the Visitation Appointments, Travel and other services, Court hearings, meetings with GALs, MDT meetings, File Upload, Calendaring, Reporting

Phase 1: Development and Go-Live of Messaging and Other Communication Capability (Months 1-5)

Phase 1 will focus on the development, testing, and deployment of **Messaging and Other Communication Capability**. The work plan follows a clear sequence of discovery, design, development, testing, training, and Go-Live activities, ensuring that the portal is functional by the **5th month**. Post-Go-Live, the post implementation support will begin as per contract terms.

Phase 2: Development and Go-Live of the Visitation Appointments, Travel and other services, Court hearings, meetings with GALs, MDT meetings, File Upload, Calendaring, Reporting (Months 6-9)

Phase 2 will commence immediately after **Phase 1 Go-Live** and will be developed and rolled out over **9 months**. During this time, the same rigorous steps of discovery, development, testing, and training will be followed.

2. Work Plan Timeline and Activities

Exhibit 1 gives a detailed breakdown of the major activities, their timelines, and the positions responsible for executing each task:

Task	Timeline	Responsible Position	Details
Discovery and Planning	Month 1	Project Manager, Business Analyst	Gather and analyze requirements, create detailed project roadmap.
Design	Month 1	Technical Architect, UX/UI Designers	Develop architectural designs, wireframes, and user experience guidelines.
Development & System Integration	Month 2 - 3	Development Lead, Developers, Integration Lead, DB Lead	Develop the Messaging & communication features, database, and integrations. Integrate with PATH CCWIS system, databases and other systems.
Testing	Month 2 - 4	Testing Lead, Testers	Conduct functional, security, and user acceptance testing.
Training Development	Month 3-5	Training Lead, Training Material Developer, Trainer	Develop training materials for end users and administrators. Conduct training for WV administrators on the new portal.

Phase 1 Rollout/Go-Live	End of Month 5	Project Manager, Technical Team	Go-Live for the Messaging & communication module, followed by Post implementation support.
Maintenance & Operations	Month 6 onwards	Support Engineers, Help Desk	Ongoing system maintenance, monitoring, and user support post-Go-Live.

Exhibit 1: Phase 1 Development timeline

3. Phase 2: Public Portal Timeline

After the Go-Live of **Phase 1**, **Phase 2** development will begin and will take **4 months**, from Month **6 to 9**. **Exhibit 2** gives a detailed breakdown of activities:

Task	Timeline	Responsible Position	Details
Discovery and Planning & Design	Month 6	Project Manager, Business Analyst, Technical Architect, UX/UI designers	Requirements gathering and planning for Phase 2. Technical design and UX for the public portal
Development	Month 6 - 7	Development Lead, Developers	Build the remaining features of the Mobile Application Communication Software
Testing	Month 6 - 8	Testing Lead, Testers	Perform functional, security, and UAT testing on the Public Portal.
Training Development	Month 7 – 9	Training Lead, Training Material Developer	Develop training materials for the Public Portal users.
Phase 2 Rollout/Go-Live	End of Month 9	Project Manager, Technical Team	Go-Live for the Public Portal, followed by ongoing M&O support.

Exhibit 2: Phase 2 Development timeline

4. Responsibilities and Task Delegation

Cardinality's team will handle most of the project execution. The **Project Manager** will oversee all phases and ensure that tasks are delivered on time, while **Business Analysts**, **Developers**, and **Testers** will play key roles in executing their respective tasks.

For **System Integration, Testing and Post-Implementation support** Cardinality's partner, **Cyquent, Inc.**, will oversee and manage these tasks in coordination with Cardinality's Project Manager to confirm successful completion.

Proposed Project Schedule:

Please find below **Figure 14** the project implementation timelines of both phase 1 and phase 2 which provide a clear, visual representation of the project flow, ensuring that stakeholders have visibility in the entire implementation process.

Phase 1 & 2 – Implementation Timeline

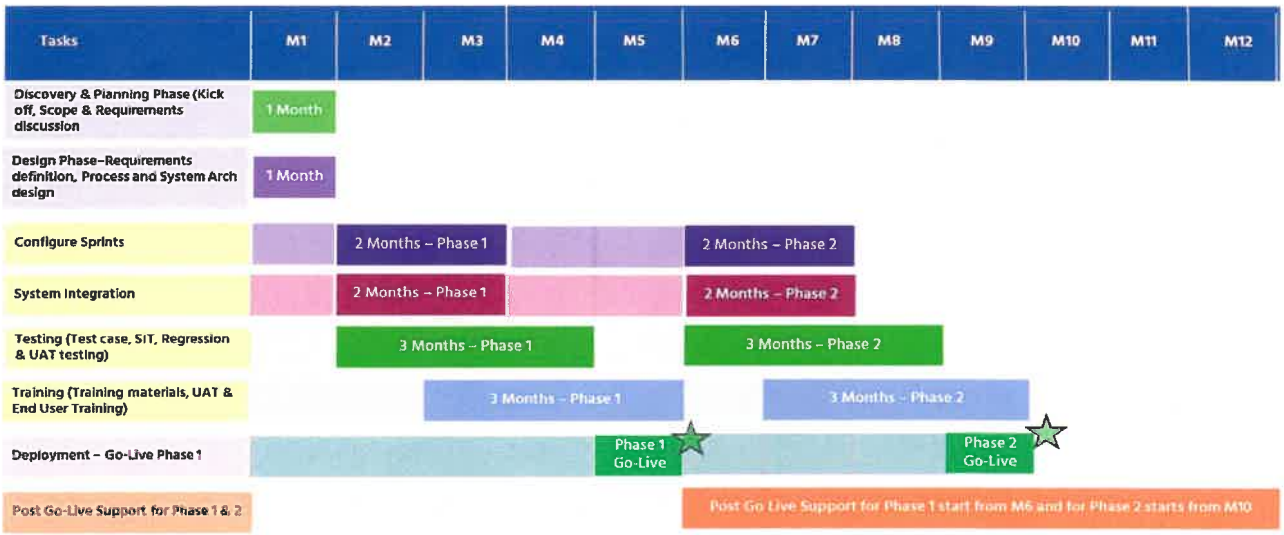

Figure 14: Implementation Timeline

Project Management Approach

Cardinality employs a robust Hybrid Agile project methodology that integrates Joint Application Development (JAD) sessions as a central component of the requirements gathering and validation process. These sessions allow us to capture detailed functional requirements directly from the users, ensuring that all perspectives and needs are considered from the outset. **Figure 15** illustrates the Hybrid-Agile approach:

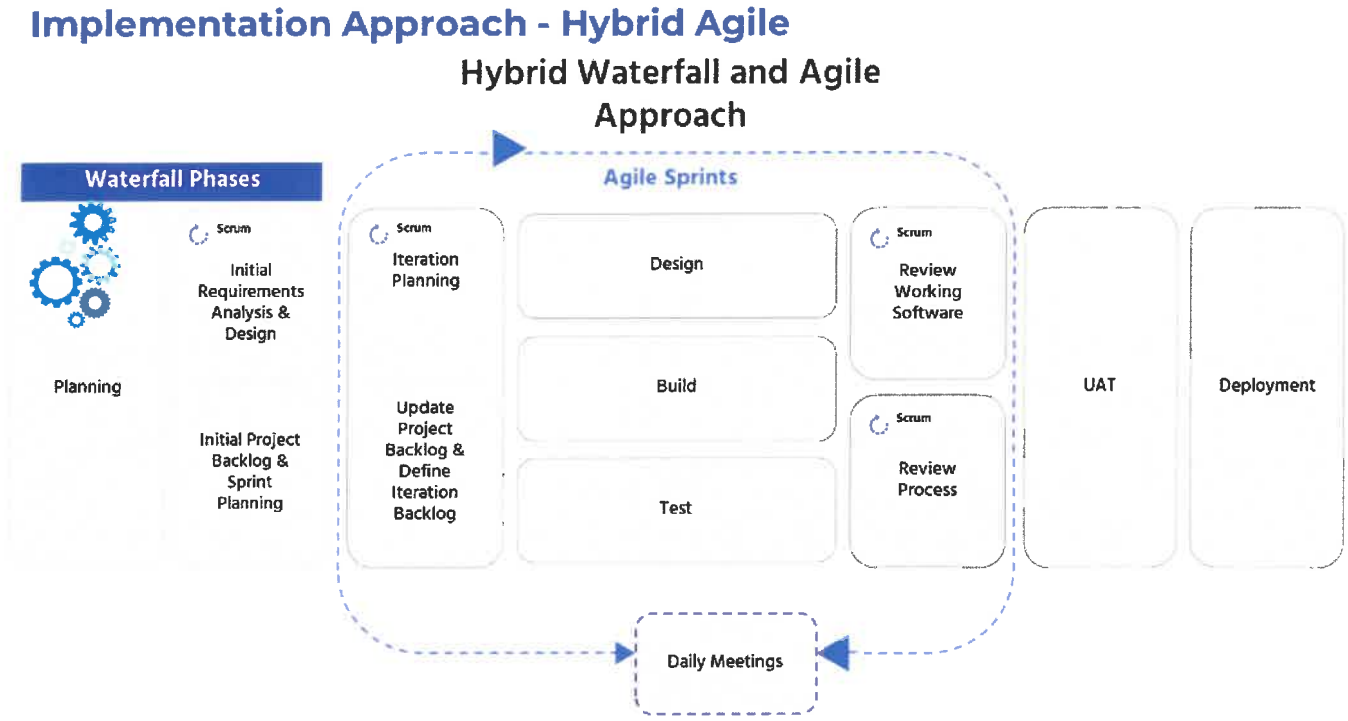

Figure 15: Hybrid Agile Implementation Methodology

For the **WV-MACS** implementation, by day 30, we will deploy version 0 (**EF-CW V2025.4.1 v0**) of the solution, which serves as the baseline for conducting discovery sessions and then incrementally enhance using our gap-based implementation model. This v0 is pre-built based on the requirements outlined in the RFP documents.

During sprint 1, we update this v0 addressing gaps and deploy v0.1, with incremental progress towards version 1 (v1), the planned go-live version. We follow this process for each sprint, resulting in intermediate versions of the solution, such as v0.2, v0.3, and so on. Throughout the DDI phase, we maintain a continuous feedback loop, ensuring that any discrepancies or changes in requirements are addressed promptly.

Cardinality emphasizes rigorous documentation of all functional requirements, ensuring that they are traceable throughout the project lifecycle. This traceability ensures that each requirement is accounted for and fully implemented by the end of the DDI phase.

For the implementation of WV-MACS, Cardinality deploys the above hybrid-agile methodology comprising of 5 phases as given below **(Figure 16)**:

Figure 16: Cardinality's Project Management Phases

The following list of deliverables **(Figure 17)** will be submitted with the agency against each phase of the project:

Figure 17: Project deliverables

5. Functional and Technical Requirements

Functional and Technical Requirements: The Vendor should submit a completed Appendix B: Functional and Technical Requirements that indicates Vendor's level of fit for each requirement. **(RFP section 4.2.1.4)**

Team Cardinality has thoroughly reviewed the requirements outlined in **Appendix B** and has filled in our responses for each of the requirements and attached it separately. Additionally, we are pleased to highlight some of the key features of our solution along with sample screen shots demonstrating our successful implementation of this exact solution in Georgia DHS (Communicare Project).

5.1 Functional Requirements:

1. **Communication module will be used for messaging functionality:** Cardinality's WV-MACS solution features secure messaging capabilities that enable authorized users to communicate and exchange messages within the system as shown in **Figure 18**. The messaging functionality includes a comprehensive message history feature, allowing users to access and review past communications while enabling data privacy and security through role-based access controls and encryption protocols. This messaging will support all stakeholders involved in a foster child's case, including case workers, foster parents, biological parents or guardians, Child Placing Agencies (CPAs), Socially Necessary Services (SNS) providers, Multidisciplinary Team (MDT) members, and other legal community representatives (GALs and Probationary officers). This capability will promote efficient collaboration and streamlined workflows among authorized personnel, enhancing overall system effectiveness. Leveraging the communication module, it supports real-time messaging via email, SMS, or in-app notifications, facilitating timely and reliable updates.

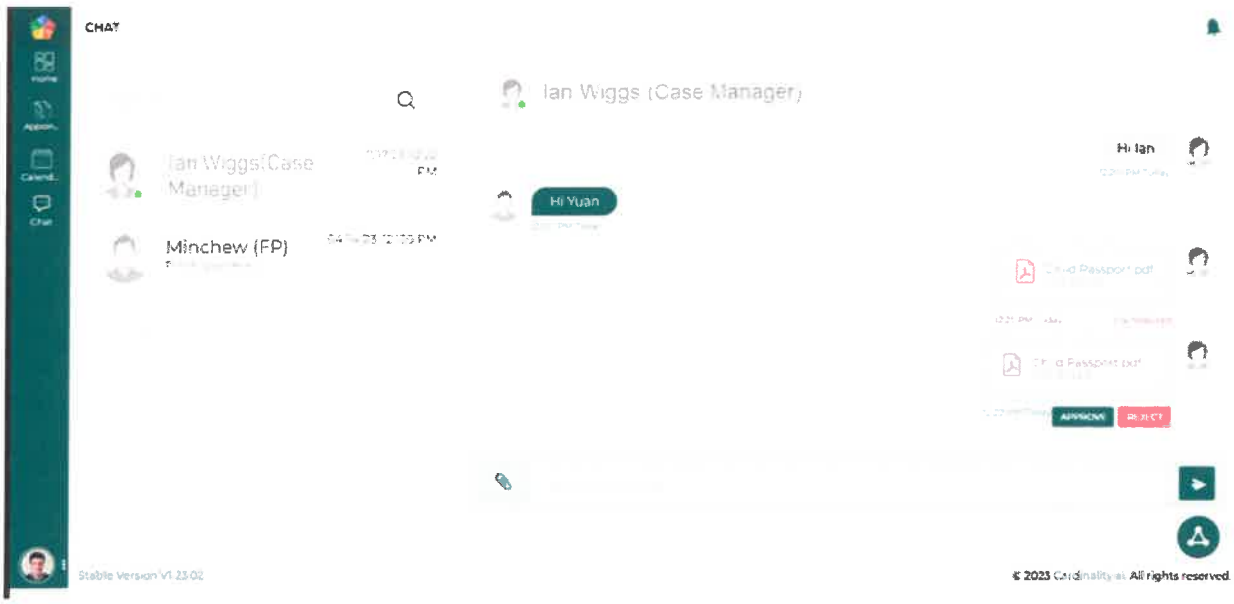

Figure 18: Messaging functionality

The solution incorporates a dedicated communication module that supports real-time collaboration among stakeholders, such as caseworkers and foster parents, facilitating coordinated decision-making in the child welfare process. This functionality is included in the current WV-MACS solution release and will be implemented by the planned phase go-live date, aligned with the State's agreed-upon configuration planning. The communication module enables effective communication across roles, with

the ability to securely send messages and view message history, fostering better coordination and outcomes in child welfare services. This module will improve communication and collaboration among all the interested parties involved in the welfare of children to help enhance the state's foster care system.

2. **Alerts and Notifications module**: Cardinality's WV-MACS solution incorporates a robust notification and alert module that enables authorized users to be informed of new information, task deadlines, and critical actions requiring attention. The system dynamically generates alerts for key events, such as changes to a child's case, including updates to placement location. Notifications are both event-based (triggered by specific actions or changes in the system) and time-based (triggered by approaching deadlines), enabling comprehensive and timely user engagement to support effective case management. This feature is included in the current software release and will be implemented by the planned phase go-live date in accordance with agreed-upon configuration planning with the State as illustrated in **Figure 19**. This functionality enables authorized users to remain responsive to time-sensitive tasks and case developments, enhancing collaboration and operational efficiency.

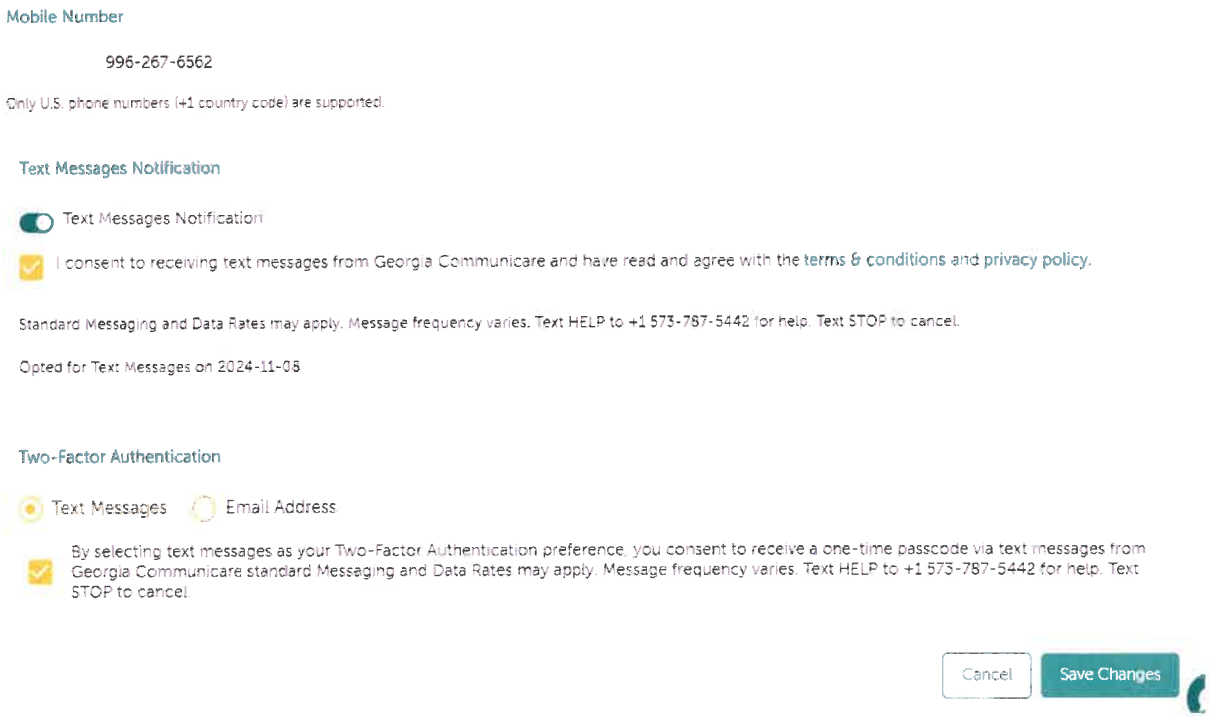

Figure 19: Alerts and Notifications module

3. **Communication Archiving:** Our solution smoothly supports communication archiving into the CCWIS/PATH system by capturing and securely storing text, email, and chat records in compatible formats such as json, xml, csv, database formats, or as log files. The proposed solution will integrate smoothly with the existing CCWIS/PATH system using WSO2 Enterprise integrator, leveraging standard interfaces such as RESTful or batch APIs, SFTP, SOAP, and web-based services. This approach maintains a comprehensive and accessible archive of communications, supporting compliance, reference, and reporting while promoting effective case documentation and

efficient system operations. The archived data remains secure, retrievable by authorized users, and aligned with federal, state, and agency-specific retention policies.

Communication records are securely processed using AWS Lambda and stored in AWS S3 or RDS for PostgreSQL, facilitating tamper-proof data retention. AWS WAF and CloudFront protect data during transmission and retrieval, while AWS CloudTrail logs all archival actions, maintaining compliance and traceability. Elastic Kubernetes Service (EKS) further enhances scalability, managing communication workflows efficiently and facilitating smooth operation under variable workloads.

By creating a centralized repository within the PATH system, our solution will have the capability to link communication records to relevant case files, facilitating complete traceability and accountability. Real-time access to archived communication supports informed decision-making and compliance with reporting requirements, ultimately improving case management in child welfare processes.

4. **WV-MACS: Secure Messaging Across Multiple Platforms:** The communication module allows authorized users to securely send and receive messages, access a comprehensive message history (archiving functionality) within the PATH system, and receive real-time updates through email, SMS, chat, text, or in-app notifications. This enables timely and reliable communication, enhancing decision-making and workflows in child welfare processes. By improving communication among all parties, the module strengthens the foster care system and promotes better outcomes for children.

   The workflow for secure messaging begins with users initiating a message through the Angular-based UI interface, which sends data securely to the Node.js back-end for processing. AWS Lambda will be used for encrypting messages, formats them for delivery (JSON for chat, plain text for SMS), and triggers event-based notifications for tasks or updates. Messages are delivered through appropriate channels—email via AWS Simple E-mail Services (SES), chat through APIs, and SMS via AWS Simple Notification Services (SNS) —enabling reliable and timely communication.

   To maintain data integrity, message metadata is stored in Amazon RDS for PostgreSQL for structured querying and retrieval, while attachments or logs are securely stored in Amazon S3. Notifications will be facilitated by AWS CloudFront, facilitating efficient delivery with low latency. AWS CloudWatch will be used to monitor system performance, and AWS CloudTrail logs all activities for auditing and compliance purposes.

   This secure and scalable messaging capability is included in the current WV-MACS solution release and will be implemented by the planned phase go-live date, in alignment with the State's agreed-upon configuration planning. By enabling real-time collaboration and secure communication, the WV-MACS solution enhances coordination among stakeholders and enables the welfare of children to remain a top priority.

5. **File-Sharing Capability within Messaging Functionality:** The WV-MACS solution integrates a robust file-sharing feature within its messaging functionality, allowing authorized users to securely upload, share, and manage documents and files. This capability facilitates smooth collaboration and efficient information exchange among stakeholders, protecting data integrity and confidentiality through strict access controls. By embedding this feature into the messaging

platform, the WV-MACS solution supports real-time, secure communication, enhancing operational efficiency, and improving Child Welfare case management outcomes.

At the heart of this functionality lies the Communication module and Enterprise Document Management System (EDMS), which enable secure sharing, tagging, packaging, and management of case-specific documents for both immediate and future use. The EDMS provides advanced document handling capabilities, including archival, retrieval, and expungement. Enhanced by AI-based document classification using Natural Language Processing (NLP) and Machine Learning (ML), the system automates the categorization of structured and unstructured data. This intelligent classification reduces manual errors, improves scalability, and streamlines the overall document management and sharing process, facilitating accurate tagging and quick retrieval of critical information.

File metadata, such as file name, sender, recipient(s), timestamp, and case information, is simultaneously stored in Amazon RDS for PostgreSQL, linking the file to its corresponding messaging thread for efficient retrieval and organization. Recipients can be notified through the messaging platform via email, chat, or SMS, enabling them to securely access and download the file through the UI interface. APIs will be used to validate recipient access rights, maintaining adherence to role-based security protocols.

The WV-MACS solution leverages AWS CloudTrail to log all file-sharing and document upload activities, creating a comprehensive audit trail that captures detailed information about uploads, downloads, and permission checks. AWS CloudWatch will continuously monitor the system's performance, tracking metrics like upload speed and storage utilization to maintain reliable operation. Alerts are generated for administrators in the event of potential issues, maintaining smooth system performance.

The solution's technology stack enables a secure, scalable, and user-friendly file-sharing and document management system. Amazon S3 safeguards uploaded files with encryption and access controls, while Node.js facilitates smooth communication between front-end and back-end systems. AWS Lambda enhances compliance through encryption and validation, and Elastic Kubernetes Service (EKS) supports scalability to handle growing volumes of files without performance degradation. The Angular UI interface provides an intuitive user experience, allowing stakeholders to interact with the system efficiently while maintaining compliance with regulatory standards.

6. **Bidirectional Integration with CCWIS:** Cardinality's WV-MACS solution is designed to interface bidirectionally with the CCWIS/PATH system, enabling smooth push and pull of information to maintain data consistency and support operational efficiency. The CCWIS serves as the single source of truth for all foster case information and documentation. The solution captures, synchronizes, and archives data in alignment with this structure, enabling accurate data exchange and comprehensive case management within the CCWIS framework.

   Leveraging advanced integration technologies such as the WSO2 API Integrator, the solution facilitates secure connectivity through RESTful APIs, Batch APIs, SOAP services, and SFTP protocols. This enables real-time data updates for critical activities such as placement changes and case updates, while asynchronous methods (e.g., scheduled batch processing) optimize performance for non-urgent tasks. The solution enables both systems to remain updated and consistent, allowing all stakeholders to access accurate and up-to-date information.

The WV-MACS solution uses an advanced technology stack to fulfill the bidirectional integration requirement. Node.js serves as the back-end middleware, managing WSO2 API calls and enabling data exchanged with CCWIS to adhere to required formats such as JSON or XML. AWS Lambda processes data dynamically, enabling real-time updates and event-driven synchronization for both push and pull operations. For large-scale or archival data exchanges, Amazon S3 handles secure storage and bulk file management, while Amazon RDS for PostgreSQL provides transitional storage for metadata or intermediary data during synchronization. The integration framework will be secured with AWS WAF, protecting endpoints from unauthorized access and malicious activities, while AWS CloudTrail provides a detailed audit trail for all data exchange activities, supporting compliance and accountability.

This approach enables the CCWIS/PATH system to remain the authoritative repository for all foster care data, with the WV-MACS solution acting as a robust interface to enhance communication functionality and user experience. By synchronizing with CCWIS, the solution centralizes the archiving of foster care records, promotes operational efficiency, and maintains data integrity and compliance with child welfare regulations.

7. **Role-Based Access Control (RBAC) module:** Cardinality's solution incorporates an advanced Role-Based Access Control (RBAC) module as shown in **Figure 20** to securely manage access to sensitive case record information stored in the existing CCWIS.

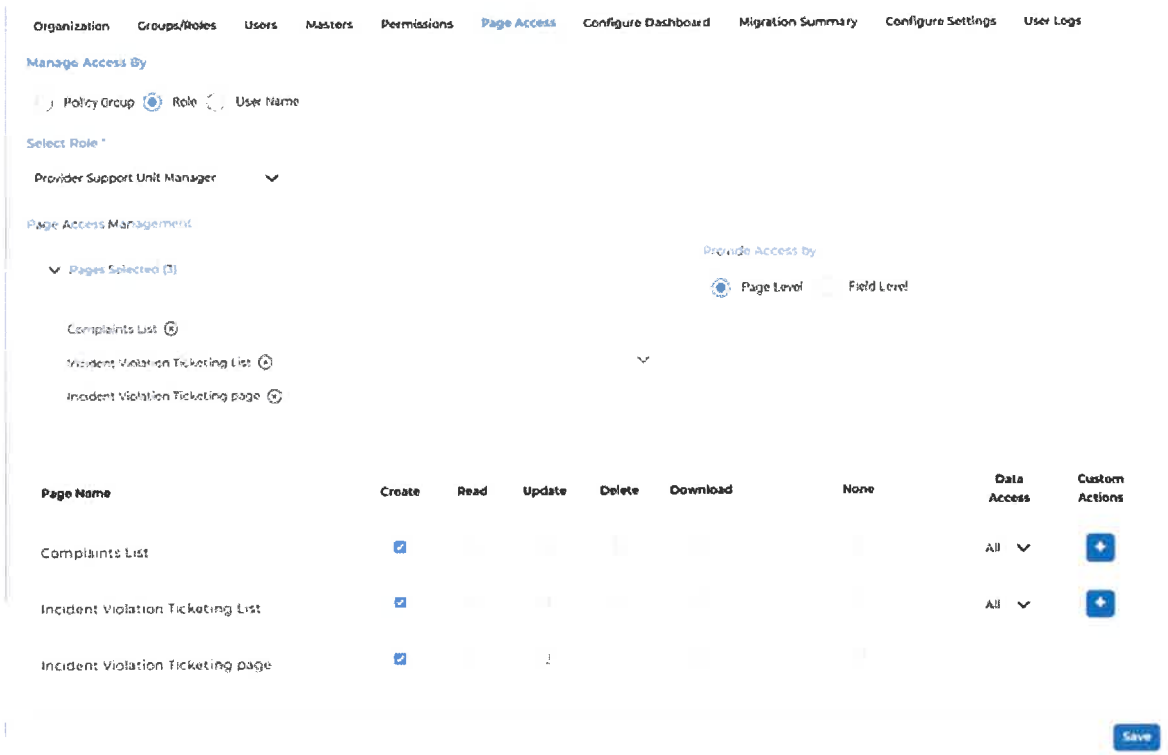

Figure 20: RBAC access section

This functionality enables only authorized users to access specific records, such as education, medical, dental, mental health, psychological evaluations, and visitation records, based on their predefined roles and responsibilities. By implementing RBAC, the solution safeguards sensitive

information, maintains compliance with data privacy regulations, and supports efficient and secure case management.

The RBAC module framework dynamically assigns permissions based on user roles, enabling granular access control for various categories of case information. Permissions are configurable, accommodating changes in organizational roles or temporary assignments, facilitating operational flexibility without compromising security.

To protect sensitive data, the RBAC module enforces strict security measures, including encryption during data transmission and secure authentication protocols, such as multi-factor authentication (MFA). Comprehensive audit logs, powered by AWS CloudTrail, capture all RBAC-related actions, including access attempts and role assignments, promoting transparency and accountability. These logs maintain compliance with regulatory standards like HIPAA and FERPA while providing a clear audit trail for oversight and reporting.

8. **Online/Offline Messaging and Video/Audio Conferencing Capability:** Cardinality's WV-MACS solution provides authorized users with the capability to enter messages via SMS, email, or in-app channels, which are immediately uploaded to the CCWIS when online or queued for upload once connectivity is restored. Additionally, the solution supports video and audio conferencing among authorized users, complete with a recording feature for documentation and future reference, enhancing collaboration and communication efficiency. These features facilitate efficient collaboration using its communication module and comprehensive documentation, all integrated with the Comprehensive Child Welfare Information System (CCWIS)/PATH system.

   Online/Offline Messaging: The WV-MACS solution provides robust online and offline messaging capabilities, enabling authorized users, such as caseworkers, supervisors, and service providers, to securely communicate through SMS, email, or in-app notifications as illustrated in **Figure 21**. The solution will make sure that all case-related communications are securely documented and integrated into the CCWIS for comprehensive case management and compliance.

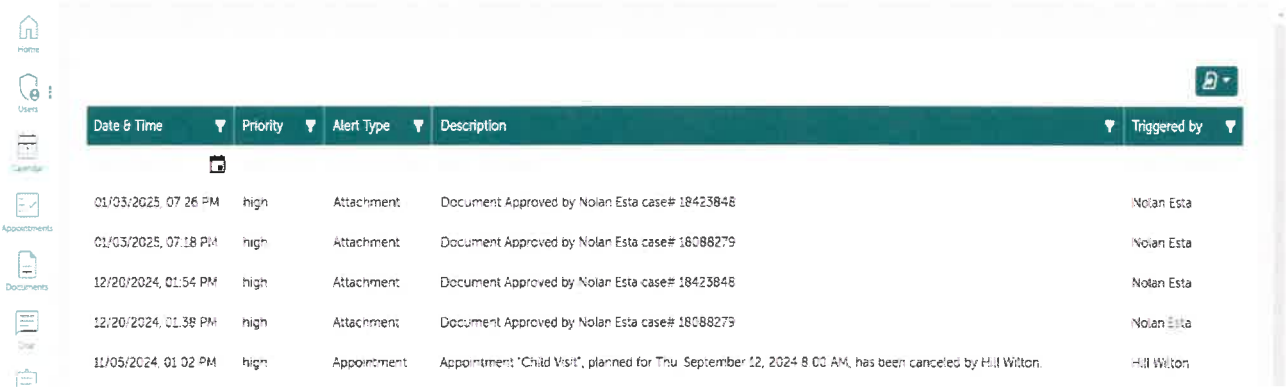

Figure 21: In-app notifications

For online messaging, messages are immediately uploaded to the CCWIS, leveraging smooth integration with the WSO2 API Integrator using its RESTful API functionality. This enables real-time documentation of case-related communication, keeping all relevant parties informed and maintaining data accuracy in critical child welfare processes, such as case updates and service coordination.

In offline scenarios, users can compose messages that are automatically queued and securely stored. Upon restoration of connectivity, these messages, regardless of the medium (SMS, email, or in-app notifications), are uploaded to the CCWIS/PATH system using batch APIs facilitated by the WSO2 API Integrator. This approach enables no loss of communication records, even in areas with limited or intermittent connectivity, meeting the operational needs of DHS for continuous documentation and communication.

Video/Audio Conferencing Capability: The WV-MACS solution will enable authorized users, to conduct secure video and audio conferencing. These capabilities will be tailored to support child welfare processes, including interactive discussions, case planning meetings, stakeholder interviews, and collaborative decision-making. By facilitating real-time communication, the solution will help stakeholders in sharing critical information and is documented efficiently and effectively.

To meet the requirements of West Virginia DHS, all conferencing sessions are encrypted during transmission to protect sensitive information, leveraging AWS WAF to secure endpoints against unauthorized access. System performance, including connection stability and resource utilization, can be continuously monitored through AWS CloudWatch, facilitating a smooth user experience for high-stakes interactions such as multidisciplinary team meetings and family case discussions.

The solution includes a robust recording feature, allowing sessions to be documented for compliance, future reference, or accountability purposes. Recordings are temporarily stored in Amazon S3, enriched with metadata such as participant details, timestamps, and session duration, and subsequently can be uploaded to the CCWIS/PATH system for secure archival. This integration enables all case-related conferencing data to become part of the centralized repository, supporting comprehensive case documentation and audit readiness.

Comprehensive logging of all conferencing activities is managed through AWS CloudTrail, capturing session initiation, duration, and recording uploads. This maintains adherence to regulatory requirements, including HIPAA, while providing a transparent audit trail to address privacy, accountability, and compliance requirements/standards outlined by DHS. The WV-MACS solution will support the operational and regulatory framework of child welfare by enhancing collaboration, data integrity, and secure information sharing.

9. **Capture and Securely Store Media:** Cardinality's WV-MACS solution enables authorized users to capture photos, videos, and audio recordings directly within the system. This functionality supports critical child welfare processes by enabling real-time documentation of case-related activities such as home condition assessments, interviews, and evidence collection for compliance with care plans. These capabilities enable media documentation to be smoothly integrated into the Comprehensive Child Welfare Information System (CCWIS), supporting accurate case management and adherence to regulatory standards.

   The solution allows users to utilize device hardware, including smartphones, tablets, or webcams, to capture media. Leveraging the Angular front-end, the solution provides an intuitive interface for media capture and metadata input, such as date, time, location, and case association. Captured media files are securely transmitted via the backend, which validates user permissions and routes the files for storage. Files are encrypted and stored in Amazon S3, a centralized repository, enabling data security at rest and during motion. Metadata, such as timestamps and user associations, is automatically enriched through AWS Lambda, which also processes media files for efficient storage, such as compressing images or generating video thumbnails.

All media-related actions, including file uploads and metadata updates, are logged by AWS CloudTrail, maintaining compliance with privacy regulations such as HIPAA. This audit trail enhances transparency and accountability, meeting the requirements for safeguarding sensitive child welfare data. By integrating secure media capture of our solution with CCWIS, Cardinality's solution empowers child welfare professionals in West Virginia to document and manage critical case-related information effectively. This functionality enhances decision-making, supports compliance, and strengthens the overall child welfare process.

10. **Documenting Updates for Goals, Tasks, and Steps**: Cardinality's WV-MACS solution enables authorized users to document updates related to the completion of case-specific goals, tasks, and steps. This functionality supports key child welfare processes, such as tracking progress on reunification plans, meeting safety milestones, scheduling meetings, or completing required training modules, maintaining compliance with the requirements of West Virginia DHS.

    Using the solution's task management module, users can update task statuses, add comments, and document progress directly through an intuitive user interface. Each update is securely linked to the relevant case record in the CCWIS, enabling accurate tracking and promoting accountability. Users will be able to smoothly input updates and mark tasks as completed, providing a clear overview of case progress.

11. **Requesting and Viewing Upcoming Meetings:** The solution features a configurable scheduling module integrated with a shared calendar system. Users can request meetings and view scheduled appointments, including visitation sessions, Socially Necessary Services (SNS) appointments, Multidisciplinary Team (MDT) meetings, court dates, and more. Through an intuitive user interface, users can interact with a calendar view that displays events by day, week, or month, allowing real-time updates and improved accessibility. Meeting details, such as date, time, agenda, and participants, can be securely integrated with the CCWIS/PATH system, facilitating accurate documentation and traceability.

12. **Functionality to Upload Verification Documents:** Cardinality's WV-MACS solution includes a robust Enterprise Document Management System (EDMS) that supports a wide range of document formats, including AVI, BMP, DOC, DOCX, JPEG, JPG, MP4, PDF, TIFF, TXT, and XLS. This flexibility maintains compatibility with diverse documentation and media requirements, enabling users to securely upload, view, and manage various file types. Each document is enriched with configurable metadata fields—such as title, category, description, document type, author, and timestamp—enabling efficient organization and searchability.

    The EDMS provides advanced capabilities for tagging, packaging, and categorizing case-specific information. Leveraging AI-based classification powered by Natural Language Processing (NLP) and Machine Learning (ML), the solution automates document categorization, facilitating scalability, reducing manual errors, and streamlining the case management process. The EDMS also supports secure digital storage, indexing documents by unique identifiers, creation time, author, and document thumbprints, facilitating traceability and accessibility. Uploaded documents are securely archived in the CCWIS, indexed for traceability, and integrated smoothly with other business functions, enhancing operational flexibility. The modular document upload component integrates smoothly across all business functions and modules, maintaining flexibility and scalability for future needs. The EDMS also supports archival, retrieval, and expunging, enabling secure and traceable document management aligned with child welfare requirements.

Through the flexible user interface, users can easily upload documents via a drag-and-drop or file selection feature. The backend processes these uploads, validating file format and size while securely transmitting them to Amazon S3 for encrypted storage. AWS Lambda automates file processing, enriching metadata, and maintaining compliance with validation rules. Metadata is stored in Amazon RDS for PostgreSQL, linking documents to specific cases for quick retrieval. AWS CloudTrail logs all upload actions, providing a transparent audit trail for compliance and accountability.

This feature is included in the current software release and will be implemented by the planned phase go-live date, in accordance with the State's configuration planning. By offering secure, efficient document upload and management capabilities, the WV-MACS solution supports streamlined workflows and enhanced collaboration across child welfare processes.

13. **Digital Signature Capability:** Cardinality's WV-MACS solution enables authorized users to digitally sign documents securely and efficiently, with signed documents stored in the Comprehensive Child Welfare Information System (CCWIS)/PATH system. This functionality enhances approval workflows, validates document authenticity, and aligns with legal and regulatory standards. Our solution can be integrated with digital signing tools (third-party APIs for digital signature services like Adobe Sign or DocuSign).

    Authorized users, such as caseworkers, foster parents, and legal representatives, can digitally sign critical documents like consent forms, safety plans, and family agreements through a user-friendly interface. The solution verifies user authentication and role-based permissions using the RBAC module, enabling secure and authorized access.

14. **Primary Information Upload Confirmation with Mobile Accessibility:** The solution allows authorized users, such as caseworkers and foster parents, to input and review critical data, including visitation logs, medical updates, and verification documents, through an intuitive and mobile-responsive interface. Before submission, users are presented with a confirmation step to validate the completeness and accuracy of their entries, minimizing errors and maintaining data integrity. This feature enhances accountability and prevents incomplete or erroneous submissions to the CCWIS/PATH system.

    The solution prioritizes compliance by logging all user actions through AWS CloudTrail, capturing details of data entry, validation, and submission for audit purposes. With its user-friendly interface, secure workflows, and robust compliance measures, the WV-MACS solution enhances data accuracy, operational efficiency, and traceability. By integrating upload confirmation and mobile accessibility, the solution meets the requirements of modern child welfare communication systems, empowering users to manage critical information effectively while adhering to regulatory standards.

15. **Secure Access to Documentation:** Cardinality's WV-MACS solution leverages its robust Role-Based Access Control (RBAC) framework to provide authorized users with secure access to a wide range of case-related documentation. This includes essential records such as educational evaluations, medical and dental records, therapeutic and mental health reports, home evaluations, visitation logs, family and safety plans, caseworker contact logs, court filings, and demographic information. This functionality supports effective case management and informed decision-making while maintaining compliance with privacy and child welfare regulations.

16. **Calendar Module:** Cardinality's solution incorporates a robust calendar module that enables authorized users to efficiently schedule and manage events related to a child welfare case. This feature facilitates smooth coordination among stakeholders while maintaining compliance with child welfare requirements. Authorized users can add, modify, or delete events, such as appointments, non-emergency medical visits, Guardian Ad Litem (GAL) meetings, Multidisciplinary Team (MDT) meetings, visitations, vacations, court dates, and Socially Necessary Services (SNS) provider appointments. By centralizing event/meeting management, the calendar module fosters efficient planning and improves operational workflows.

    The solution utilizes Role-Based Access Control (RBAC) to enable secure access to the calendar module. This feature restricts access based on user roles, allowing caseworkers, foster parents, and legal representatives to view or manage events as per their responsibilities. The calendar module is fully integrated with the Comprehensive Child Welfare Information System (CCWIS) / PATH system. Events scheduled through the calendar are synchronized with CCWIS in real time, so that the centralized system remains the authoritative source of truth for all case-related activities.

    By implementing our calendar module, the child welfare mobile application communication system can achieve streamlined scheduling, enhanced coordination, and improved case outcomes. The solution's design aligns with the operational and regulatory needs of child welfare agencies, enabling authorized users to manage events effectively while safeguarding sensitive data and maintaining a centralized record within the CCWIS/PATH system.

17. **Performance reporting:** The WV-MACS solution will be able to create a performance report that shows the time measurement of the user's responsiveness to questions or requests. Our solution includes a robust reporting module designed to generate detailed performance reports that measure the time taken by users to respond to questions, requests, or tasks. These reports provide valuable insights into user responsiveness, fostering accountability, enhancing workflow efficiency, and identifying areas for operational improvement. Leveraging advanced tools like MicroStrategy, Power BI, Crystal Reports, and Tableau, the reporting module delivers comprehensive data visualizations and actionable insights to meet the demanding needs of child welfare systems.

    The performance reports capture essential metrics, including the time a request or question was initiated, the timestamp of user responses, and the total elapsed time between initiation and resolution. Additionally, the system enriches these metrics with metadata such as the user's role, the type of request, and the associated case details. This comprehensive data collection enables stakeholders to evaluate responsiveness accurately and implement necessary improvements to achieve better outcomes.

    The reporting module supports both pre-built and custom reporting capabilities. Pre-built reports cover standardized metrics and are categorized based on operational needs, such as geographic regions (e.g., county, city) or case types. Custom, ad hoc reports allow users to tailor insights to specific needs through user-friendly interfaces provided by tools like Tableau and Power BI. These ad hoc reports are classified by turnaround times, maintaining flexibility and adaptability for immediate and long-term analytical requirements.

    Dynamic dashboards enhance the reporting experience by offering real-time data visualization. Stakeholders can configure and monitor key performance indicators (KPIs) with tools like

MicroStrategy, which enable the creation of interactive heat maps, trend analyses, and visual summaries. Dashboards are intuitive and provide day-to-day operational insights, enabling users at all levels—caseworkers, supervisors, and administrators—to easily access and interpret the data.

Data security is integral to our solution; all collected data is encrypted both in transit and at rest, stored securely in Amazon RDS for PostgreSQL, and synchronized with Amazon S3. Role-based access control enables sensitive performance data to only be available to authorized users, and audit trails maintained by AWS CloudTrail provide a transparent record of user activities, supporting regulatory compliance and accountability.

The reporting module integrates effortlessly with the Comprehensive Child Welfare Information System (CCWIS)/PATH system, enabling all performance data to be synchronized with case records for a centralized view. By associating metrics with specific cases, the system enables holistic evaluations of user performance while maintaining data consistency across platforms.

By incorporating advanced analytics tools and providing a secure, centralized, and user-friendly reporting environment, Cardinality's solution empowers child welfare agencies/DHS to monitor user responsiveness effectively. This functionality promotes timely decision-making, accountability, and operational efficiency, ultimately driving better outcomes for children and families.

18. **Reporting module: Pre-defined/Standard and ad-hoc reporting:** Cardinality's solution provides a robust reporting module designed to create performance reports through flexible functionality, offering both predesigned or standard templates and ad hoc reporting capabilities. This dual approach enables users to access standardized reports for routine metrics such as system performance, user activity, and compliance, while also enabling the generation of configured insights tailored to specific operational or analytical needs. The combination of prebuilt and ad hoc options facilitates comprehensive monitoring, informed decision-making, and adaptability to evolving DHS/child welfare requirements.

    The system integrates dynamic data visualization tools, including dashboards, heat maps, and KPI trackers, allowing users to explore relationships between data elements and derive actionable insights. Users can export reports in various formats, such as PDF, Excel, and CSV, for sharing or offline analysis. Advanced tools like MicroStrategy, Power BI, Crystal Reports, and Tableau further enhance reporting capabilities, supporting both technical and non-technical users in creating tailored visualizations.

    Smooth integration with the Comprehensive Child Welfare Information System (CCWIS)/PATH system maintains data consistency and alignment with case records. The solution captures real-time and historical data, enriching reports with metadata for traceability. Role-based access controls (RBAC) safeguard sensitive information, so that reports are accessible only to authorized personnel. Additionally, audit logs capture all reporting activities, supporting accountability and compliance with regulatory standards.

    This flexible and secure reporting module empowers West Virginia DHS to monitor performance, track user activities, and analyze case outcomes effectively. By combining predesigned and ad hoc reporting capabilities with advanced visualization tools and robust security, Cardinality's solution supports data-driven decision-making, operational efficiency, and regulatory compliance, aligning with the diverse needs of modern child welfare systems.

5.2 Technical Requirements

Solution architecture:

The WV-MACS solution is built on a robust, multi-tiered architecture designed to deliver secure, scalable, and efficient management of child welfare operations. By integrating advanced business capabilities, a powerful service layer, and smooth interfaces, the WV-MACS solution addresses the diverse needs of the West Virginia Department of Human Services (DHS). This architecture enables secure data exchange, interoperability with current systems, and scalability for future enhancements.

The WV-MACS solution architecture **(Figure 22)** is structured across three primary tiers: Presentation Tier, Service Tier, and Data Tier, each serving distinct but interconnected functions.

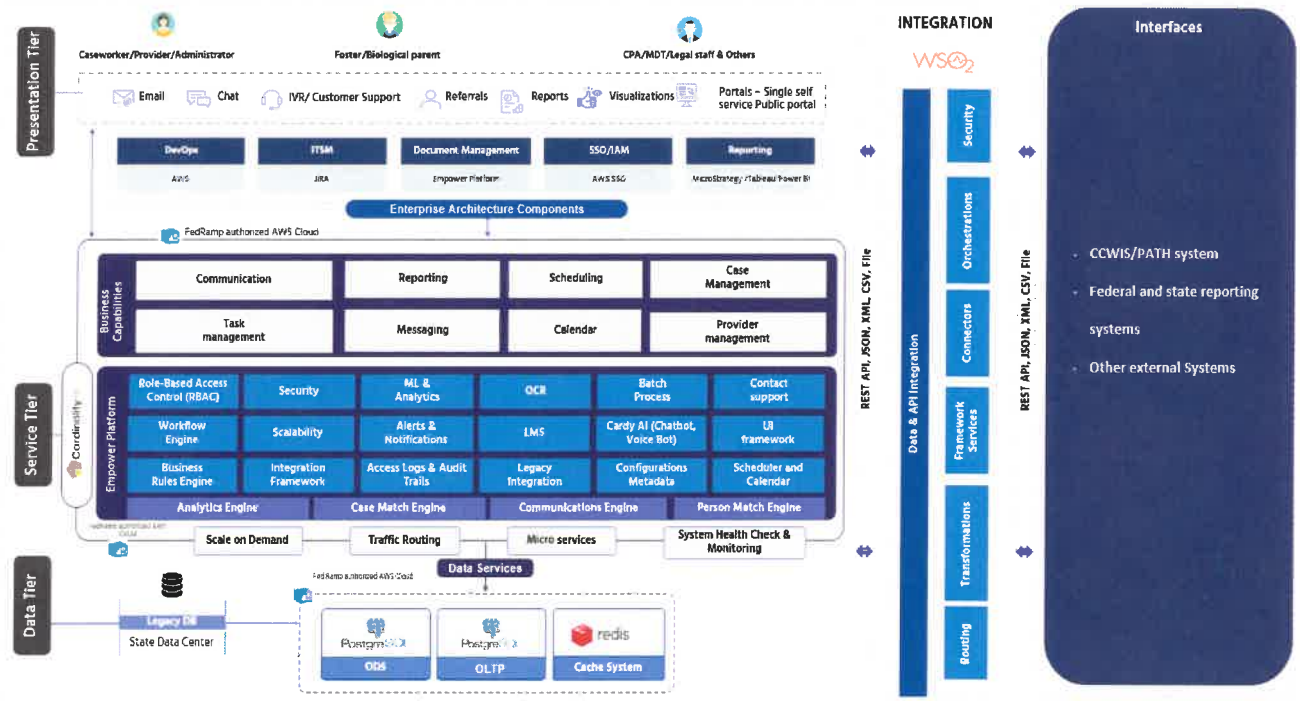

Figure 22: WV-MACS solution architecture

Presentation Tier: The presentation tier acts as the user-facing interface, facilitating a smooth experience for all stakeholders, including caseworkers, foster parents, biological parents, SNS providers, multi-disciplinary teams, legal staff, and administrators. This tier provides access to a unified public portal designed for both self-service and role-specific interactions. Stakeholders interact through a single, consolidated portal that simplifies access to tools and resources. Caseworkers, for instance, can manage cases, schedule appointments, and communicate securely, while foster and biological parents can view case updates, submit documentation, and track their interactions. The portal design enables ease of use and fosters collaboration among all participants in the child welfare ecosystem. Key features of our solution will include email, chat, IVR-based customer support, referrals, reporting, and data visualizations.

Service Tier: The service tier forms the heart of the WV-MACS solution, delivering critical business capabilities and functionalities required to manage child welfare operations. These include:

- **Communication and Messaging:** Secure, role-based messaging capabilities for real-time collaboration among stakeholders.
- **Case Management:** Comprehensive tools to track, update, and manage case details, participants, and activities.
- **Task Management and Scheduling:** Intuitive scheduling tools for managing appointments, hearings, and deadlines.
- **Reporting and Analytics:** Real-time reporting tools to provide actionable insights and measure performance metrics.

The service tier is powered by Cardinality's Empower Platform, which incorporates advanced components such as:

- **Role-Based Access Control (RBAC):** Facilitates secure, role-specific access to data and tools.
- **Workflow configurator and Business Rules Engine:** Automates complex workflows and enforces business rules efficiently.
- **Machine Learning and Analytics:** Provides predictive insights to enhance decision-making processes.
- **Alerts and Notifications:** Keeps stakeholders informed about critical updates and deadlines.
- **Learning Management System (LMS):** Facilitates training and workforce development for agency staff.
- **Legacy Integration:** Enables smooth connectivity with existing systems like PATH and CCWIS.
- The platform also supports key features such as OCR for document processing, batch processes for bulk data handling, and Cardy AI for chatbot and voice-based interactions.

Data Tier: The data tier provides efficient data storage, retrieval, and processing, serving as the foundation for the solution's operations. It consists of:

- **PostgreSQL Databases**
- **Operational Data Store (ODS):** Facilitates real-time data processing for operational needs.
- **OLTP (Online Transaction Processing):** Manages high-volume transactional workloads.
- **Cache System (Redis):** Improves performance by enabling fast access to frequently used data.
- **State Data Center Legacy Databases:** Maintains compatibility with existing infrastructure, maintaining data integrity during transitions.
- Additionally, the data tier includes advanced features like traffic routing and health monitoring to enable optimal system performance. Scalability is achieved through dynamic resource allocation, allowing the system to handle increased workloads without disruptions.

Enterprise Architecture Components

The WV-MACS solution will leverage enterprise-grade components to enhance efficiency and integration. These include:

- **DevOps (AWS):** Supports continuous deployment, monitoring, and scaling.
- **ITSM (JIRA):** Manages service requests and incident tracking.
- **Document Management (Empower Platform):** Facilitates secure and efficient document handling.
- **SSO/IAM (AWS SSO):** Manages secure single sign-on and identity management.
- **Reporting Tools (MicroStrategy, Tableau, Power BI):** Provide advanced dashboards and visualizations for comprehensive analytics.

These components enable the solution to be both robust and adaptable, meeting current requirements while allowing for future enhancements.

Integration and Interfaces

A key strength of our WV-MACS solution is its ability to smoothly integrate with internal and external systems. The architecture utilizes WSO2 Enterprise Integrator to manage and orchestrate these integrations effectively.

Integration Features:

- **Data & API Integration:** Facilitates smooth data exchange between the WV-MACS solution and other systems.
- **Framework Services:** Provides data transformation, routing, and orchestration capabilities.

Integration Channels:

- REST APIs for real-time interactions
- Support for JSON, XML, and CSV formats for data exchange
- Batch processes for handling large-scale data transfers

Interfaces:

- **CCWIS and PATH Systems:** Enable real-time, bidirectional data exchange for case updates, placements, and other critical information
- **Federal and State Reporting Systems:** Maintain compliance by facilitating smooth data submission to regulatory bodies
- **Other External Systems:** Allow integration with third-party tools and services for additional functionality

The integration framework enables data to flow securely and efficiently, enhancing interoperability and compliance with federal and state regulations.

Scalability and Security

The WV-MACS solution is hosted on a FedRAMP-authorized AWS Cloud, providing a secure and scalable infrastructure. Key security features include:

- **Role-Based Access Control (RBAC):** Limits access to authorized users based on their roles
- **End-to-End Encryption:** Maintains data security during transit and storage
- **Logs and Audit Trails:** Provide comprehensive monitoring to track all activities and maintain data integrity

Scalability is achieved through features like dynamic resource allocation, enabling the system to handle growing demands without compromising performance. This enables the solution to adapt to future needs, whether due to increased users, data volume, or new functionalities.

The WV-MACS solution architecture is a comprehensive, secure, and scalable framework tailored to the unique needs of West Virginia DHS. By combining a multi-tiered structure with enterprise-grade components and robust integration capabilities, the solution facilitates smooth operations, enhanced collaboration, and improved outcomes for children and families. This architecture is pre-built to meet today's needs while remaining adaptable for the future, making it an ideal choice for modernizing child welfare operations.

Integration architecture

The WV-MACS solution is designed to provide smooth and secure integration with internal and external systems, addressing the diverse operational needs of the WV DHS. This architecture **(Figure 23)** facilitates efficient data exchange, compatibility with existing systems, and compliance with federal and state mandates. By leveraging modern technologies and industry-standard protocols, the WV-MACS solution facilitates real-time and scheduled integrations that enhance communication and collaboration among stakeholders.

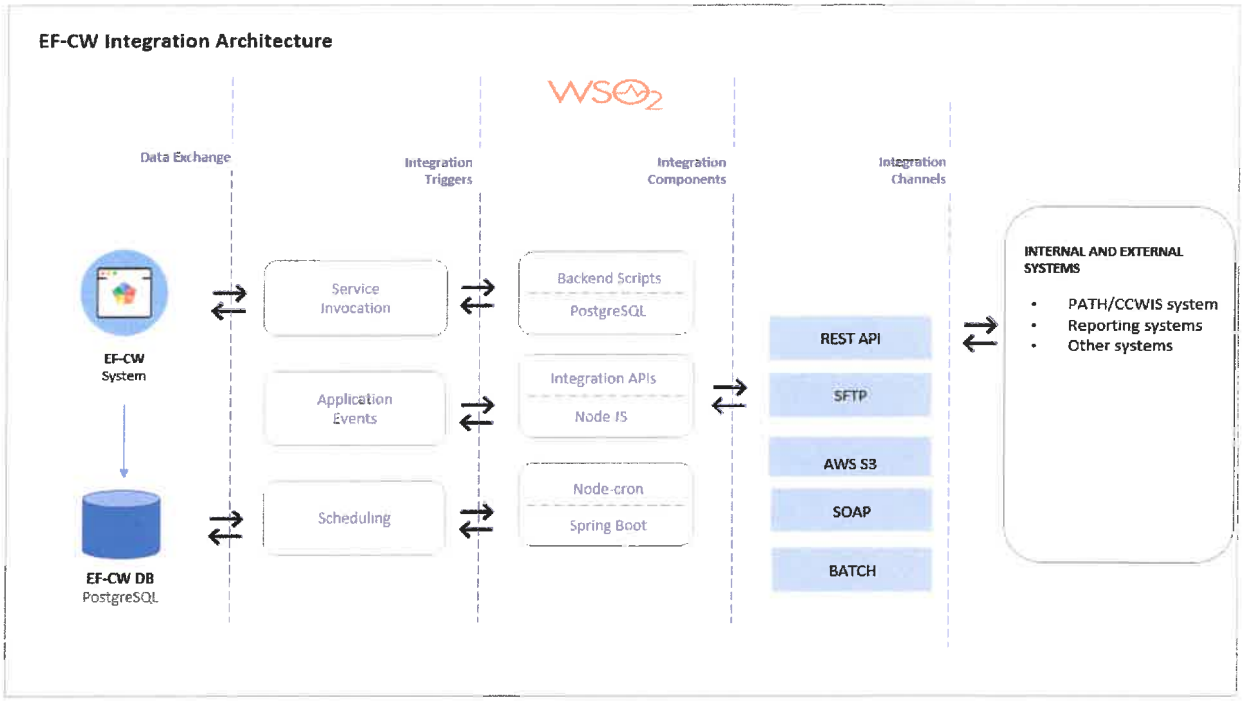

Figure 23: WV-MACS Integration architecture

At the core of the architecture will be the WV-MACS solution, powered by a PostgreSQL database that supports all data operations. Integration is triggered through multiple mechanisms, including service invocations, application events, and scheduled tasks. This multi-layered approach enables data to flow smoothly and reliably, whether in real-time or as part of routine batch processes. Service invocations handle immediate requests, application events capture system-level changes, and scheduling enables periodic data synchronization, allowing for flexible and comprehensive integration capabilities.

The solution employs a robust set of integration components to manage these interactions effectively. Backend scripts in PostgreSQL handle data transformations, while lightweight Node.js APIs act as an integration layer, maintaining scalability and efficient communication with external systems. For scheduled tasks, tools like Node-Cron and Spring Boot orchestrate data updates at predefined intervals, enabling automation of repetitive processes. These components work together to create a reliable and adaptable integration framework.

The solution leverages WSO2 Enterprise Integrator, a robust middleware platform, to streamline data exchange, enable real-time integration, and maintain compliance with federal and state mandates. This comprehensive approach enhances communication, collaboration, and decision-making across stakeholders and systems. WSO2 Enterprise Integrator plays a pivotal role in managing and orchestrating all integration activities. Acting as the central middleware layer, WSO2 enables smooth

connectivity between the WV-MACS solution and external or internal systems through its integration components.

To facilitate secure and efficient data exchange, the solution utilizes a variety of integration channels. REST APIs will enable real-time, synchronous interactions with internal or external systems, while SOAP APIs enhance compatibility with legacy systems that rely on XML-based communication. For file-based data transfers, the solution leverages SFTP (Secure File Transfer Protocol), and AWS S3 provides a cloud-based mechanism for storing and retrieving large datasets securely. Batch processes are employed for bulk data handling, offering flexibility for systems requiring periodic synchronization instead of continuous updates.

The WV-MACS solution integrates smoothly with both internal and external systems critical to the child welfare program's success. For internal systems, it facilitates bidirectional communication with PATH and CCWIS, enabling real-time updates to case records, placements, and communication logs. It can also integrate with state or federal reporting systems to provide dynamic dashboards and analytics that aid in decision-making. The architecture's modular design supports custom integrations with third-party systems, facilitating future scalability and adaptability to evolving agency needs.

The security and scalability of the WV-MACS solution make it an ideal choice for DHS. By leveraging industry-standard protocols, secure cloud services like AWS S3, and role-based access controls, the solution maintains compliance with data privacy regulations such as HIPAA and FERPA. The WV-MACS solution provides a secure, scalable, and adaptable framework to meet the integration needs of West Virginia DHS. By facilitating smooth connectivity with internal and external systems, the solution enhances data accuracy, streamlines workflows, and supports the agency's mission to improve outcomes for children and families. This robust solution is pre-built to drive operational efficiency and enable the agency to remain agile in the face of evolving technological and regulatory requirements.

6. Vendor Staffing

4.1 Vendor Staffing: Vendor should identify its staff for this project and include resumes for key staff that demonstrate relevant experience with similar projects (i.e., engagement manager, project manager, business analyst, and technical staff). If key project staff are added or replaced during the Project, the Agency reserves the right to review the qualifications and responsibilities of the staff and approve the assignment of the staff before they are officially added to the Project and before they perform any work on the Project. The Vendor should notify the State within two business days if key project staff are added or replaced during the Project. (RFP Section 4.2.1.5)

Proposed Organization Structure

Team Cardinality is committed to assembling a high-performing, diverse, and inclusive team to successfully deliver the WV-MACS Solution for WV DHS We have identified key personnel to fulfill critical leadership and management roles, facilitating smooth communication, issue resolution, and successful project execution.

- **Senior Executive for Escalation:** To address project risks, issues, or concerns that cannot be resolved by the project team, Cardinality designates **Toni Blue Washington** as the senior executive. Toni's role will include:
  - Providing strategic oversight and decision-making authority.
  - Acting as the escalation point for unresolved project risks and concerns.
  - Maintaining alignment between the project's objectives and the Agency's strategic goals. Toni brings extensive leadership experience and a proven track record in managing complex projects, making her a reliable point of contact for high-level escalations.

- **Dedicated Project Manager for Implementation: Harsha Velamuri**, will lead the implementation phase of the WV-MACS solution. Harsha's responsibilities will include:
  - Overseeing project planning, scheduling, and execution.
  - Managing project deliverables, timelines, and budgets in alignment with the Agency's requirements.
  - Facilitating communication and collaboration between Cardinality, the Agency, and other stakeholders.
  - Proactively identifying and mitigating risks to promote project success.

"Harsha was the project manager for Georgia Communicare Project in 2023 where Cardinality implemented the Mobile application communication solution for the DHS team. His experience in Agile project management methodologies make him exceptionally qualified to manage the implementation process efficiently and effectively.:

Proposed Key Persons for this Project:

Cardinality's key resources proposed for this project are given below in **Exhibit 3.** Their resumes are attached in Appendix 1 at the bottom of this document.

Names	Role	Engagement Role
Toni Blue Washington	Accounts Executive	• Providing strategic oversight and decision-making authority. • Acting as the escalation point for unresolved project risks and concerns. • Maintaining alignment between the project's objectives and the Agency's strategic goals. Toni brings extensive leadership experience and a proven track record in managing complex projects, making her a reliable point of contact for high-level escalations.
Harsha Velamuri	Project Manager	• Manages the project schedule, assists with team coordination, and is responsible for the delivery & implementation of WV-MACS. • Day-to-day management of project activities. • Hold regular project team meetings (weekly/monthly) with WVrepresentatives and other Program stakeholders to set project priorities and communicate detailed project status. • Serves as the point of escalation for project risks and issues and will coordinate with WV DHS agency project managers.
Chanakya Katukojwala	Solution Architect	• Oversee the development of the proposed solution and provide overall direction for system architecture. • Lead the development team and ensure requirements are implemented in a cohesive, streamlined, and technically sound manner. • Provide technical support translating business requirements into technical requirements. • Ensure that system enhancements are strategically sound and meet the long-term vision of the proposed solution
Bose Subash	Software Development Lead	• Responsible for customizing and configuring the WV-MACS solutions' technical requirements, as well as supporting data configuration and interface integration. • Responsible for handling Cardinality Platform development in its agile sprints across the module sprints.

Ravi Motwani	Test Lead	• Responsible for the development and implementation of the test plan, along with leading the Testing team. • Work with the WV DHS to define the scope of testing, oversee all testing activities, and apply appropriate test measurements and metrics.
Yashwanth U	Business Analyst	• Responsible for gathering and analyzing business requirements, enabling project goals to be met, and serving as a bridge between stakeholders and the development team.
Derrick Stevens	SME / Trainer	• Responsible for conducting Training needs, Assessments, and developing Training Plans. • Develop training materials, including user manuals, guides, and multimedia presentations. • Conduct instructor-led training sessions, facilitate virtual training programs, and manage documentation and reports.

Exhibit 3: Key Persons for WV-MACS project Implementation

Addition or Replacement of Key Project Resources:

Team Cardinality acknowledges and fully complies with the requirement regarding key project staff changes. If any key project staff are added or replaced during the project, we will promptly notify the State within two business days. Additionally, we will provide the qualifications and responsibilities of the proposed staff for the Agency's review and approval before they are officially assigned and begin work on the project. This ensures transparency, continuity, and alignment with project objectives.

For the Organization Chart, please refer to Figure 5 in the Executive Summary section.

7. System Information

System Information: The Agency requires a Vendor-hosted Solution. (RFP Section 4.2.1.6)

Cardinality's WV-MACS solution follows a vendor-hosted model and will be hosted in AWS GovCloud (US-East), maintaining full compliance with the agency's requirement for secure and reliable hosting. AWS GovCloud is specifically designed for U.S. government workloads, offering robust features such as enhanced security, data residency, and regulatory compliance. All agency data will be securely stored in U.S.-based data centers, meeting standards such as FedRAMP, ITAR, and CJIS, thereby safeguarding sensitive child welfare information.

In this hosting model, Team Cardinality will be responsible for hosting, maintaining, and supporting the solution. This includes maintaining availability, performance, and security through proactive system monitoring, regular updates, and comprehensive disaster recovery plans. By taking ownership of these responsibilities, we alleviate the operational and technical burdens on the agency, enabling them to focus on their core child welfare objectives.

Our hosting model offers several key benefits, including scalability, allowing resources to grow with the agency's needs; cost efficiency, by removing the need for infrastructure investments; and reliability, facilitating high uptime and accessibility. Additionally, this approach enhances data security and simplifies maintenance. This model provides a streamlined, secure, and efficient operational experience for West Virginia DHS.

7.1 The Solution license and/or subscription option(s) (RFP Section 4.2.1.6.1)

Team Cardinality adopts an industry-standard Software-as-a-Service (SaaS) model to license the proposed WV-MACS solution to agencies. Under this model, agencies pay an annual subscription fee to access Cardinality products and services. The pricing/licensing is flexible and can be tailored to align with agency-specific requirements, providing a cost-effective and scalable solution.

Our SaaS model is based on the number of agency workers who require access to the system. The licensing is offered on a 'Named User' basis, where each Named User is an individual agency employee, contractor, or affiliate with a unique login to the system. The tiered licensing model is designed to align with the agency's workforce size and operational needs. Key user groups, such as administrators, internal users, and external users, are included in the license calculations, while citizen users are excluded. This enables the pricing to remain fair and directly tied to the active system users.

The license pricing includes:

- Access to the low code Empower platform and all associated applications and portals.
- All third-party licenses required for system operations, such as the Report Engine and Business Rules Engine.
- Cloud hosting fees, integrated as part of the AWS-hosted solution.

Transition to Subscription-Based Pricing:

Upon completing the implementation phase, the licensing model transitions to a subscription-based per-user pricing structure. Under this structure, agencies pay an annual recurring fee for ongoing access to the SaaS platform and its features, facilitating predictable and transparent pricing.

Support Services and Maintenance:

The subscription fees include comprehensive support services, such as:

- Timely issue resolution.
- Regular maintenance updates and system monitoring.
- Continuous improvement recommendations to optimize system performance.

The annual maintenance fee also covers regular upgrades and feature enhancements, enabling the WV-MACS solution to evolve with the agency's needs over time. These services are integrated into the Monthly Maintenance & Operations (M&O) Fee, providing reliable and uninterrupted system support throughout the contract period.

Hardware and Hosting Costs:

As the solution is hosted on AWS, all hardware costs are consolidated within the AWS hosting fees, facilitating a streamlined and cost-efficient pricing model for infrastructure needs.

This licensing model enables the WV-MACS solution to be accessible, scalable, and cost-effective for West Virginia DHS, catering to a wide range of stakeholders, including 6,000 children/youth in foster care, 850 child welfare workforce members, 67 SNS provider agencies, 55 legal community users, and 10 CPAs. By incorporating flexible pricing, robust support services, and smooth cloud hosting, the solution empowers agencies to focus on improving child welfare outcomes while maintaining financial predictability.

7.2 The current release and maturity of the Solution (RFP Section 4.2.1.6.2)

Team Cardinality will deliver its latest Child Welfare mobile application communication software, EF-CW v2025.4.1 - v0 (Base version), to West Virginia DHS within 30 days of project kickoff. This will serve as the baseline version for the modern West Virginia Child Welfare Mobile application communication software (WV-MACS v0).

Our team will be following a gap-based implementation methodology; the baseline version will be used for conducting discovery sessions, and gaps are incrementally addressed using our gap-based implementation model.

EF-CW v2025.4.1 will serve as the WV-MACS Version 0 (v0), and during Sprint 1, we will address some of the identified gaps and update v0 to v0.1, making incremental progress toward WV-MACS Version1 (v1), the planned go-live version. This iterative process will continue through each sprint, resulting in intermediate versions such as v0.2, v0.3, and so on. Throughout the DDI process, we will deliver incremental progress toward the go-live version, WV-MACS v1 (Phase 1), which is targeted for completion by Aug 2025 and WV-MACS v2 (Phase 2) completion by Dec 2025.

Below **Figure 24** is an outline of our proposed approach for incremental configuration, starting with requirement validation, which creates the initial backlog for subsequent refinement and delivery in sprints.

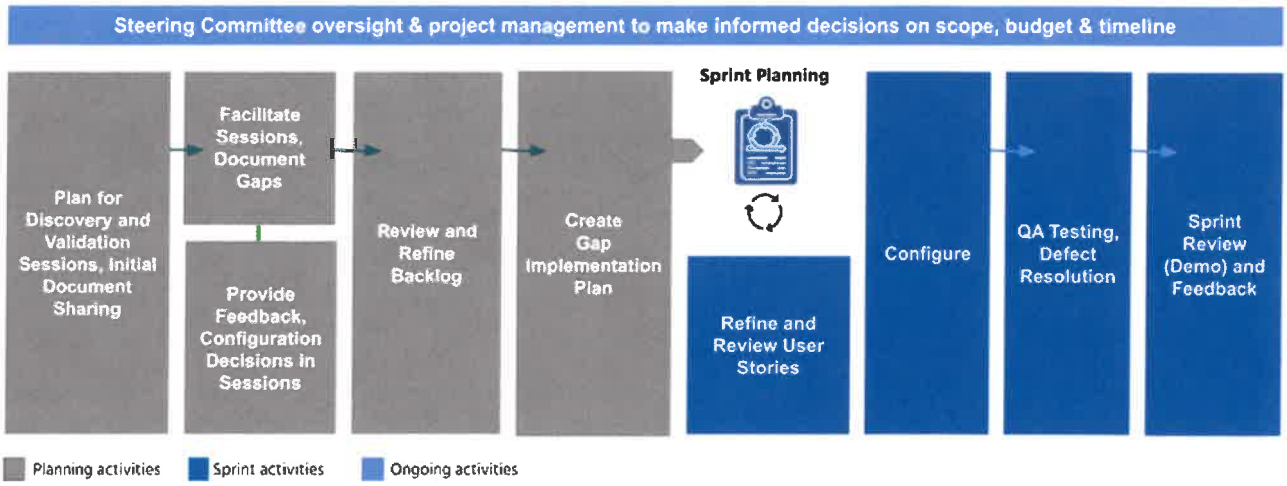

Figure 24: Incremental solution configurations

Team Cardinality's approach to continuous discovery stands in contrast to traditional project methodologies and other vendors. We do not expect every unknown to be defined or every decision to be made prior to commencing development. This method proves valuable, especially when complete requirements are challenging to define up-front. Each sprint in our hybrid-agile model builds upon the last, allowing the integration of feedback and adaptation to new discoveries and decisions throughout the project's progression.

Starting with discovery sessions showcasing demos of our base product, participants and decision makers can immediately relate their business processes or legacy system functionalities to the new solution. This approach not only highlights gaps but also focuses on tactical configurations that are documented for backlog refinement. Prioritized end-to-end workflows, developed through agile sprints, expose necessary decisions, dependencies, user profiles, and other critical elements early in the project, reducing overall implementation risks.

The focus on implementing a basic end-to-end workflow in the initial sprints enables vital features to be operational early on. Frequent live demos coupled with focused review sessions with West Virginia DHS Leadership help refine user stories, manage and prioritize backlogs, and approve demonstrations, thereby maintaining a dynamic and responsive project environment. This approach enables Team Cardinality to remain aligned with stakeholder expectations and project goals, facilitating a successful and timely project delivery.

7.3 The number of non-production environments included in the subscription or license (RFP Section 4.2.1.6.3)

Apart from the production environment, our subscription includes four non-production environments: **Development, Staging, Testing, and Training.** These environments are isolated to support iterative development, rigorous testing, user acceptance validation, and training activities. This setup facilitates a robust deployment pipeline, maintaining system integrity and enabling smooth transitions from development to production.

7.4 Data hosting location(s), with consideration for the fact that Agency data must be stored in data centers located in the U.S. (see Attachment B: Software as a Service Addendum) (RFP Section 4.2.1.6.4)

Our solution will be hosted in AWS GovCloud (US-East), maintaining compliance with the requirement that all agency data must be stored in the U.S.-based data centers. AWS GovCloud (US-East) is specifically designed for U.S. government workloads, offering enhanced security, data residency, and regulatory compliance, including FedRAMP, ITAR, and CJIS standards. Its geographic proximity to West Virginia reduces latency, providing faster response times and improved system performance for users. Additionally, AWS GovCloud offers built-in encryption for data at rest and in transit, robust disaster recovery capabilities, and scalability to meet future West Virginia DHS needs, delivering reliability and security for sensitive data.

7.5 Scheduled maintenance including the maximum number of hours per month the system will be unavailable due to maintenance activities and how maintenance will be planned to avoid disruption. (RFP Section 4.2.1.6.5)

Maintenance & Operations

Team Cardinality has the experience of successfully transitioning responsibilities to State teams in the transition from implementation to maintenance operations. Our goal through this plan is effective knowledge transfer in a structured transition that is smooth to end users and does not detrimentally impact system performance or support. We will be working with the State to maintain operational integrity through M&O activities throughout the length of the Contract. The M&O responsibilities and activities commence at the end of the DDI phase. In the initial months of M&O, we will provide stabilization M&O services. After the initial phase, we will start to provide Steady State M&O services, which are expected to need fewer resources with the reduction in issues, defects, and help desk tickets. We recognize the importance of maintaining the system's stability, addressing any emerging issues, and providing efficient support to DHS throughout the M&O phase.

The M&O Plan will outline the specific activities, roles, responsibilities, and resource allocation for the services therein. By adhering to the plan and leveraging the knowledge gained during the pilot, our team will provide effective M&O services that meet DHS expectations. This will facilitate a smooth transition to the Steady State operations. During the Support Phase, we will provide comprehensive maintenance and operations (M&O) support for the system, adhering to a detailed M&O plan that outlines procedures for system operation, standard service-level agreements for performance, issue resolution, and a robust change management process. Team Cardinality will enable a smooth transition to Maintenance & Operations by focusing on supporting users, promptly identifying and resolving system issues, and implementing prioritized changes and enhancements in planned releases.

Our extensive experience in transitioning maintenance to State teams and operating within various support and M&O models positions us well to deliver continuous value to the WV-MACS Solution through updates and enhancements. Throughout this phase, regular planned activities such as disaster recovery testing, security patching, and ongoing capacity analysis/resource optimization will be conducted. Regular reports will be provided, and engagement will be maintained at multiple levels to provide transparency and accountability.

During the transition from statewide implementation to maintenance, we are committed to supporting the state team throughout this process. We will begin transition work early in the project, working closely with the state team through implementation and dedicated knowledge transfer to equip them with the necessary tools and knowledge for success. Ideally, these resources will be key participants in UAT and system training efforts and become SMEs in the new system. The plan for knowledge transfer will outline the roles and responsibilities, along with the timeline for the knowledge transfer. The plan will be documented and delivered in the M&O Knowledge Transfer Plan.

Ongoing WV-MACS solution operations will include updates, patches, repairs, defect resolution, software upgrades, and technical support throughout the contract term. Additionally, all impacted documentation, including training materials, will be updated in parallel with enhancements to verify that artifacts are current at implementation.

Our **Project Manager Harsha,** will manage ongoing communications with the State, including periodic status reports and meetings, immediate issue notifications, and advance notification of scheduled system downtime, so that all requirements are met, and the system remains robust, secure, and optimized.

Our system will be available for 99.9% of the time, excluding the scheduled maintenance activities. For any outage, we will notify the team within 4 hours and prioritize swift resolution.

Implementation-to-Maintenance Transition

The primary goal for this Maintenance and Operations (M&O) support phase is to provide system reliability, meet the evolving needs of users, address any issues that arise, and enable continuous alignment with State and Federal requirements. Team Cardinality has the experience of successfully maintaining applications with State partners and successfully transitioning maintenance operations to State teams. Following the statewide implementation, the focus will shift to support and operations. We will leverage the child welfare implementation team for M&O activities, which foster continuity, deep system understanding, the ability to quickly adapt to changing requirements, and enable State teams to scale up faster. This integrated support model **(Figure 25)** promotes a smooth blend of development, maintenance, and operations to support end users. Cardinality provides M&O support post-implementation.

Figure 25: M&O transition methodology

The following are key tasks for our team during M&O:

- Providing technical support and incident/problem management functions to support users and resolve any identified system issues.
- Proactive monitoring and problem detection to identify any software glitches, defects, or performance-related issues.

- Planning, coordinating, and implementing maintenance releases, security enhancements, defect resolutions, and prioritized enhancements.
- Ongoing maintenance of system training artifacts and system documentation.
- Performance monitoring and the implementation of efficiency enhancements, i.e., refining database requests, enhancing code, and integrating caching strategies.
- Incorporating security improvements, patches, and industry best practices to secure the application from potential breaches.
- Change and impact analysis to support stakeholder decision making, prioritization, and release scheduling.
- Supporting Federal certification efforts and reviews with Federal stakeholders.

General Systems Support

Our system is meticulously designed to meet all the requirements for General Systems Support. By leveraging the scalability, flexibility, and reliability of cloud infrastructure, our solution enables smooth technical and functional operation of the WV-MACS Solution.

Technical and Functional Support

Our solution goes beyond traditional technical and functional support methods by incorporating intelligent chatbots and built-in context-aware Knowledge Management System (KMS) tools. These advanced features enhance the support experience for users of the WV-MACS solution. The intelligent chatbots are equipped with natural language processing capabilities, allowing them to understand and respond to user inquiries in a conversational manner. They can provide real-time assistance, answer common questions, and guide users through various system functionalities. The chatbots also use the KMS, a vast repository of system-related knowledge, which includes FAQs, troubleshooting guides, and best practices. This knowledge is continuously updated and enriched, so that users receive accurate and up-to-date information.

We also have a dedicated support team available to address user inquiries, troubleshoot issues, and provide guidance to system users. Through various communication channels, such as email, phone, or a dedicated support portal, users can reach our support team for prompt assistance.

Defect Resolution

Defect resolution is our priority to maintain high performance. The system promptly identifies, and addresses reported defects. Our support team works diligently to investigate, analyze, and resolve any issues encountered by users. For emergency defects requiring immediate attention, we provide an escalation matrix for support to make sure the system is addressed and concluded.

Routine Maintenance

The system allows smooth routine maintenance changes. Our team will be responsible for managing necessary maintenance tasks, such as security patches, equipment configuration changes, and so on. These changes are implemented with minimal disruption to the system, facilitating continuous availability and optimal performance. We work closely with the State to schedule maintenance activities during periods of low system usage, minimizing any potential impact on system availability. By adhering to mutually agreed-upon maintenance schedules, we will provide uninterrupted access to the WV-MACS solution.

Downtime Communication

We maintain open and transparent communication with the State regarding any activities that might impact system downtime. In case of urgent deployments or patches, we promptly notify the State, providing detailed information about the planned downtime, its duration, and any necessary actions on the State's part. This allows the State to inform users, plan accordingly, and implement any required contingencies.

Ad-hoc Report and Query Development

The communication system for child welfare will offer support for ad-hoc reports and query development requests. All stakeholders will be able to generate custom reports or queries to extract specific information or perform data analysis, as needed.

Infrastructure Management

Our comprehensive support model includes maintaining the application infrastructure and toolset for all non-production and production users of the WV-MACS Solution. We verify that the underlying infrastructure remains robust and up-to-date, capable of supporting the system's current and future needs. This involves forecasting and obtaining the necessary license agreements to maintain compliance with applicable regulations and licensing requirements. We will be addressing all functional issues, applying patches and updates, performing preventative maintenance, planning, and executing system upgrades, as well as regularly monitoring system performance and providing performance reports to the State. Additionally, we proactively communicate all available information on product roadmaps, planned upgrades, and enhancements to keep the State fully informed. We value the State's input to maintain alignment with their requirements and goals. Through these measures, we facilitate the WV-MACS Solution to remain resilient, secure, and optimized.

Application Monitoring

We use the extensive infrastructure services available as part of the AWS platform to deliver a high-performance system to the users. The cloud infrastructure is constantly monitored using AWS CloudWatch, which is a monitoring and observability service for the application infrastructure. It provides data and actionable insights to monitor the applications and helps identify and respond to performance changes and optimize resource utilization. Infrastructure and Performance logs are continuously captured and will be used for publishing scheduled reports highlighting the performance metrics of the application. These performance logs will be used by our team to validate that the application meets or exceeds the expectations of DHS.

The CloudWatch Synthetics' capability to create "canaries" helps assess the performance of the application from a user standpoint. It provides insights into key metrics such as Availability, Latency, Load time, and API response times, which provide a detailed understanding of the application performance. These canaries can be scheduled to run every minute, providing a complete log of application performance during business hours. This helps optimize the user experience and application performance.

CloudWatch Synthetics together with AWS X-Ray, provides a timeline view of the requests as they travel through the application. It provides visual data across payloads, APIs, functions, and so on, offering detailed traces and constructing a service map. This service map is then used to generate powerful analytics to quickly identify and debug issues before users encounter them. X-Ray Analytics helps run analytics to filter, compare, and analyze traces to identify root causes of application

performance issues. Enabling AWS CloudWatch Service Lens creates a highly observable map of our services, providing rich insights into the traces, metrics, alarms, logs, and related application health and performance indicators.

This log will be used to provide a dashboard that offers ad-hoc analytics and insights, including metrics such as application uptime during business hours, Average Response Rate (ARR), and others. Our solution will be configured to provide an ARR of 1 second or lesser, which can be periodically validated. It will also be designed to provide a high uptime of 99.999% if we enable multi-AZ configuration in AWS.

Our comprehensive application monitoring includes troubleshooting, security incident management, and helpdesk support. We proactively monitor the WV-MACS Solution to maintain smooth and uninterrupted operation. Our dedicated support team is equipped to handle security incidents promptly, employing best practices and incident response protocols to mitigate risks effectively. Additionally, we provide help desk support, offering timely assistance and guidance to users encountering any challenges or requiring system-related support. As part of our commitment to continuous improvement, we provide recommendations on architecture, software, or hardware adjustments that can minimize operational risks. These recommendations are shared with the State every semester, enabling proactive risk mitigation and verifying that the system operates in an optimized environment.

Issue Management

Our commitment to providing reliable support for the system includes proactive planning and flawless execution to minimize issues. However, if incidents or problems do occur, our support team will work closely with DHS to resolve them in a timely manner. We have a clear escalation procedure and a matrix so that any production issues receive the necessary attention. This verifies that critical issues are escalated through the appropriate channels, providing swift resolution and minimizing any potential impact on system functionality.

Our approach to providing technical support and comprehensive incident management is based on our experience supporting users, empowering State support teams, and implementing modernized systems and industry best practices following the ITIL framework. We propose following a tiered support model, using JIRA to track and manage incidents while maintaining a linkage with requirements and configurations. Moreover, the Incident Management Plan will be formalized with DHS.

Based on our success in transitioning user support in Maryland and other States to State teams, we are confident we can enable, empower, and support DHS technical support team. As part of our support process, resolutions are validated by the reporting user to validate that the reported problem is solved. Through JIRA, end-users will receive email updates throughout the process, and requirements can be linked directly to incidents and reported upon. Each tier in the process takes responsibility for correlating and linking the ticket to relevant requirement(s), other incidents, test cases, processes, and more. JIRA allows for ease of search in finding and associating requirements with incidents. It will enable this traceability, enabling impact analysis, change control, and thorough testing. Additionally, JIRA will empower the support team with dashboards and metrics for monitoring and reporting on incidents.

A Triage SOP will be developed and approved by DHS outlining the initial impact assessment and ticket severity/priority. As part of the ticketing process, and with each subsequent review, the impact of the problem will be assessed, and the ticket's severity will be designated. The severity will drive escalation and align with the Escalation Plan. This tiered approach verifies that incidents are managed efficiently and effectively, minimizing downtime and facilitating the continued operation of the system.

The incident management process will follow a tiered approach to categorize and manage incidents based on their severity and impact. This approach validates that incidents are addressed in a timely and effective manner, aligning with the Escalation Plan and the Communications Plan. The severity levels, as outlined in the scope of work, are categorized into four levels: Critical, High, Medium, and Low. Each level has a specific description and resolution time:

- **Critical:** System failure, unable to proceed with selected function or dependent components unavailable or functionally incorrect. Resolution time will be within four hours of identification.
- **High:** Unable to proceed with selected function or dependent components unavailable or functionally incorrect, but an acceptable workaround is available. Resolution time will be within one business day of identification.
- **Medium:** Restricted function capability, but processing can continue. Resolution time will be within five business days of identification or resolution time approved by the State.
- **Low:** Minor cosmetic changes needed, usability errors that do not affect the quality and correctness of function. Resolution time will be within two weeks of identification or resolution time approved by the State.

Access Management

Our team's RBAC (Role-Based Access Control) plays a crucial role in providing access management within the WV-MACS solution application. RBAC limits safe access to information by granting access privileges based on specific roles assigned to individuals. It accommodates the access controls for all existing roles in the CCWIS system.

Additionally, the solution allows for the creation and configuration of new roles as needed, providing adaptability, and verifying that access privileges remain aligned with the evolving needs of the system. We will assist in defining user roles and security configurations for the system, including the creation of new roles, and monitoring of user access rights based on internal requirements. We will verify the proper management of unique login IDs and security profiles for authorized users, including contractors, as designated by DHS.

Performance Monitoring Tools

We prioritize delivering robust and high-performing systems. We achieve this through a multi-layered performance testing methodology that leverages industry-leading tools like LoadRunner, JMeter, Dynatrace, AppDynamics, and CA Introscope. This comprehensive approach assesses the entire technical architecture, including code, integrations, databases, networks, and hardware, validating all interfaces function optimally under varying loads and defined performance requirements. We identify and address potential bottlenecks proactively, enabling the interfaces to handle real-world demands.

Furthermore, Cardinality employs a proactive performance monitoring strategy. Our team conducts daily monitoring of system operations, recommending necessary adjustments to maintain peak efficiency and user experience. This ongoing monitoring encompasses all system components, including operating systems, third-party integrations, databases, and related infrastructure. We also analyze and probe system components upon request, assessing database integrity and performance. Based on these findings, we recommend actions to meet or improve upon established Service Level Metrics (SLMs), maintaining your system consistently delivers exceptional performance.

Release Management

After the implementation, we will follow a well-defined release strategy for continuous improvement, as part of the Maintenance & Operations phase. The three-pronged approach to addressing system upgrades and enhancements is as follows:

Our WV-MACS solution follows a structured release management process to provide continuous improvement and alignment with user needs. Major releases will introduce significant updates to infrastructure and user experience, incorporating user feedback to align with industry best practices. In addition, minor releases will deliver cumulative enhancements and bug fixes based on continuous user surveys, enabling quicker adoption of improvements while minimizing risk and cost. For urgent needs, critical patch releases are deployed collaboratively by the customer success and implementation teams to address specific issues impacting projects. These hotfixes are cumulative, resolving critical bugs, and are subsequently included in the next minor release, facilitating smooth system updates and stability.

Release Planning and Communication

We will verify that there is a smooth upgrade and enhancement process with minimal disruption and user impact. For all changes, we conduct a thorough technical impact analysis and risk identification, proactively addressing and mitigating potential issues. We perform comprehensive testing, encompassing functional, regression, performance, and security aspects, as per State requirements. Our team actively supports user acceptance testing and orchestrates migration to production, aligning with scheduled maintenance windows to minimize downtime.

Furthermore, we incorporate release reviews as a regular agenda item in our M&O status meetings. This collaborative approach allows State staff to provide input on minor releases, stay informed of upcoming features and fixes, and discuss the integration of these enhancements into the project's overall release schedule. During these sessions, we provide summaries of included features and fixes, update system documentation with dated and appended change logs, and furnish DHS with comprehensive release notes detailing changes, potential impacts, and any necessary user or administrator instructions. This proactive communication empowers the State to plan for upcoming updates and enable a smooth transition during product upgrades and system enhancements.

Team Cardinality is committed to minimizing downtime during routine maintenance and planned updates by scheduling these activities outside business hours. Our approach involves planning releases, security patching, and other impactful activities to minimize business disruptions, typically completing these tasks at night with special operational procedures in place. We strive to minimize impacts and complete routine updates in the shortest windows possible. Generally, minor and major releases are completed within a few hours outside of business hours (overnight or weekends), complemented by releases for bug fixes and enhancements.

Release dates and maintenance windows will be coordinated with the agency. We have established special procedures for staff to access critical data during maintenance windows, such as allowing operational staff access to pre-production environments for decision-making purposes. This schedule facilitates timely updates while providing flexibility to bundle and deploy changes systematically. High-impact issues that significantly affect end-users may prompt expedited releases to verify critical fixes are addressed swiftly. Release preparation includes comprehensive testing, documentation, and

communication to validate stakeholders are well-informed and the deployment process is smooth. Once validation in the staging environment is complete, updates are rolled out to production.

To address critical post-release issues, we implement an agile patch management process that allows for the release of emergency patches outside the regular schedule. Continuous post-release monitoring is crucial to promptly identify and resolve unforeseen issues in the production environment. Stakeholder feedback will be actively collected to validate the effectiveness of bug fixes and enhancements, facilitating continuous improvement of the release process. This iterative approach, driven by feedback and evolving business needs, enables the WV-MACS solution to remain robust and user-centric.

Surge Support capability

Team Cardinality is prepared to smoothly manage surge scenarios and manage exceptional system performance even during periods of exceptionally high activity. Our comprehensive plan leverages the inherent scalability of the cloud and our commitment to proactive support and collaboration with DHS. Firstly, our AWS-based system is designed to automatically scale resources—compute power, storage, and database capacity—in real-time to accommodate sudden spikes in user activity or data volume. This dynamic scaling, powered by the elasticity of the AWS cloud platform, enables our system to effectively handle increased load without compromising performance or user experience.

Additionally, we continuously monitor system health and performance metrics. This proactive approach allows us to identify potential bottlenecks or resource constraints before they impact system availability. In the event of a surge, real-time alerts will notify our team, enabling us to take proactive measures and scale resources pre-emptively to mitigate any potential performance issues.

Finally, Team Cardinality provides round-the-clock support during both normal operations and surge events. Our dedicated support team will be readily available 24/7 to collaborate closely with DHS. This collaboration provides clear communication and a prompt response to any surge-related needs or requests. Our team will work diligently to address your requirements and verify the system continues to function optimally throughout the surge event. By prioritizing open communication and collaboration throughout the process, we can effectively address surge scenarios and maintain minimal disruption to your operations.

Helpdesk Support

Team Cardinality has more than 20 years of experience successfully supporting both daily development and daily Operations and Maintenance (O&M) across several of our government contracts. We understand the critical nature of the defined hours of operation and will continue to operate within the existing hours of operation as defined in the solicitation. Team Cardinality will provide coverage for all 3-tier support (Tier 1, Tier 2 & Tier 3) with coverage during those hours through staggered shifts and provide on-call support on weekends and holidays.

Tier 1 Support: Team Cardinality's Help Desk team will provide Tier 1 support to end users. Team Cardinality will assist them with various system-related technical issues, including but not limited to outages or programming errors. Our proposed solution includes various user assistance features like:

- Self-serve resolutions related to login, password resets, etc. using Forgot Password and MFA features.
- Chatbot Assistant and Knowledge Management System (KMS) with access to FAQs and How-to training videos.

- In-built contact support feature for Easy ticket creation, communication, regular updates, and tracking to resolution.
- The Role Based Access Control component of the Cardinality solution will be accessible to manage user roles, accounts, and permissions. Team Cardinality will provide comprehensive training, detailed product documentation, and How-to training videos in KMS to empower the system administrators.

These features will make it easy for all users to self-serve and resolve the most common issues in accessing the system.

The Tier 1 help desk team will be able to report issues to Team Cardinality's Tier 2 helpdesk team via multiple channels:

- Chatbot Assistant
- Agency's existing Ticketing Tool
- In-built contact support feature for ticket creation
- Support Email Id
- Contact the product support engineer by phone.

Tier 2 Support: Team Cardinality's Tier 2 engineers will support more complex issues related to applications, cases, workflows, and user configuration issues. We will work with users and leverage system administration and troubleshooting tools to resolve incidents. These responsibilities will include handling application issues, user issues, workflow issues, and more. Our Tier 2 engineers will use application logs, DB Queries, and application configurations to resolve issues. Tier 2 will maintain metrics on ticket trends and identify areas of value to target. This process will include expanding the knowledge base with known issues and resolutions and communicating them to Tier 3 when critical incident categories need to be prioritized. Typically, Tier 2 issues are resolved through configuration changes or database fixes.

Tier 3 Support: Tier 3 support is provided by Team Cardinality's experienced product specialists with in-depth functional and technical knowledge. This is available for both operational and advanced issue resolutions. Our specialists have technical and engineering proficiency, complemented by business and process expertise, enabling them to effectively manage the application, review Tier 3 issues, and devise resolution strategies based on ticket severity, risk, and impact. Tier 3 support offers an advisory role to Tier 2 support, offering guidance on troubleshooting, system training, SOP creation and improvement, knowledgebase enhancement, and resolving user tickets when needed. Typically, Tier 3 issues involve resolution through configuration changes, database fixes, and emergency code releases.

Team Cardinality will have a resource available 24/7 to support the WV MACS users for critical production issues (Severity Tier 1), where the platform is entirely non-functional and inaccessible to all users. For routine customer support, we will staff the following hours:

- Staffed Monday–Friday, 7:00 AM to 7:00 PM Eastern time (EST).
- Severity one issues during off hours and weekends will trigger an alert from the operations team and will be sent to the on-call personnel responsible for engaging the proper resources and coordinating communications.

- On-call team members respond to the pager duty alert within 15 minutes.
- If the issue is internal to WV-MACS systems, we will engage the appropriate on-call staff until the issue is resolved. Our resources in our developer labor category will provide support for this Tier 3 ticket resolution.

8. Compliance with Mandatory Project Requirements (§ 4.2.2)

8.1 General Project Requirement: Vendor must host an initial planning session(s) with the Agency within 30 days after project start date, with the goal to finalize the project plan and schedule. (RFP Section 4.2.2.1)

Within 30 days of the project start date, Team Cardinality will host initial planning sessions with the WV DHS team as part of the Initiate Phase. These sessions aim to align on the project's future vision, finalize the project plan, and establish governance and communication processes. Key activities include conducting kickoff meetings to align with stakeholders, defining project goals, confirming requirements, and identifying any gaps between the baseline solution and project needs. Additionally, we will collaborate with DHS to establish workstreams (agile teams), create work plans, and outline deliverables, timelines, and resource requirements. This process enables clear communication, stakeholder engagement, and an agreed-upon Scope of Work (SOW) to guide the project's success.

8.2 Vendor Staffing: The awarded Vendor will provide staffing resources to successfully complete the implementation tasks, including system configuration, customization, testing, training, and go-live support tasks to meet Agency requirements. The Vendor's internal policies and procedures for hiring must comply with ((RFP Section 4.2.2.2):

→ WV Office of Technology Policies (https://technology.wv.gov/ot-policies), particularly PO1012 Contract Management (RFP Section 4.2.2.2.1)

→ Agency Office of Shared Administration the Office of Management Information Services (OMIS) Policy #0529 (Attachment C: Vendor/Contractor Employee Background Check Policy) (RFP Section 4.2.2.2.2)

→ OMIS Procedure #OP-35 (Attachment D: Vendor/Contractor Employee Background Check Procedure). (RFP Section 4.2.2.2.3)

Team Cardinality confirms that our team will fully adhere to the staffing requirements outlined in Section 8.2 of the RFP. Our internal hiring policies and procedures are fully compliant with the WV Office of Technology Policies, including PO1012 Contract Management, as well as the Agency's Office of Shared Administration requirements. We have carefully reviewed Attachment C (Vendor/Contractor Employee Background Check Policy) and Attachment D (Vendor/Contractor Employee Background Check Procedure), and our staffing practices align with OMIS Policy #0529 and OMIS Procedure #OP-35. Cardinality is committed to providing the necessary resources to complete all implementation tasks, including system configuration, customization, testing, training, and go-live support, while meeting or exceeding Agency requirements.

8.3 Project Manager: The awarded Vendor will provide a project manager-and the Agency will provide a project monitor--during the system implementation phase. (RFP Section 4.2.2.3)

Team Cardinality has identified **Harsha Velamuri** as the Project Manager for this project. He will be responsible for the successful implementation of our solution, and he will coordinate with the agency provided Project Monitor during the implementation phase.

8.4 Training Requirements: The Vendor must provide current, digital user-specific training and information, including but not limited to: (RFP Section 4.2.2.4)

8.4.1 On-demand video instructions or demonstrations for each type of user ((RFP Section 4.2.2.4.1)

8.4.2 Digital user guides or manuals (RFP Section 4.2.2.4.2)

The training content must be tailored to specific roles and users, including, but not limited to the roles listed in Table 1 above and others who will need information and/or participate in the continuum of care for the child.

Cardinality is fully committed to delivering comprehensive, role-specific training to support the successful adoption and usage of the WV-MACS solution. Our training approach is designed to empower all stakeholders—including caseworkers, foster parents, biological parents, CPAs, SNS providers, MDT members, and legal representatives—with the knowledge and resources needed to navigate the system effectively.

Comprehensive Digital Training Program

To align with the Agency's training requirements outlined in Section 4.2.2.4, Cardinality will develop and deliver a robust, multi-format training program that includes:

1. On-Demand Video Instructions and Demonstrations (4.2.2.4.1)

Cardinality will produce high-quality, user-specific video training modules tailored to different roles within the child welfare ecosystem. These on-demand instructional videos will provide step-by-step demonstrations on key functionalities, ensuring that each user understands how to efficiently perform their tasks within the system. Training topics will include, but are not limited to:

- **Case Navigation & Document Access:** How to securely log in, navigate the system, retrieve case files, and view relevant documentation.
- **Document Upload & Management:** Proper methods for uploading, tagging, and managing case documents while ensuring compliance with metadata and validation requirements.
- **Scheduling & Calendar Management:** Instructions on setting up visitation schedules, MDT meetings, and court dates.
- **Secure Communication & Collaboration Tools:** Best practices for using the system's messaging and alerts module to communicate effectively with other authorized users.
- **Electronic Signatures & Form Submissions:** How to securely sign and submit digital forms, including release forms.

Each training module will be interactive, incorporating guided walkthroughs and knowledge checks to reinforce learning. The content will be hosted on a secure, web-based training portal, allowing users to access materials at their convenience.

2. Digital User Guides and Manuals (4.2.2.4.2)

In addition to video-based training, Cardinality will provide comprehensive digital user guides and manuals tailored to each user role. These resources will include:

- **Step-by-Step Instructions:** Detailed walkthroughs of system functionalities with annotated screenshots.
- **Troubleshooting & FAQs:** Common user issues and their resolutions to support independent problem-solving.
- **Role-Based Training Content:** Specific guides for caseworkers, foster parents, legal representatives, and administrators to align with their distinct responsibilities.
- **System Update & Feature Enhancements Documentation:** Regularly updated documentation to reflect new features, ensuring ongoing user proficiency.

These materials will be easily accessible via the WV-MACS portal and downloadable in multiple formats (PDF, HTML, interactive web pages) to accommodate different learning preferences.

Tailored Training for Specific User Roles

Understanding that different user groups have varying levels of technical expertise and system interaction, Cardinality will customize training content based on the specific needs of each role. As outlined in Table 1 of the RFP, this includes:

- **Caseworkers & Supervisors:** In-depth system training covering case management, documentation, reporting, and compliance workflows.
- **Foster Parents & Biological Guardians:** User-friendly training focusing on secure document access, electronic form signing, and communication tools.
- **CPAs & SNS Providers:** Guidance on data sharing, appointment scheduling, and reporting functionalities.
- **Legal Professionals (GALs, Court Officials):** Training on accessing and reviewing legal documents, signing court-related forms, and secure communication within the system.
- **Agency Administrators:** Advanced training on system configuration, user management, reporting, and audit functionalities.

Flexible Training Delivery & Ongoing Support

- **Self-Paced Learning:** Users can complete training at their convenience, with the ability to revisit materials as needed.
- **Live Webinars & Q&A Sessions:** Cardinality will supplement digital training with periodic live training sessions, offering real-time engagement with system experts.
- **Help Desk & Knowledge Base:** A dedicated support portal will provide additional self-service resources, including troubleshooting guides and video FAQs.

Cardinality's training program is designed to provide a seamless learning experience, equipping all stakeholders with the skills necessary to maximize the value of the WV-MACS solution. Our combination of on-demand video tutorials, digital user guides, and role-based training ensures that every user can confidently navigate and utilize the system to enhance collaboration and efficiency in child welfare case management.

8.5 Operational Technical Support: The Vendor must provide technical support for State and public users. Users may communicate issues to the Vendor by telephone. The Vendor must provide a telephone number that is answered by qualified technical staff who are available to users Monday through Sunday from 7 a.m. to 7 p.m. eastern time (ET). The Vendor must provide after-hours and holiday on-call support for critical incidents from expert technicians who are familiar with the Agency. The Vendor must respond to user support requests in the caller's preferred language or with oral interpretation services. (RFP Section 4.2.2.5)

Team Cardinality is dedicated to delivering reliable and responsive technical support for both State and public users. We will provide a toll-free telephone number, enabling direct access to qualified technical staff who are available Monday through Sunday from 7 a.m. to 7 p.m. Eastern Time (ET). Our support team is trained to address user inquiries, troubleshoot issues, and resolve problems efficiently, maintaining high levels of user satisfaction and system reliability.

To address critical incidents outside standard operating hours, we will provide after-hours and holiday on-call support. This will be managed by a dedicated team of expert technicians who are well-versed in our systems, facilitating prompt and effective resolution of high-priority issues. A defined escalation matrix will guide incident management so that urgent matters are routed and addressed quickly, minimizing potential disruptions.

Cardinality will staff its support team with representatives fluent in commonly spoken languages other than English such as Spanish. For cases where immediate multilingual support is unavailable, Cardinality will integrate third-party language interpretation services to facilitate real-time communication with users. Users contacting the support center will have the option to select their preferred language via IVR (Interactive Voice Response) or chatbot prompts. To further support users in their preferred language, Cardinality will provide translated FAQs, user guides, and troubleshooting materials.

Our support services are structured within a tiered model to enable efficient issue resolution. Tier 1 handles basic troubleshooting and inquiries, Tier 2 addresses more complex issues requiring advanced expertise, and Tier 3 focuses on critical system-level support and root cause analysis. Every issue reported will be logged in our incident management system, such as JIRA, with users receiving unique ticket numbers for tracking and regular updates during the resolution process.

Team Cardinality will also leverage proactive monitoring tools, such as AWS CloudWatch, to identify and mitigate potential issues before they impact users. Our support approach is designed to enable minimal downtime, rapid issue resolution, and continuous alignment with the State's expectations. By combining robust support processes, expert staffing, and a focus on inclusivity, we aim to deliver a smooth technical support experience for all users.

8.6 Service Level Agreement (SLA): The Vendor must acknowledge and agree to the SLA requirements outlined in Appendix A: Service Level Agreements (SLAs). (RFP Section 4.2.2.6)

Cardinality acknowledges and fully agrees to the **Service Level Agreement (SLA)** requirements outlined in **Appendix A: Service Level Agreements (SLAs)**. We recognize the critical importance of maintaining system reliability, performance, and responsiveness to meet the needs of the agency and its stakeholders. Cardinality commits to achieving **99.9% system uptime**, delivering consistent

availability of the solution. Additionally, we will adhere to the specified **issue tracking, response, and resolution timelines**, addressing issues promptly based on their severity to minimize disruptions and maintain smooth operations.

We further confirm our commitment to providing comprehensive **support services** during the defined hours, including on-call availability for critical incidents. Cardinality will deliver detailed **monthly performance reports** that include issue summaries, resolution timelines, and corrective actions taken to improve system performance continually. Our team is dedicated to aligning with the outlined SLAs, facilitating a reliable, transparent, and high-performing solution that meets the agency's expectations.

8.7 Functional and Technical Requirements: The Vendor must indicate in Appendix B: Functional and Technical Requirements that it will furnish all mandatory requirements. (RFP Section 4.2.2.7)

Team Cardinality fully acknowledges that our solution, WV-MACS, will comply with all the requirements outlined in **Appendix B: Functional and Technical Requirements of the solicitation**. We are committed to delivering a solution that meets the expectations set forth in the solicitation. Our team has conducted a thorough review of each mandatory requirement, and we have carefully documented our responses in Appendix B, clearly indicating our capability to fulfill those needs. For each requirement, we have specified whether the functionality is provided out-of-the-box or achieved through minor configurations, facilitating complete transparency and alignment with the State's expectations. Our solution is built on a robust, scalable, and secure microservices architecture, leveraging industry best practices and advanced technologies to maintain compliance with functional and technical standards. Additionally, we have developed a systematic approach to implementation and ongoing support to enable the timely and efficient delivery of all mandatory functionalities. This approach underscores team Cardinality's dedication to addressing the State's child welfare operational priorities, maintaining compliance, and delivering a solution that fosters long-term success and sustainability.

8.8 Reporting: The Vendor must include reporting functionality as part of the Solution (RFP Section 4.2.2.8)

Compliance with Reporting Requirements

Team Cardinality has reviewed the reporting requirements outlined in the West Virginia RFP and is fully committed to addressing those expectations. Reporting plays a critical role in operational efficiency and data-driven decision-making, and our solution offers robust, intuitive, and adaptable reporting capabilities using our reporting module. Designed with ease of use in mind, our reporting module integrates smoothly with industry-standard platforms, including MicroStrategy, Power BI, Tableau.

Standard Reports

Our solution includes pre-built reports tailored to meet West Virginia's needs, offering immediate insights and actionable data outputs. These reports can be executed directly within the system and exported in formats such as Microsoft Excel, CSV, and Adobe PDF.

Ad Hoc Reporting

Recognizing the need for flexibility, our solution provides a secure and user-friendly environment for creating ad hoc reports. This functionality enables state personnel to generate custom reports to meet unique and dynamic needs

Dedicated Reporting Environment

To enhance performance, our solution incorporates a dedicated reporting environment that uses a segregated data store for real-time or near real-time reporting. Processor-intensive reports run asynchronously, enabling core system operations to remain unaffected. Advanced users can employ SQL support for detailed data manipulation, while tools like MicroStrategy enable the creation of dynamic dashboards as shown in **Figure 26**, offering stakeholders insights through visualizations, trends, and KPIs.

The solution includes an Enterprise Data Warehouse (EDW) that consolidates all data into a centralized repository. This enables real-time and batch access, streamlining data processing for large volumes of information. Data staging, cleansing, and processing uphold integrity, allowing for faster data retrieval and analysis. This infrastructure empowers West Virginia to meet its reporting obligations efficiently and effectively.

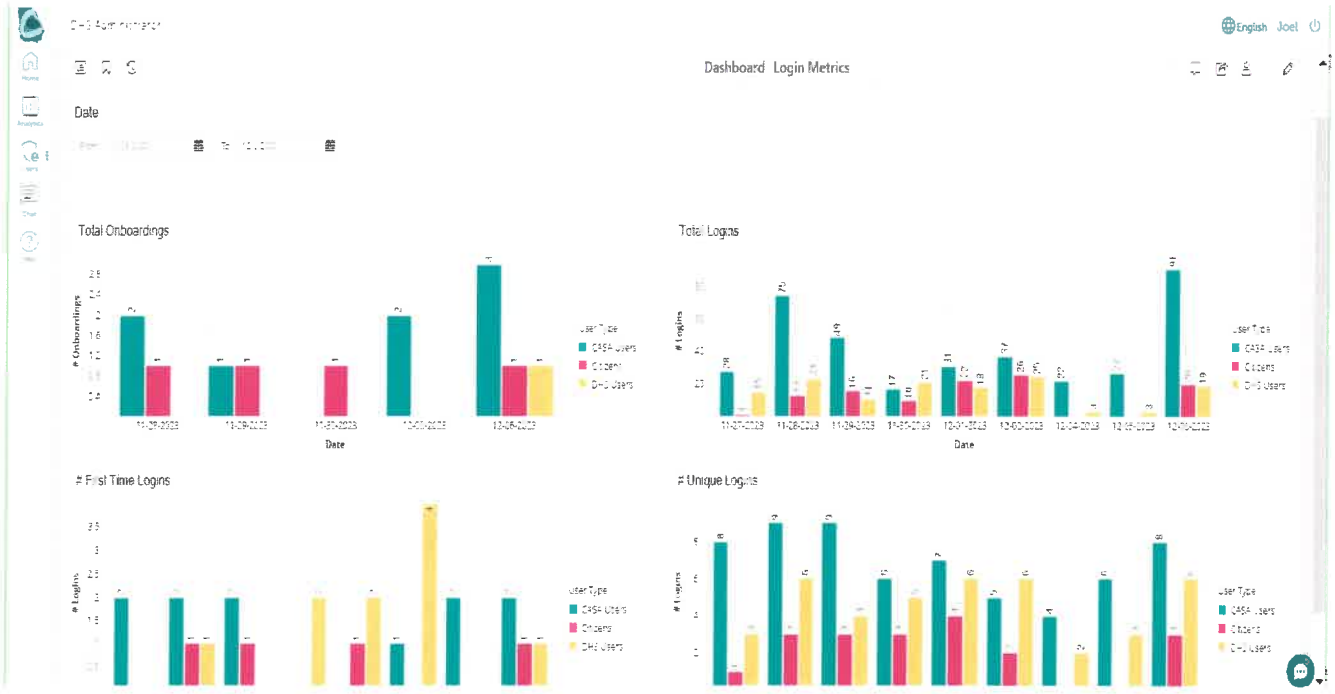

Figure 26: Configurable dashboard screen

Dynamic Dashboards and Self-Service BI

Dynamic dashboards as shown in **Figure 27** form a critical feature of our solution, providing visualizations such as histograms, trend analyses, area charts, and KPIs. These dashboards are customizable based on user roles and offer a self-service BI layer, empowering users to create their

own dashboards and analytics independently. This feature reduces reliance on IT support while maintaining robust security through Role-Based Access Control (RBAC).

Our solution delivers a robust and flexible reporting system tailored to meet West Virginia's specific needs. By offering pre-built and ad hoc reporting capabilities, dynamic dashboards, and secure API connectivity, our solution enables state agencies to make informed decisions quickly and securely. With a dedicated reporting environment and centralized data management, West Virginia will have the tools necessary to generate actionable insights and achieve operational excellence.

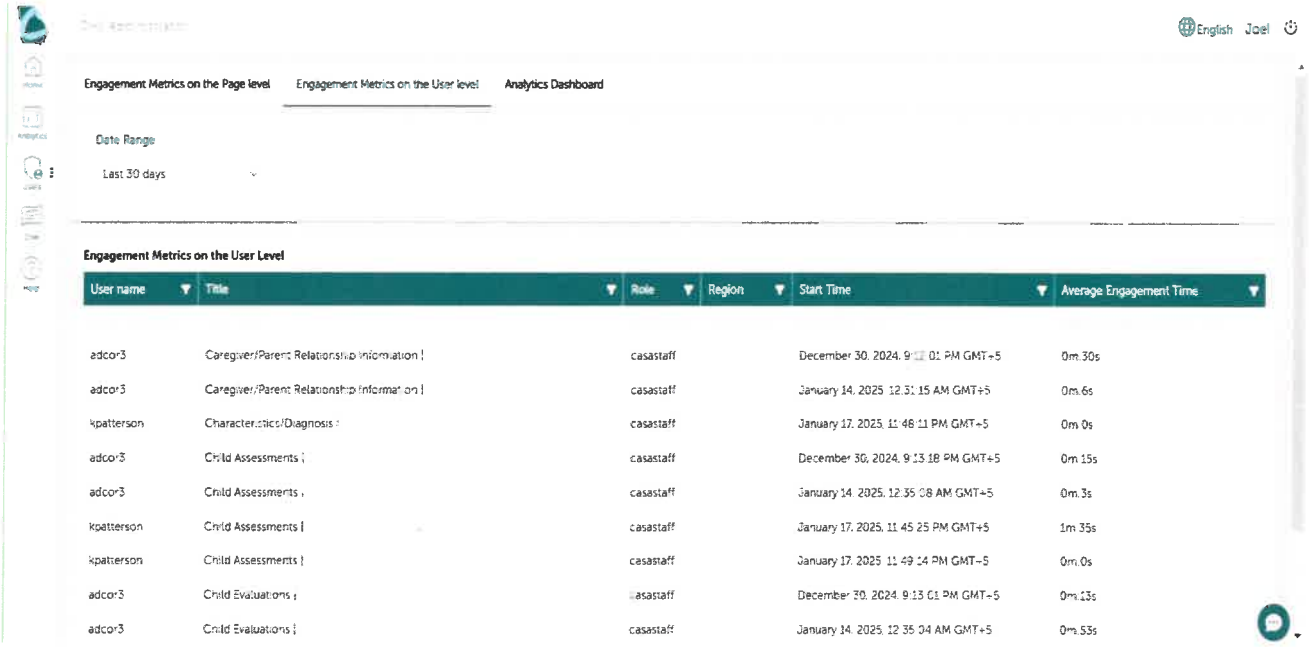

Figure 27: Report/metrics on user level showing average engagement time

8.9 System Security: The Vendor must provide a plan for business continuity and disaster recovery (BCDR). The BCDR plan will include complete, proper, and routine data and information backups. The plan will describe the resolution time of issues with varying severity levels and the frequency of review and update. Vendors must provide a copy of their standard BCDR plan as an attachment to their technical proposal. (RFP Section 4.2.2.9)

Business Continuity and Disaster Recovery Plan

Team Cardinality recognizes that fulfilling all commitments during emergencies is essential for sustainable business operations. As a provider of IT systems and products to government agencies, we prioritize maintaining and restoring service levels in the event of an emergency. Our approach includes both short-term and long-term strategies to facilitate business continuity and the delivery of critical services. A copy of our Standard BCDR Policy and Plan is attached as separate documents vide file name:

1. **Business Continuity and Disaster Recover policy**

2. Business Continuity Plan

As system and product companies leveraging cloud-based architecture on FedRAMP-certified AWS GovCloud (GovCloud), we are well-equipped to manage sensitive data and regulated workloads. Our commitment to meeting stringent U.S. government security and compliance standards underpins our robust disaster recovery and business continuity plans.

Proposed Approach to Disaster Recovery and Business Continuity:

To ensure business continuity and minimize downtime, a robust disaster recovery (DR) strategy is followed while implementing the solution. This involves regularly scheduled backups of critical data, replication of systems to a secondary site, and periodic DR drills to validate the recovery processes. The DR plan includes procedures for restoring system functionality in the event of natural disasters, hardware failures, or other disruptive events.

This cloud-hosted SaaS solution does not require any external hardware or infrastructure for Disaster Recovery or Business Continuity. Backups are maintained automatically as part of cloud data storage with multiple copies of all data being stored in multiple servers, data centers, and different geographical locations, based on how the cloud service provider is configured. This high level of redundancy helps prevent any loss in the performance of the application and accounts for the high availability of the system with virtually no possibility of data loss.

Our AWS cloud solution enables us to deliver a broad suite of services in support of WV DHS. As depicted in **Figure 28**, AWS ensures redundancy and fault tolerance via availability zones (AZs) – distinct data centers within an AWS region, each featuring redundant power, networking, and connectivity.

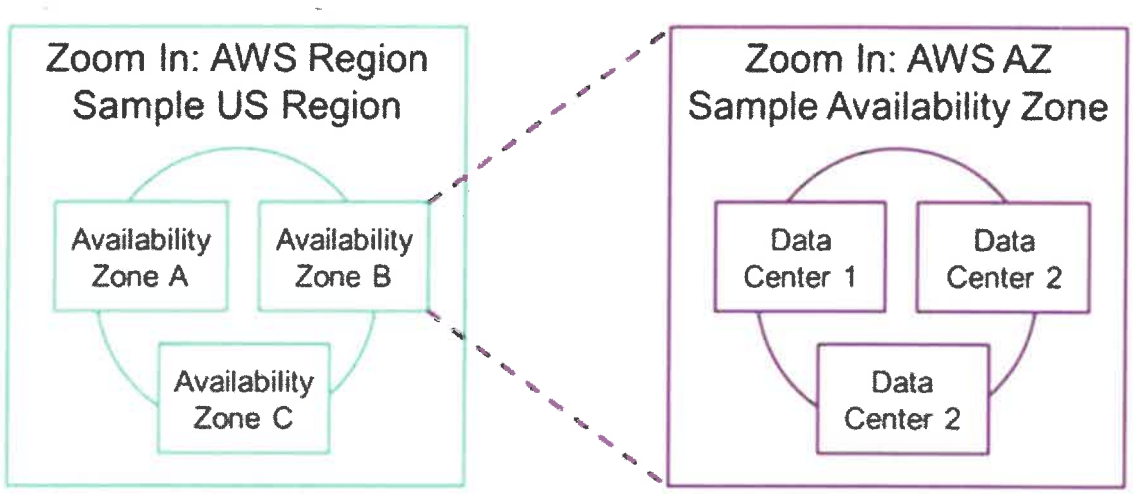

Figure 28: AWS Availability Zones

When a major disaster occurs at the primary site, we can restore services quickly through the AWS cloud solution. We follow a proven methodology that incorporates best practices and global industry standards from the Information Technology Infrastructure Library (ITIL). By adhering to a system backup schedule, storing geo-redundant copies of data backup, and having prepared staff members and

comprehensive plans, we ensure that the State has complete solution recovery capabilities in the event of any unforeseen circumstances.

To validate the effectiveness of our contingency and disaster recovery plans, we conduct rigorous testing at least twice annually. These tests allow us to identify any necessary modifications to the plan(s) and ensure minimal interruption to service during implementation. Our team works closely with the State to coordinate testing activities, prioritizing limited system downtime.

Furthermore, we conduct an annual backup restore test, including backup media restoration and failover/fallback operations at the designated disaster recovery (DR) location. This test ensures the reliability and successful restoration of data and services in a simulated DR scenario.

By adhering to these robust contingency and disaster recovery measures, we aim to provide continuous service availability, safeguard critical data, and minimize any potential impact of disruptions on operations. Our system incorporates the following preventative controls and recovery strategies:

- **High Availability:** We leverage Elastic Load Balancer (ELB) to increase system availability. Cloud EC2 Instances that fail are seamlessly replaced by leveraging AWS Auto Scaling behind the load balancer. We use State-approved AWS GovCloud Availability Zones (AZs), which are distinct geographical locations engineered to be insulated from failures in other AZs. We will host Amazon EC2 instances in multiple AZs, so the application is protected from failure of a single location.

- **Highly available, durable data Storage:** We will leverage AWS storage solutions that deliver highly scalable, durable, and reliable cloud storage for backup, and support mission-critical databases. Amazon S3 will be used to store database backups. It offers flexibility, agility, geo-redundancy, and robust data protection.

- **Host level issues and disk failures:** We will leverage EBS volumes which will be attached to EC2 and are automatically replicated within a single availability zone. To increase durability further, point-in-time snapshots would be created to store data on volumes in Amazon S3, which would be then replicated to multiple AZs.

- **Point-in-time database recovery:** We will leverage the Amazon RDS automated backup feature, which keeps automated backups for a configurable number of days (called the backup retention period). The database backup can be used to restore the database instance to any specific time during this retention period.

- **Recovery Objectives (RTO and RPO):** Cardinality.ai ensures compliance with stringent Recovery Time Objectives (RTO) and Recovery Point Objectives (RPO). Leveraging AWS's high availability zones and Geo-redundant Storage (GRS), we ensure that data is consistently replicated across regions to provide seamless failover capabilities. Our **RTO targets a recovery within four hours**, while our **RPO guarantees no more than one hour of data loss**. Continuous replication using AWS Site Recovery keeps the warm standby environment up to date with the production environment.

Business continuity: Disruptions, whether they arise from facility closures, staffing challenges, weather anomalies, natural calamities, supply deficits, technical glitches, utility failures, or any other unforeseen

circumstances, can have profound implications on the system's operations. To address this, our comprehensive Business Continuity Plan (BCP) is meticulously crafted to navigate these challenges, ensuring the system's robustness and adaptability.

Our BCP will not only identify the essential business functions that are paramount for continuity but will also conduct a thorough Business Impact Analysis. This analysis will assess the potential ramifications of various disruptions, thereby aiding in the prioritization of recovery strategies. A hallmark of our plan is the clear delineation of roles and responsibilities, ensuring that in times of crisis, every team and individual knows their duty, eliminating confusion and expediting response times. Communication, we believe, is a key differentiator in such scenarios. Our structured communication protocols will ensure timely and accurate information dissemination to all stakeholders, fostering transparency and trust.

We understand the importance of reliable back-up environments from a Business Continuity perspective. Our cutting-edge cloud tools allow creating back-ups that will minimize operational impacts during recovery. The detailed plan for data loss prevention, back-ups, recovery procedures, and planned DR testing will be documented and delivered in the Disaster Recovery and Business Continuity Plan.

Our approach to planning and managing back-ups is shown in **Figure 29** below. We will work closely with the WV DHS team to finalize the detailed plans in alignment with the Division, Department, and State's Disaster Recovery and Business Continuity Plans.

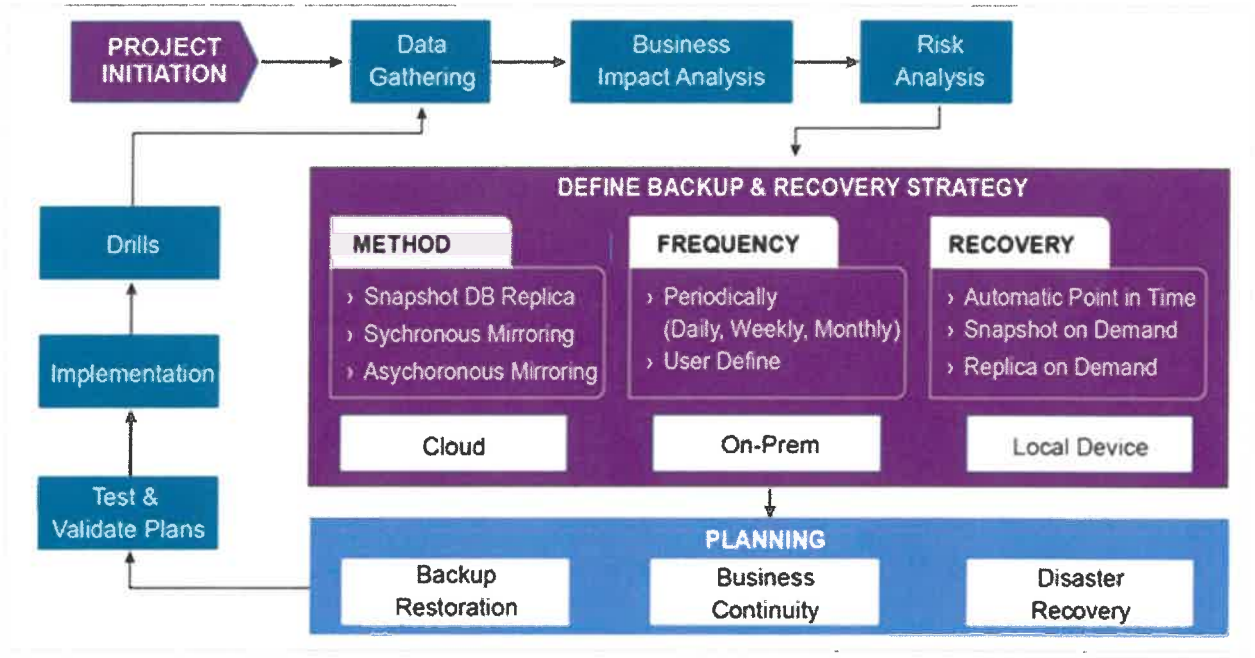

Figure 29. Backup Management Lifecycle

Business Impact Analysis and Risk Assessment: We identify the most important business functions and the IT systems and assets that will require support for disaster recovery and business continuity. Next will be the risk assessment to examine the internal and external threats and vulnerabilities that could negatively impact IT assets.

Defining Backup Strategy: Our backup strategy is developed based on the insights obtained through data gathering, Business Impact Analysis (BIA), and Risk Assessment. It is closely aligned with our Disaster Recovery strategy, which will be further elaborated on in this section. Our approach encompasses the following best practices:

- **SNAPSHOT-based protection**: We have pre-defined backup subroutines for AWS. As per this method, a copy of the data volume will be taken and placed in the project cloud instance, ensuring redundancy across multiple availability zones. The first snapshot will be typically a full copy of the volume, whereas ongoing snapshots will be incremental data-block changes. Additionally, snapshot backups can also be augmented with flat backups, where snapshot copies will move to low-cost storage.

- **Database Replica Backups**: For backing up the database, a method of creating the read-only replica will be followed. Such replicated databases are typically a real-time copy of the database that runs on other servers.

- **Synchronous mirroring**: We may consider synchronous mirroring, where data is written to parallel disks simultaneously, which can be preferred for low input/output situations.

- **Using scheduler services for auto backups**: This method will be used to take backup of the files from devices (desktops, laptops, tablets, and mobile) and any on-premises application servers

Recovery: Replication with Failover and Switchback will be implemented to facilitate transition of responsibilities between primary and standby servers, ensuring a high level of system availability. Point-in-time recovery (PITR) will be utilized whenever necessary to restore the database to a specific state from a previous point in time. By employing non-disruptive continuous archival, the restored environment will closely align with the most recent version of available data. To create additional servers for testing or development purposes, restore utilities will be employed using Dumps and Cold backups, thus providing the required flexibility and versatility.

Planning, Testing, and Implementation: We will develop the Disaster Recovery and Business Continuity Plan that will ensure the timely restoration of systems for users. To implement the backup procedures, necessary modifications will be made across various systems, and thorough validations will be conducted to ensure the backup meets the expected requirements.

Drills: We will periodically perform backup recovery drills to ensure all backup and recovery processes are working. Drills create awareness within the team for ease of execution and effectiveness during an actual event. We use lessons learned from drills to make appropriate changes to processes.

Business Continuity Implementation

The BCP team at Cardinality is identified at three different levels within the organization and are designated to the respective roles in the event of a disaster with regular training and re-grouping to discuss best practices and implementation plans.

Level 1 - Senior Management Resource - Leader or Project Manager of the BCP Operation - 1 or more

Level 2 - Manager and or Customer or Client Representative- 3 or more - responsible for the execution of the plan during the disaster and the one who directs employees in the event

Level 3 - A frontline employee engaged in the day-to-day operations and works on the directions of the manager during the event.

Backup and Restoration: Cardinality uses the following general guidelines and procedures for backup and recovery. Each process is also guided by unique backup and restore plans and procedures based on the specifics of the activity involved:

Back-up of Data

- Server backups will be performed every business night, excluding holidays.
- Backups performed on Friday will be kept for a month before recycling.
- The last backup of every month will be considered the monthly backup and kept for a year before recycling.
- Backups will be automated using state-agreed software products/AWS.
- Backups will always be performed before upgrading or modifying a server.

Disaster Recovery Testing: Cardinality follows intensive disaster recovery testing methodologies with a detailed Discovery Plan Review to find inconsistencies and missing elements; Tabletop exercises that go through the process step-by-step and educate on gaps and Simulation Scenarios to see if the disaster recovery procedures and resources, including backup systems and recovery sites allocated for disaster recovery and business continuity work. The simulation involves running a variety of disaster scenarios to see if the teams involved in the DR process can restart technologies and business operations quickly and effectively. We also include a Disaster Recovery Checklist to establish what is tested and what is not:

- Identify goals, objectives, and procedures to create a post-testing analysis. Create a test team, including SMEs and make sure everyone is available for the planned testing date.
- Carefully document and be prepared to edit your DR plan and disaster recovery testing scripts.
- Include all relevant technology elements and processes being tested in the plan.
- Ensure the test environment is ready and won't affect production systems or conflict with other activities.
- If testing is going to take a significant amount of time, schedule it far in advance.
- Perform a practice exercise before the disaster recovery test goes live to uncover and fix potential problems.
- Stop and review the test when issues arise and reschedule if necessary.
- Keep comprehensive records of start and end times, what occurred, what worked and what didn't.
- Update disaster recovery and business continuity plans and other documents based on what's been learned from the DR test.

9. Response to Qualifications and Experience (§ 4.3)

Vendor should provide information and documentation regarding its qualifications and experience in providing services or solving problems similar to those requested in this RFP. Information and documentation should include, but is not limited to, copies of any staff certifications or degrees applicable to this project, proposed staffing plans, descriptions of past projects completed (descriptions should include the location of the project, project manager name and contact information, type of project, and what the project goals and objectives where and how they were met.), references for prior projects, and any other information that vendor deems relevant to the items identified as desirable or mandatory below.

9.1 Qualification & Experience Information (§ 4.3.1)

Business: Vendor should briefly describe the company's core business, background, and experience in providing IT solutions to government health and human services agencies. (RFP Section 4.3.1.2)

Cardinality.ai

Cardinality.ai is the modernization alternative that innovative states are using to better serve citizens. Over 5000 caseworkers across 10 government agencies, 6 states, 13 nonprofits, and healthcare providers are already using Cardinality's pre-built solutions. Cardinality is a SaaS company, founded in 2017, helping government agencies achieve better outcomes through artificial intelligence and the strategic use of data.

Our solutions, engineered for health and human services programs, deliver enhanced efficiency and improve the lives of citizens. Together with our agency customers, we achieve remarkable outcomes for families. Our built-for-government suite of case management solutions employs configurable functional modules, cloud-based tech, powerful AI assistant, an intuitive interface, and data-driven workflows on a low-code platform that enables agencies to modernize faster and with greater confidence than custom development projects. With 10M+ Americans already benefiting from its applications, we are well on our way to changing a billion lives.

Cardinality's suite of AI SaaS solutions and low code **Empower Platform** enables all stakeholders to achieve more with better, faster, and more affordability. At Cardinality, we are dedicated to delivering data technology solutions that enable governments to achieve better outcomes. Central to our operations is a committed team of over 200 professionals and subcontractors. This dedicated workforce is essential to our ability to innovate and deliver impactful solutions that improve public services and governance.

Our Core at a Glance: Cardinality's primary objective is to make modern technology solutions accessible to government agencies without the difficulties of prolonged implementation times or failed custom applications. By doing so, Cardinality hopes to empower stakeholders, including elected officials, policy leaders, government workers, constituents, and families, to achieve more while spending less. Cardinality's solutions have already been implemented by multiple government agencies, making a difference in the lives of millions of Americans across state and local governments.

Our current offerings encompass diverse products and services designed to meet our clients' varied needs. The figure below illustrates our comprehensive portfolio, highlighting the main categories of our

offerings, the key features of each product and service, and how they interconnect to provide holistic solutions. Each segment of the infographic is meticulously crafted to highlight the breadth and depth of our capabilities, verifying that our clients can easily identify solutions that align with their specific requirements.

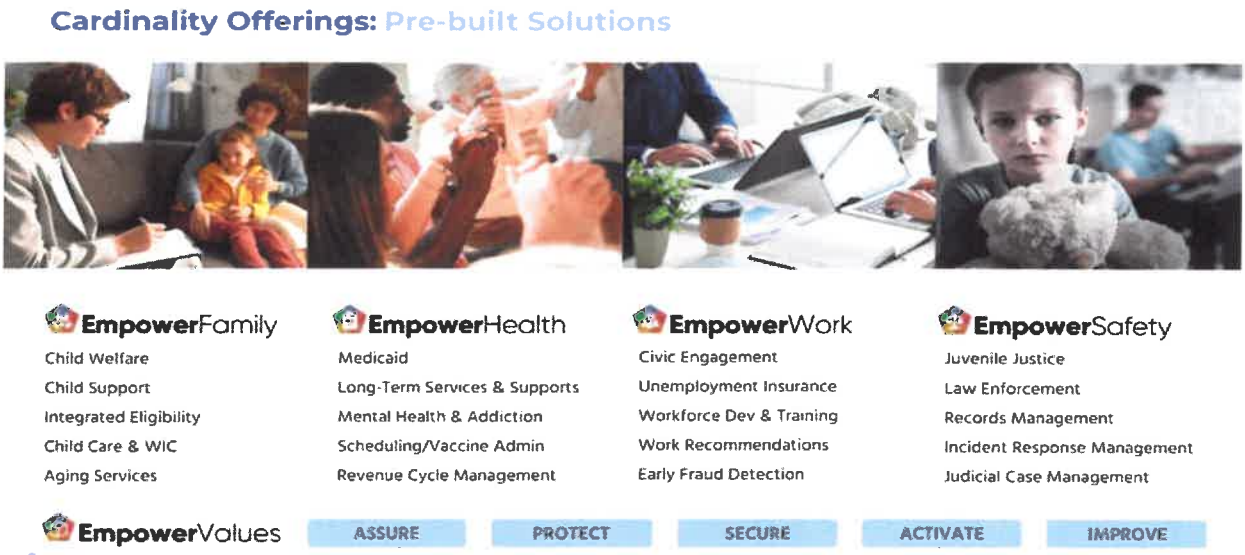

Figure XX: Our offerings

Cardinality's experience:

Cardinality has successfully completed numerous projects of comparable scale and magnitude. We would like to call out some of our key projects of similar size and scope to demonstrate our capabilities in managing this project.

- **Georgia Department of Human Services (GA DHS) - Cardinality.ai**

In June 2023, GA DHS partnered with Cardinality for the configuration, implementation, and support of a modern Foster Care System that includes an communication module to foster communication and collaboration among stakeholders, intuitive and easy-to-use Self-Serve Portal for recruiting and onboarding foster parents and engaging with CASA volunteers, a modern and AI-enabled CMS for license managers to process applications and manage providers, as well as smooth and secured integration with CCWIS systems for timely information sharing.

Georgia Communicare is a set of interconnected web portals and mobile app specifically designed to enable enhanced and streamlined communication and data access between DHS case managers and external parties (CASA Volunteer, Biological Parents, and Foster Parents) to a foster care case (Refer link: https://dfcs.georgia.gov/services/georgia-communicare).

Because of our pre-built WV-MACS solution and the innovative gap-based implementation methodology, phase 1 was implemented in a record time of three months, with phase 2 and mobile app rolled out state-wide in the next 5 months. As of September 2024, over 7,500 external users—including CASA volunteers, foster parents, and biological parents—along with more than 3,000 Georgia DHS caseworkers, have been onboarded. They are now equipped to enhance the well-being and safety of children through real-time digital communication and information sharing.

Cardinality's configurable low-code platform with multiple functional modules providing capabilities around workflows, assessments, analytics, RBAC, APIs, etc. is being leveraged to build the Foster Care Provider Management Solution, hosted on AWS. Phase 1 and Phase 2 went live with the Self-Serve Portal for multiple personas and are being actively used by more than 4000 internal and external users, including Foster Parents, Biological Parents, and Agency Staff.

- **Modernized Maryland's CJAMS System**

Cardinality's configurable low-code platform with multiple functional modules providing capabilities around workflows, assessments, analytics, APIs, etc. was leveraged to build a modern, intuitive, and mobile-friendly Child, Juvenile & Adult Management System (CJAMS), components of which were also leveraged by other applications that were being modernized.

Cardinality implemented a new fully CCWIS-compliant system providing comprehensive case management capabilities, integrated Title IV-E eligibility determination, and integrated financial management and provider management capabilities. The Cardinality system supports all major processes and programs, including Intake, Investigation, Child Protective Services, In-Home Services, Out-of-Home Services, Foster Care, Permanency services (Reunification, Adoption, and Guardianship), and Independent Living Services.

Verifiable outcomes intended and achieved: Since going live in 2020, CJAMS has equipped Child Welfare caseworkers to become more efficient and improve outcomes for vulnerable children.

- 70% reduction in cases with recurrence of maltreatment for children.
- 25% decrease in removal of child from home per 1,000 children, even though an overall increase in the number of cases reported.
- 22% reduction in re-entry in the foster care system after reunification with the family of origin.
- Baseline solution and platform met 88% of CCWIS requirements and over 70% of State child welfare requirements.
- 300+ screens, multiple workflows, and integrations with over 18 inter/intra-agency systems across child, adult, and juvenile welfare domains.
- Used by approximately 5,000 caseworkers, supporting six million citizens.
- Smooth migration of close to 12 million records from various entities, including MD DHS and the Maryland Department of Health (MDH).

The CJAMS serves the State of Maryland, a densely populated state with approximately 1.3 million children and around over 6,000 child maltreatment cases reported annually. The platform was deployed across Maryland in four phases, beginning with a pilot covering 5% of the caseload and gradually expanding to other counties. The pilot phase was completed within 19 months, with statewide deployment achieved in 27 months. Additionally, the base platform continues to receive biannual upgrades to maintain its alignment with evolving requirements and operational excellence.

- **Indiana Department of Child Services - Comprehensive Child Welfare Information System (CCWIS):**

Cardinality is responsible for configuring and implementing the Eligibility and Finance modules. Cardinality's solution is based on a multi-cloud strategy where most of the user engagement-rich

modules are developed in Salesforce and process-intensive modules are developed and hosted on AWS. This new system will help IN DCS to improve its ability to provide services; enable staff to drastically reduce administrative workload and focus on field activity to drive measurable outcomes for child welfare; and assist agency leadership in their effort to achieve the safety, permanency, and wellbeing of children and families in their care. The system supports all major processes and programs such as Family Preservation, Foster Care, Adoption, Guardianship, Collaborative Care, and Medicaid.

The scope of the Pilot and Phase 1 of this Child Welfare project focuses on Eligibility, including foster care, collaborative care, guardianship, Medicaid, adoptions, and family preservation. Phase 2 of the project will cover all the financial processes needed for child welfare case management, including Medicaid cases involving Social Security Income (SSI) benefits. Eligibility is currently in the UAT phase, and the configuration of the Finance module is yet to begin.

Post implementation, the system will be used by around 7000 internal users and 3000 external users. In its end state, the system will be hosted on AWS and have approximately 130 screens and about 45 workflows specific to Financial and Eligibility modules.

Once implemented, the solution will serve the state of Indiana, which handles over 20,000 child maltreatment cases annually. Indiana focuses on scaling services to effectively cover both its urban and rural populations, enabling comprehensive support for children and families across the state.

Cyquent.inc (Subcontractor for this Project)

Cyquent, established in 2001, has been at the forefront of technology transformation and digital innovation, delivering solutions that meet the complex demands of modern case management systems.

With 24 years of proven experience in supporting our government clients, Cyquent excels in providing a comprehensive range of IT enterprise services. These services include Application Development, COTS Implementations, Digital Transformation, Application Modernization, Systems and Data Integration, Operations and Maintenance, PMO, and full SDLC support for both commercial and public-sector clients. Our expertise extends to designing and developing scalable software, web portals, web applications, and mobile apps, which are instrumental in transforming our clients' organizations and enhancing their operational efficiency.

Cyquent's first prime contract in 2011 was the migration of Arlington County legacy case management (CASE) and purchase order system (POS). These legacy systems were built on the county mainframe and had to be converted from the IBM mainframe server to a web-based Microsoft platform system. The data from the legacy systems had to be converted and migrated to the new systems. The system interfaces with other County systems also had to be built on the new Microsoft platform. Cyquent successfully transformed and delivered the case management system within an aggressive timeline of one year. Cyquent provided the complete lifecycle of implementation and migration. The existing business processes and requirements were analyzed; the project management plan for the entire engagement was created, including project schedule, configuration management, change management, risk management, and communications plan. Tasks, intermediate milestones, and deliverables were built into the project schedule. The entire implementation lifecycle was carefully managed throughout all phases of the engagement, including requirements analysis, design and architecture phase, coding and testing phase, systems and acceptance testing phase, and finally, the

"go live" phase. The deliverables included the new web-based system, completed data conversion of all data from the mainframe to SQL Server, and conversion of all system interfaces and reports.

Some of Cyquent's public sector clients in the United States are listed below:

- Arlington County, Virginia
- Food and Drug Administration
- General Services Administration
- Harford County, Maryland
- Library of Congress
- Maryland Department of Health
- Maryland Department of Human Services
- Maryland Department of Information Technology
- Maryland Healthcare Commission
- Montgomery County, Maryland
- National Institutes of Health
- New York City
- New York State Department of Health and Human Services
- Pennsylvania Department of Transportation
- Pennsylvania Department of Human Services
- Social Services Administration
- US Copyright Office
- Virginia Information Technologies Agency
- Virginia State Corporation Commission

Cyquent's commercial clients include Discovery, Deloitte, Fannie Mae, Freddie Mac, National Football League (NFL), Verisign, Verizon, Leidos, ServicePower, Carefirst BlueCross BlueShield, OSSM Inc., Miller Zell, MobiSaaS, Trusted QA, Principal Financial Group, Cognizant, American Story Channel, BIRetail, CGI, ContextWeb, Healable, RaceTrac, and Vinculum Group, among others.

Team Cyquent brings decades of expertise and innovation to deliver comprehensive IT and digital modernization solutions tailored to the evolving needs of clients. Our extensive experience and proven capabilities in case management systems make us the ideal partner for innovative and reliable solutions. Our key strengths that we bring to this engagement:

- **Proven Expertise in Health and Human Services Platforms**

Cyquent's notable projects include the Maryland Total Human Services Integrated Network (MD THINK) and Montgomery County's Enterprise Integrated Case Management (eICM) System. These systems streamline service delivery, foster cross-agency data sharing, and enhance client outcomes by leveraging advanced technologies like cloud platforms, AI/ML models, and shared data repositories

- **Agile Methodologies and Human-Centered Design**

Cyquent employs Agile development frameworks and iterative processes to ensure flexibility, stakeholder collaboration, and timely delivery. The use of user research methods such as journey mapping, focus groups, and prototyping ensures that solutions are intuitive and meet the needs of

diverse users. This aligns with the RFP's emphasis on user-friendly, scalable platforms that integrate with existing systems while maintaining HIPAA compliance

- **Advanced Technology and Data Capabilities**

Cyquent excels in integrating AI and machine learning for operational efficiencies. This includes automated eligibility determination, fraud detection, and predictive analytics to optimize resource allocation and service delivery. The proposed system will support ad hoc reporting, data visualization, and real-time analytics, addressing the RFP's requirements for robust data management and reporting

- **Comprehensive Project Management and Support**

Cyquent's structured project management approach ensures successful execution, from requirements gathering to deployment. The company prioritizes change management, risk mitigation, and continuous quality assurance to deliver reliable solutions. Additionally, Cyquent provides 24/7 support, detailed training, and a seamless transition plan post-implementation to ensure ongoing success and user satisfaction.

- **Commitment to Security and Compliance**

Cyquent ensures adherence to strict security standards, including HIPAA and the 21st Century Cures Act, with features like role-based access, audit trails, and data encryption. This commitment ensures that sensitive information remains protected across platforms and workflows, meeting the RFP's stringent security and compliance requirements.

Team Cyquent, composed of Cyquent and Cardinality, brings unparalleled expertise in IT services and digital modernization, delivering innovative and scalable case management solutions for government agencies across the United States. With decades of experience in modernizing human services systems, our human-centered technology solutions enhance efficiency, improve service delivery, and ensure better outcomes for clients. Some noteworthy and relevant examples of Team Cyquent's current and past experience within last 5 years include:

Project	Description
Maryland Department of Human Services, Maryland Total Human Services Integrated Network (MD THINK) **(May 2018 – May 2025)**	Developed unified, modular care and case management systems that integrate services across multiple programs, including SNAP, TANF, Medicaid, and Child Welfare. These solutions align closely with Orange County's requirements for a multi-program system designed to address the diverse needs of populations such as prenatal and postpartum clients, older adults, and high-risk groups. By leveraging robust system design principles, Cyquent creates platforms that streamline service delivery across complex programs

Montgomery County Department of Health and Human Services, Enterprise Integrated Case Management (eICM) System – Operations and Maintenance **(Sep 2021 – May 2026)**	Enterprise Integrated Case Management (eICM) System operations and maintenance (O&M) contract for the legacy eICM system to meet DHHS' mission objectives, which include administering, delivering, and implementing 134 Federal, State, and County programs. We Agile/DevOps, O & M, and enhancement services supporting efficient service delivery for State and County administered citizen services.
Montgomery County Department of Health and Human Services, Enterprise Integrated Case Management (eICM) System - Modernization **(May 2023 – May 2026)**	Designed and implemented unified case management systems, such as the eICM system for Montgomery County's Department of Health and Human Services (DHHS), integrating over 70 programs into a single, modernized platform. This system supports coordinated care and consolidated access to services, aligning closely with Orange County's need for an integrated care and case management system. By addressing the unique requirements of a wide range of services, eICM effectively delivers a centralized solution that promotes efficiency and accessibility for diverse programs.
Medicaid Enterprise Systems Modular Transformation (MMT), Maryland Department of Health (MDH) **(Sep 2021 – Aug 2026)**	Implemented and maintained a number of modernization initiatives. This includes enterprise-wide technology solutions that are shared between multiple systems, such as Enterprise Integration Services, Enterprise Electronic Document Management, and Enterprise Data Warehouse / Decision Support System. The individual modules (applications) that are being developed use these shared enterprise-wide technology solutions.
Maryland Department of Health, Maryland Primary Care Program (MDPCP) **(May 2019 – Dec 2019)**	Provided support, optimization, and resources to ensure that the Participants' Health Information Technology (HIT) and Electronic Health Record (EHR) systems are compliant with the program and reporting needs of MDPCP and have the necessary skills and technology to enable the data capture, transfer and reporting needs of the program.

Corporate Identity: Vendor should provide the identity of any parent corporation, including address, phone and fax numbers, federal employer identification number (FEIN) or tax ID number, company website, and contact email. Provide the identity of any subsidiaries, as applicable. (RFP Section 4.3.1.2)

Response:

Cardinality.ai

Item	Detail
Company Name:	Elixir Lab USA Inc (d/b/a Cardinality.ai)
Type of Entity (Legal Status):	Corporation
Physical Address	267, Kentlands Boulevard, Suite #5092, Gaithersburg, Maryland (MD), 20878
Contact person and Designation	Anna Harper, Chief Administrative Officer
Phone	(513) 907-1068
FEIN	82-2663839
Business Website:	www.cardyai.com
Email Address	sales@cardyai.com

Exhibit 4: Cardinality's Profile

Cyqunet.inc:

Cyquent Inc, which is a certified Minority Business Enterprise (MBE), will be partnering with us in implementing the WV-MACS solution. Please find the profile of Cyquent Inc below:

Item	Detail
Company Name:	Cyquent Inc
Type of Entity (Legal Status):	Corporation
Physical Address	155 Gibbs St., Suite 531, Rockville, MD 20850
Contact person and Designation	Brian Zernhelt, VP Business Development
Phone	443-690-0880
FEIN	51-0406912
Business Website:	https://cyquent.com/
Email Address	Brian.Zernhelt@Cyquent.com

Exhibit 5: Cyquent's profile

Organization and Structure: Vendor should provide an overview of its organizational operating structure and describe the operational and functional relationships of the business units of its organization as they relate to Vendor's proposal and the Agency's stated needs and requirements. Organizational charts are helpful supplements to the descriptions. (RFP Section 4.3.1.3)

Cardinality.ai

Cardinality operates with a highly integrated and collaborative organizational structure designed to meet the diverse needs of our clients, including West Virginia DHS. Our structure facilitates efficient communication, streamlined decision-making, and a client-focused approach. Below is an overview of our organizational operating structure **(Figure 30)** and the operational and functional relationships of our business units as they relate to the proposal and the specific needs of West Virginia DHS.

Executive Leadership

- **Thiag Loganathan (CEO):** Thiag oversees the overall strategic direction and operational performance of Cardinality. He verifies that all business units align with the company's mission and goals, providing guidance and support to the senior leadership team.
- **Kevin Jones (COO):** Kevin manages day-to-day operations, focusing on the efficiency and effectiveness of the company's processes. He coordinates between different departments to facilitate cohesive operations and successful project deliveries.
- **Anna Harper (CAO):** Anna manages all the contractual agreements between Cardinality and other state agencies. She is responsible for overseeing operational budgets, key performance indicators, and staffing across Cardinality's global operations to enable clients and employees to have a smooth and positive experience.

Figure 30: Cardinality Organizational Chart

Business Units and Functional Relationships

1. **Product and Engineering Team:** This team is responsible for the development, enhancement, security & compliance, and innovation of Cardinality's software solutions, including the WV-MACS solution. The team works closely with the customer-facing ("Operations & Support team") to incorporate client feedback and verify that our solutions meet the latest technological standards and client requirements. Verifies that all products and services meet regulatory standards and quality benchmarks. This team conducts regular audits, manual and automated testing of solutions, and validation processes to maintain high standards of quality and compliance.

   Operational Relationship: Collaborates with the Operations & Support teams to verify the product is well-suited to meet West Virginia DHS's needs and requirements. Engages in continuous improvement based on user feedback and emerging industry trends. Verifies that the WV-MACS solution complies with all relevant federal and state regulations and that West Virginia DHS data is handled securely and efficiently.

2. **Operations & Support Team:** This team manages the deployment and integration of Cardinality's solutions within client environments. This team includes project managers, system integrators, and technical specialists who oversee the end-to-end implementation process. They verify that our solutions integrate smoothly with clients' existing systems and workflows. This team provides ongoing support and training to clients' post-implementation. The support team assists with troubleshooting, system updates, and user training. They offer a help desk service and verify that clients maximize the benefits of our solutions.

   Operational Relationship: Works directly with West Virginia stakeholders to tailor the WV-MACS solution to their specific requirements, managing a smooth and timely implementation process. Acts as the primary point of contact for the WV-MACS solution post-implementation, verifying that any issues are promptly addressed and that users are fully trained and supported.

3. **Growth Team:** Manages client relationships, partner engagement, business development, solution design, pricing, and marketing efforts. This team focuses on understanding client needs, presenting tailored solutions, and maintaining ongoing client and partner engagement. For this proposal, we have partnered with **Cyquent Inc.**

   Operational Relationship: Engages with West Virginia DHS to understand their needs and verifies that our proposals align with their strategic goals. Provides detailed product demonstrations, organizational strengths, and capabilities, and gathers client feedback for continuous improvement.

4. **Human Resources and Administration:** Manages recruitment, employee development, and training programs. This team focuses on building a skilled workforce and providing continuous professional development opportunities.

   Operational Relationship: Verifies that our team members working with West Virginia DHS are highly skilled and up to date with the latest industry standards and best practices.

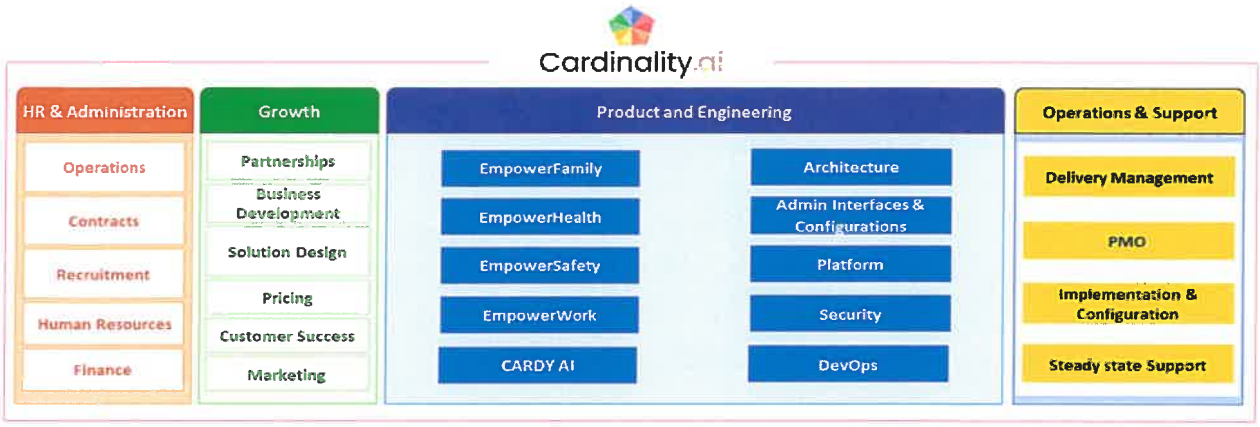

Figure 31: Organizational structure

How Team Cardinality Meets West Virginia DHS Needs and Requirements?

- **Alignment with Strategic Goals:** Our organizational structure verifies that every team works towards West Virginia DHS strategic goals, with clear communication channels and collaborative efforts across departments.
- **Efficient Implementation, Ongoing Support, and Adaptability:** The "Operations & Support" team promotes a smooth and efficient deployment of the WV-MACS solution, tailored to meet the specific needs of West Virginia DHS, minimizing disruption, and maximizing efficiency. They verify that West Virginia DHS receives continuous support, that all issues are resolved promptly, and that users are fully trained.
- **Regulatory Compliance and Quality Assurance:** The **Product & Engineering team** verifies that all aspects of the WV-MACS solution adhere to federal and state regulations, providing a secure and reliable solution. They continually enhance our solutions based on client feedback and industry trends, verifying that West Virginia DHS benefits from the latest technological advancements.

By leveraging our comprehensive and client-focused organizational structure, Cardinality is well-positioned to meet the requirements of West Virginia DHS, delivering a high-quality, efficient, and compliant workforce development solution.

Cyquent Inc

Our Partner Cyquent's organizational structure highlights a clear delineation between strategic leadership provided by the executive team and the operational management carried out by the management team. Each individual in the management team plays a crucial role in their specific area, contributing to the overall success and efficiency of the company.

The organizational chart provided depicts the structure of the management and executive teams of a company. Here's a breakdown of the roles and the hierarchy as presented in the chart:

Executive Team

Sagar Sawant - Founder and CEO: As the Chief Executive Officer and founder, Sagar Sawant holds the top position within the company, responsible for setting the strategic direction and overall management.

Priya Tejwani - Chief Operating Officer (COO): The COO manages the day-to-day administrative and operational functions of the company, reporting directly to the CEO.

Niraj Jagasia - Chief Growth Officer (CGO): The CGO is responsible for driving business growth through marketing, sales, and business development strategies.

Management Team

Below the executive team, the management team includes various senior roles, each overseeing specific functional areas within the company:

Brian Zernhelt - Vice President, Account Management: He is responsible for maintaining and growing the company's relationships with its key accounts.

Shashank Davanagere - Senior Director, Technology: This role would involve overseeing the company's technology strategy and implementation, including software development and IT infrastructure.

Prachi Shah - Director, Accounts and Billing: Prachi Shah manages the company's financial accounts and the billing process, ensuring that finances are handled efficiently and transparently.

Kaksha Merchant - Senior Director, Delivery: Responsible for the delivery of services or products to clients, ensuring that projects are completed on time, within budget, and to the satisfaction of clients.

Subhash Shirole - Director, Talent Acquisition: This role focuses on recruiting talent, managing hiring processes, and developing strategies to attract skilled employees.

Tamara Wilhite - Director, Human Resources: Tamara handles internal HR responsibilities, including workforce development, employee relations, and compliance with labor laws.

Figure 32 illustrates Cyquent's Organization Chart

Figure 32: Company Organizational Chart

Locations: Vendors should describe the geographical locations of their firm at the national, regional, and local levels, as applicable. Identify all locations that will be used to support a resultant contract and the operations managed from these locations. Clearly identify any overseas locations which may be used to support the resultant contract. No State data may be stored on servers or systems outside of the United States of America (U.S.), including U.S. Territories.

Cardinality is strategically positioned to support contracts at the national, regional, and local levels through our office locations in the United States, supplemented by our offshore development center. The below table is an overview of our geographical presence and how each location contributes to the support and execution of contracts:

S No	Office	Address	Operations Handled
1	Headquarters	267, Kentlands Boulevard, Suite #5092, Gaithersburg, MD 20878	Project Management, Client Services, Administration
2	Regional Office 1	Pike & Rose, 909 Rose Avenue, North Bethesda, MD 20852	Sales and Marketing, Customer Support
3	Regional Office 2	1650 Tysons Boulevard, Suite #1530, McLean, VA 22101	Consulting Services, Business Development

4	Regional Office 3	7345, 164th Ave NE, Ste 145 #187, Redmond, WA 98052	Research and Development (R&D), Technical Support
5	Offshore Development Center	Chennai, India	Supports our SDLC particularly in the early stages of development & testing and software engineering.

Exhibit 6: Office locations within USA & India

Sub-contractor - Cyquent

S No	Office	Address	Operations Handled
1	Headquarters	155 Gibbs St., Suite 531 Rockville, MD 20850	Data Analytics and Artificial Intelligence, App Development, Agile Consulting and Staff Augmentation

Exhibit 7: Cyquent's Office location

All state data will be stored on servers or systems inside the United States of America (U.S.), including U.S. Territories.

References: The Vendor should provide three (3) references from system implementation projects or systems in operation within the last five (5) years that demonstrate the Vendor's ability to achieve the goals and objectives in Section 4.2 and meet the requirements in the RFP.

Vendors may provide only one (1) reference per project performed and should include details about the Project such as project goals and objectives, general functionality, implementation timeline, and length of time the system has been in operation if applicable. The State strongly prefers three (3) references from different state engagements where a Child Welfare client communications system is currently being or has been implemented and is in operation.

Cardinality's Reference

Reference 1	Detail
Reference Company Name:	Department of Human Services (DHS), Georgia (GA)
Company Address:	47 Trinity Ave. S.W. Atlanta, Georgia (GA) 30334

Type of Industry:	Government
Contact Name:	Sriram Subramaniam
Contact Phone Number:	404-788-1144
Contact Email Address:	Sriram.Subramaniam@dhs.ga.gov
Description of system(s) implemented:	**Project Name**: Georgia Foster care - Communicare **Scope of Work**: The Georgia Division of Family and Children Services (DFCS) is developing a new portal and Foster Care Management System to improve communication among CASA volunteers, foster and biological parents, and DFCS staff. This initiative aims to streamline processes, reduce delays, and missed appointments, and enhance advocacy for children in foster care. The new system will be adaptable and easy to update, aligning with changing policies and regulations. This project represents DFCS's commitment to better support children in foster care by improving coordination and information sharing among all involved parties. **Cardinality's Involvement**: Cardinality is configuring and deploying its pre-built, fully-featured, and modern EmpowerFamily Child Welfare Foster Care System. The EFCW solution includes a comprehensive out-of-the-box Foster Care Management System and Self-Serve Portal. It is designed to meet the needs of different personas, such as CASA volunteers, biological parents, foster care providers, special attorney generals, and others. EFCW provides each user with necessary information and participation capabilities. User experience, feature availability, and data access are efficiently managed through Role-Based Access Control. The intended benefits are listed below: • **Improved Communication** - The portal will improve communication between CASA volunteers, case managers, and supervisors. It provides CASA volunteers with the contact information of newly-assigned case managers and enables secure and efficient communication through nudges and chat features, improving communication, speed, and quality. • **Reduced workload for case managers** - The portal automates administrative tasks for the CASA program, reducing case managers' workload. Volunteers can submit reports online, eliminating the need for paper reports, and freeing up case managers' time for higher-priority tasks. • **Modular Modernization** - The CASA Volunteer Portal is a key component of the Foster Care Solution, improving communication between volunteers, parents, and DFCS. Its incremental development allows for the quick release of essential features while continuing to refine the module.

	• **Increased real-time access to critical information** - The portal offers real-time access to case records for all parties, empowering CASA volunteers to make informed decisions regarding the welfare of their assigned foster children without delays. • **Child Welfare Centric** - Empowering volunteers with comprehensive data, targeting holistic child welfare and rapid issue resolution.
Date of Implementation:	June 2023 - Ongoing • **Phase 1 (Sept 2023, Go-live)** - Integrated portal for Foster, Biological parents, and CASA volunteers to provide a child's continuum of care. Streamlined access to critical case information like medical/health, education, and placement information. • **Phase 2 (December 2023, Go-live)** - Introduced Mobile App along with enhanced features for secondary case managers, SMS-based multi-factor authentication, multi-lingual support, and improved case search • **Phase 3 (Planned Go-live, Sept 2024)** - Foster Parent Onboarding Portal (Planned Go-live by July 2024), CPA FP Onboarding & FP Invoicing

Exhibit 8: ***Reference 1 - GA Foster care: Communicare (DHS)***

Reference 2	Detail
Reference Company Name:	Department of Human Services (DHS), Georgia (GA)
Company Address:	47 Trinity Ave. S.W. Atlanta, Georgia (GA) 30334
Type of Industry:	Government
Contact Name:	Sreeji Vijayan
Contact Phone Number:	860-833-7559
Contact Email Address:	sreeji.vijayan@dhs.ga.gov
Description of system(s) implemented:	**Project Name**: Georgia Medicaid Redetermination Noticing Solution

	Scope of Work: Georgia DHS/DFCS's objective was to prevent any communication breakdown with citizens and to ensure uninterrupted access to their vital healthcare benefits. The agency wanted to implement a solution to find alternative addresses for clients and generate notices to reduce returned emails and incorrect termination. **Cardinality's Involvement**: Cardinality configured and implemented the Notice Generation Module of its EmpowerHealth Integrated Eligibility Solution to meet the requirement of DHS. It is built on Cardinality's low-code platform (EmpowerPlatform) which has components such as template designer, workflow designer, form builder, reporting & analytics, RBAC, API etc. enabling faster implementation and easier maintainability. The solution was implemented in just 4 months and went live in June 2023. This solution worked in tandem with Georgia Gateway receiving data about returned addresses via SFTP, which is the primary Integrated Eligibility System for the State. The benefits of the solution are listed below: • Members receive important and timely notifications • Reduction in the risk of interruptions or gaps in benefits and services • Prevention of incorrect terminations • Continuous Measurement and improvements using insights from Dashboards and Reports **Georgia Sees Results in 4 Months:** The Noticing Solution for Medicaid Redetermination for the Georgia Department of Human Services (GA DHS) is an example of how our hybrid-agile approach using EmpowerPlatform solved a critical and time sensitive need of dealing with challenges of PHE Unwinding. The solution went live in 4 months with an end-to-end workflow to receive returned address information from Gateway system via SFTP, using the match-and-search algorithm to find alternate addresses in multiple databases and generating multi-lingual notices for printing.
Date of Implementation:	March 2023 - June 2023

Exhibit 9: Reference 2 - GA Medicaid Redetermination (DHS)

Cyquent's Reference:

Reference 3	Detail
Reference Company Name:	Maryland Department of Human Services
Company Address:	Address: 849 International Drive, Suite 320, Linthicum Heights, MD 21090
Type of Industry:	Government
Contact Name:	Ms. Rebekah Judah
Contact Phone Number:	443-571-2485
Contact Email Address:	Rebekah.Judah@Maryland.Gov
Description of system(s) implemented:	**Project Name**: Maryland Total Human Services Integrated Network (MD THINK) **Scope of Work**: Develop a scalable and modular app to support multiple human services programs. • Enable smooth interoperability and data-sharing across mobile and web platforms. • Improve case management by integrating various services into a user-friendly application. • Enhance user experience through automated workflows, real-time updates, and push notifications. • Provide advanced analytics and reporting capabilities to drive data-informed decision-making. • Maintain security, compliance, and accessibility through role-based access controls, HIPAA compliance, and responsive design. **Cyquent's Involvement**: Cyquent was involved in accomplishing the below deliverables • **Mobile and Web-Based Unified Case Management:** A single app to manage multiple human services programs. • **Interoperability:** Real-time data exchange across mobile platforms and third-party systems. • **Automated Workflows:** Task management, appointment scheduling, and service coordination features. • **Advanced Analytics & Reporting:** Intuitive dashboards with performance tracking and insights.

	• **User-Centered Design:** Accessible, mobile-first interfaces with automated reminders, self-service tools, and integrated chat support • **Security & Compliance:** Secure login, multi-factor authentication, role-based access, and encrypted data transmission.
Date of Implementation:	• **Project Initiation:** May 2018 • **Design & Development:** 2018 – 2020 • **Beta Launch:** 2020 • **Full Release & Statewide Implementation:** 2021- • **Ongoing Maintenance & Enhancements:** 2021 – Present • (Contract end date: May 2025)

Exhibit 10: Reference 3 - Maryland DHS MD THINK Reference

9.2 Response to Mandatory Requirements (§ 4.3.2)

Vendors must demonstrate that they have successfully implemented and operated a Child Welfare client communications system for a government agency in the U.S. in compliance with all federal and state regulations within the five (5) years prior to this bid opening. Vendors may use one (1) or more of the references provided in response to Section 4.3.1.5 to satisfy this requirement.

Project Name: Georgia Department of Human Services - Foster Care/Communicare

Project Description: Cardinality has successfully deployed its comprehensive **EmpowerFamily Child Welfare Foster Care (EF-CWFC) solution** in Georgia, providing a robust Foster Care Management System complemented by user-friendly Self-Serve Portals.

Georgia Communicare is a set of interconnected web portals and mobile app specifically designed to enable **enhanced and streamlined communication and data access** between DHS case managers and external parties (CASA Volunteer, Biological Parents and Foster Parents) to a foster care case (Refer link: https://dfcs.georgia.gov/services/georgia-communicare).

Because of our pre-built solution and the innovative gap-based implementation methodology, phase 1 (**Integrated portal for Foster, Biological parents, and CASA volunteers**) was implemented in a record time of three months, with phase 2 and mobile app rolled out state-wide in the next 5 months. As of September **2024**, over 7,500 external users—including CASA volunteers, foster parents, and biological parents—along with more than 3,000 Georgia DHS caseworkers, have been onboarded. They are now equipped to enhance the well-being and safety of children through real-time digital communication and information sharing.

Cardinality's solution included a comprehensive out-of-the-box Foster Care Management Solution and Self-Serve Portal. The project involved:

- Connecting child welfare caseworkers, Court Appointed Special Advocates (CASAs), foster parents, and biological parents

- Equipping primary parties in a foster care case with secure communication and data management capabilities, with different permission levels for each user group
- Providing interconnected web portals to support and enhance communication within child welfare programs

Key Features and Enhancements:

- Secure data and file sharing
- Person-to-person chat capabilities
- Appointment scheduling and calendar management
- Calendar integration for appointments
- Child portrait visibility on youth records
- Multiple CASA volunteer assignment capability for a single youth
- Display of CCFA Assessments for CASA and DHS staff
- Improved notifications for all users, including new chat and document approval notifications
- Medicaid number display
- Real-time access to Medicaid cards for foster parents
- Direct invoice submission capability for foster parents through the Communicare Portal

Implementation Approach: Cardinality used a gap-based implementation model, similar to the approach proposed for the West Virginia project. This model involved:

- Delivering an initial baseline version of the solution within 30 days of project kickoff
- Conducting discovery sessions to identify gaps and address them incrementally
- Delivering incremental updates at the end of each sprint, minimizing delivery risks and maintaining transparency.

Technology Stack:

Cardinality used the Empower low-code platform for Georgia Communicare, which allowed for configuration and customization without extensive coding. The platform supports secure data and file sharing, person-to-person chat, appointment scheduling, and calendar management.

The technology stack also enables integration with other systems, including the **Georgia SHINES** child welfare information system which is similar to the **PATH CCWIS** system in West Virginia. Cardinality emphasizes a user-friendly experience for various user groups, including caseworkers, CASAs, foster parents, and biological parents.

Key Components of Cardinality's Technology Stack for Georgia Communicare

- **Low-code Platform:** This enables quick development and deployment of features.
- **Modular Architecture:** Allows for flexibility and scalability as the system evolves.
- **Security and Encryption:** Enables the protection of sensitive data.
- **API and Integration Framework:** Enables smooth data exchange with other systems.
- **Self-Service Portals:** Provides user-friendly interfaces for foster parents, CASAs, and other stakeholders.
- **Mobile Application:** Offers convenient access to Communicare features for DHS employees.
- **Data Analytics and Reporting:** Provides insights to improve decision-making.
- **Training and Support:** Includes training materials, resources, and ongoing support.

Specific Technologies and Tools

- **AWS Cloud:** Provides secure and scalable infrastructure for the solution.
- **Talend/State Tool:** Used for data integration and transformation.
- **MicroStrategy/State Tool:** Enables reporting and data visualization.
- **DocuSign:** Facilitates electronic signatures.
- **Google Maps:** Used for GPS home location features.

Our experience with the Georgia Communicare project showcases our expertise in Child Welfare Client Communication systems, encompassing data management, user experience, training, support, and project management. This proven capability positions us as a strong partner to fulfill the needs of WV DHS.

10. Availability of Information (§ 6.8)

Proposal submissions become public and are available for review immediately after opening pursuant to West Virginia Code §5A-3-1 l(h). All other information associated with the RFP, including but not limited to, technical scores and reasons for disqualification, will not be available until after the contract has been awarded pursuant to West Virginia Code of State Rules §148-1-6.3. d.

By signing below, I certify that I have reviewed this RFP in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that, to the best of my knowledge, the bidder has properly registered with any state agency that may require registration.

Elixir Lab USA Inc. (d/b/a) Cardinality.ai

(Company)

Anna Harper, Chief Administrative Officer

(Representative Name, Title)

(513) 907-1068

(Contact Phone/Fax Number)

06-Feb-2025

(Date)

11. Resumes of Proposed Key Personnel

Account/Engagement Manager - Toni Blue Washington

Professional Summary

Toni is a visionary thought leader and change agent with over twenty years of experience working in the human services sector. Toni brings extensive expertise in policy analysis, information technology innovation, regulatory, and process development. Toni is a turnaround strategist with a passion for people and a drive for organizational success

Education and Certification

- Political Science, Virginia Commonwealth University, Richmond, VA
- Paralegal Studies, D J. Sergeant Reynolds Community College, Richmond, VA
- Political Science, Virginia State University, Petersburg, VA

Core Competencies

- Strategic Leadership & Business Development
- Program & Project Management
- Stakeholder & Relationship Management
- Extensive experience in Technology & Innovation in Human Services

Work Experience

March 2023 - Present: Cardinality.ai, Vice President, Growth and Strategic Accounts

- Develops and implements comprehensive growth strategies to expand market presence and drive revenue growth within the human services sector.
- Cultivates and nurtures strategic partnerships with key clients, leveraging deep industry knowledge and understanding of client pain points to deliver tailored solutions.
- Leads cross-functional teams to execute strategic initiatives, ensuring alignment with organizational goals and client expectations.
- Drives business development efforts, including market analysis, lead generation, proposal development, and contract negotiation.
- Serves as the primary liaison between the firm and key stakeholders, representing company values, capabilities, and offerings.
- Oversees the development and implementation of marketing campaigns, thought leadership initiatives, and client engagement activities to enhance brand visibility and thought leadership.
- Establishes and maintains relationships with key stakeholders, including government agencies, non-profit organizations, and private sector partners.
- Monitors industry regulations and compliance requirements, ensuring adherence to all legal and ethical standards in business practices.

February 2022 - March 2023: GetInsured, Vice President, Business Development

- Developed and executed comprehensive business development strategies aligned with the company's mission, vision, and objectives.
- Conducted market research and analysis to identify emerging trends, opportunities, and potential risks in the human services industry.
- Cultivated and maintained relationships with key stakeholders, including government

agencies, nonprofit organizations, and other industry partners, to drive collaboration and innovation.
- Led the identification, pursuit, and acquisition of new business opportunities, including government contracts, grants, and partnerships.
- Drove revenue growth through the development and implementation of creative business models, pricing strategies, and revenue streams.
- Collaborated closely with internal teams, including operations, finance, and marketing, to ensure seamless execution of business development initiatives and alignment with organizational goals.
- Provided regular updates and reports to senior leadership on business development activities, achievements, and challenges.

August 2021 - February 2021: MTX Group, Associate Vice President, Human Services

- Developed and implemented sales strategies to drive revenue growth and market expansion.
- Led the design and implementation of human services policies and procedures, ensuring compliance with relevant regulations and industry standards.
- Provided leadership and guidance to a team of human services professionals, fostering a collaborative and high-performance work environment.
- Implemented performance management systems to track employee productivity and provide constructive feedback for improvement.
- Collaborated with senior leadership to develop and execute strategic initiatives to support the company's overall objectives.
- Represented the firm at national and regional conferences and with state/federal executive leaders.

February 2017 - July 2021: Virginia Department of Social Services, Senior Director, Division of Benefit Programs

- Responsible for leading, planning, monitoring, and improving public assistance programs including SNAP, TANF, Medical Assistance, Energy Assistance, Childcare, and General Relief.
- Acted as a subject matter expert in public assistance programs, directing legislative and regulatory matters.
- Collaborated with partners to optimize the administration of public assistance programs in alignment with strategic goals, mission, and department priorities.
- Provided influential and cohesive relationship management involving key stakeholders such as federal, state, and local government officials, community advocates, and industry partners.
- Drove technical and system solutions to enhance program operational efficiencies and performance outcomes.
- Optimized expenditures through agency-wide cost-reduction initiatives.
- Formulated and deployed business transformation strategies to increase performance and accountability across programs.
- Delivered hands-on assistance to committees and teams within the department in policy-

making decisions.
- Established strategic plans and operational objectives to strengthen policies and promote program growth.
- Established and oversaw yearly budgets in excess of $400 million.

September 2015 - September 2017: Virginia Department of Social Services, Assistant Director, Division of Benefit Programs

- Represented the Director in all aspects of administering the Division of Benefit Programs.
- Responsible for legislative and policy analysis, program design, and ensuring program compliance.
- Served as Executive Sponsor over Business Operations, including managing the division's relationship with Information Systems.
- Maintained oversight of Program Integrity and fraud management practices and procedures.
- Provided subject matter expertise on human service programs to executive leadership, state boards, local advisory groups, and other stakeholders.
- Advocated for program needs and improvements for various groups and stakeholders.
- Advised senior leadership during the executive decision-making process by generating daily reports to provide data for consideration of corrective actions and improvements.
- Oversaw project and policy implementation to increase system performance and efficiency.
- Directed teams of professionals in special projects and daily operations.
- Evaluated key business metrics and made recommendations for proactive adjustments to policies and procedures.
- Trained managers and staff on information and duties required for daily activities.

September 2013 - August 2017: Virginia Department of Social Services, Business Project Manager

- Responsible for program-wide project management practices.
- Managed enterprise-wide projects aimed at addressing business needs and implementing new business models to enhance efficiency.
- Collaborated with other Project Managers to implement projects supporting enterprise system modernization.
- Applied appropriate project management frameworks, standards, and best practices.
- Oversaw the production of required project deliverables and other project management documentation.
- Directed project progress and resource utilization, initiating corrective action when necessary.
- Ensured Federal and State policy regulations and programmatic guidelines were considered in project requirements and design phases.
- Developed system requirements, conducted testing, and analyzed requirements.
- Served as a subject matter expert for policy interpretation, analysis, and business processes associated with public assistance programs.
- Managed multiple projects, assignments, and critical decisions independently.
- Led training initiatives for various audiences to ensure appropriate delivery of training.

- Spearheaded the transition of projects from pre-development to design and construction phases.
- Defined project plans and timelines, managed workflow and personnel, and achieved completion deadlines.
- Ensured projects were completed on time, within budget, and met quality standards.
- Presided over subcontractor kickoff meetings to review project requirements, schedules, and compliance.
- Mitigated regulatory risks by increasing business guideline compliance through policy clarification.
- Fostered strong community relations with subcontractors and vendors to optimize cost savings and timely preconstruction.
- Implemented effective change management processes to accommodate project scope and cost changes.

October 2007 - September 2013: Virginia Department of Social Services, Lead Contract Administrator

- Managed the SNAP Electronic Benefit Transfer (EBT) contract to ensure vendor compliance with federal and state procurement laws.
- Prioritized, coordinated, and monitored contract requirements.
- Reviewed performance standards and developed monitoring tools.
- Monitored contractor performance for compliance and compared it to contractual performance standards.
- Served as VDSS contract administrator.
- Managed the disaster SNAP program, ensuring local departments complied with emergency preparedness regulations.
- Oversaw an $80 million contract administration process, ensuring timely completion.
- Conducted strategic negotiations with vendors for high-value change orders.
- Managed the contract closeout process, resolving all issues before the release of the final payment.
- Administered contract change requests and resolutions.
- Handled all issue resolution tasks promptly to maintain strong relationships with key contracts.
- Mitigated risk by accurately managing state and federal invoicing.
- Managed progress, risk mitigation, issues, and clarifications for contracts.
- Assisted leadership during the executive decision-making process by generating multi-divisional financial reports to recommend corrective actions and improvements.
- Stayed abreast of all relevant federal rules and regulations to ensure organizational compliance.
- Managed the state hotline compliance process.

Project Manager – Harsha Velamuri

Professional Summary

With a wealth of 17 years of experience, Harshavardhan stands as a Senior Service Manager adept at collaborating with leadership teams throughout the enterprise. His primary focus lies in translating data into actionable insights crucial for informed, data-driven business decisions. Harsha is recognized for his instrumental role in assisting leadership on initiatives geared towards generating new revenue, retaining existing revenue, and facilitating cost savings

Education and Certification

- B.Tech. Electronics and Communication Engineering, India, 2006
- Introduction to Big Data, San Diego University
- Big Data Integration & Processing, San Diego University
- Agile SAFe practitioner certification
- DB2 UDB V8.1, IBM.0

Core Competencies

- Expertise in unlocking business value from data assets
- Enterprise Level Solutions Architect
- Managing product life cycles and SDLC
- Experience managing the Georgia Foster Care Provider Licensing project for the Department of Human Services.
- Experience managing multiple projects for HHS agencies

Work Experience

Project Manager, Cardinality.ai, 2023–Present, Georgia DHS Foster Care Project

- Harsha joined Cardinality.ai in Sep 2023. Since then, he has worked on the Georgia DHS Foster Care project. He serves as the Project Manager, bringing years of project management experience across different realms of Information Technology domain, HHS based Government entities.
- Collaborate with stakeholders to define project scope, objectives, and requirements.
- Develop detailed project plans, timelines, and resource allocation strategies.
- Lead and manage a team of developers, designers, testers, and other project members.
- Assign tasks, set clear expectations, and provide support to ensure timely and high-quality project execution. Identify potential risks and issues that may impact project delivery.
- Develop mitigation plans and work closely with teams to proactively address challenges.
- Act as the main point of contact between the project team and clients or internal stakeholders.
- Provide regular updates on project progress, milestones, and any changes to scope or timelines.
- Manage delivery of solution from conceptualization to implementation for several customer facing products on various platforms and technologies.
- Guide and lead a group of developers, quality analysts, business analysts delivering solutions and products to financial service customers.
- Performed troubleshooting, provide root cause analysis and resolve issues throughout the lifecycle

Fidelity National Information Services, 2019–2023, Senior Data Analytics Manager

- Defined, maintained, and extended functional product architecture for several Financial Services Applications.

- I partnered with stakeholders to understand business strategies and objectives.
- Served as SME for translating client data into actionable insights to make strategic business decisions.
- Reviewed functional and technical designs to identify areas of risk and missing requirements.
- Documented and communicated opportunities to leverage inter-project synergies and expose application assets for enterprise consumption and reuse.
- Played a key role in coordinating and managing various cross functional business & technical teams.
- Guided and led a group of developers, quality analysts, business analysts delivering solutions and products to financial service customers.
- Ensured development is done right the first time.
- Managed full software development lifecycle including testing and implementation and post-implementation support.
- Maintained a project plan for the delivery team.

Digital Management LLC, 2013–2019, Data Analytics Manager

- Accountable for creating and maintaining project management plan, monitoring project milestones and deliverables.
- Collaborated with key business leaders to drive business intelligence solutions and provide insights to better manage and grow the business.
- Played a key role in designing, developing and managing Business Intelligence, Data Warehousing and Data Analytics systems.
- Managed delivery of solution from conceptualization to implementation for several customer facing products on various platforms and technologies.
- Responsible for directing the project team in end-to-end Reporting and Data Analysis activities including Data Extraction, Validation, Cleansing, Enriching.

Cognizant Technology Solutions, 2004-2007, Team Lead

- Led and mentored a team of 15 members in data warehousing and business intelligence projects
- Converted business requirements into robust technical designs.
- Lead the efforts to design and implement enterprise-wide Self-Service BI.
- Designed, developed, and maintained reports and dashboards using SAP Business Objects

Cognizant Technology Solutions, 2007-2008, Software Engineer

- Analyzed data, identified required data elements, extracted and transformed data from various data sources using SAP BODI ETL tool.
- Developed reporting assets using SAP Business Objects Universe, SAP Webi reporting tool and SAP Xcelsius Dashboards.
- Developed complex universes in the SAP Business Objects platform using loops, contexts, traps.
- Performed troubleshooting, provided root cause analysis and resolved issues throughout the lifecycle.

Business Analyst - Yashwant Uppuluri

Professional Summary

Yashwanth is a results-driven, experienced business analyst/developer with over 8 years of experience in tech organizations. He has a proven expertise in understanding the business and creating the business requirement documents and put them on boards as user stories, features and defining a creative and useful software solution suite to sprint plan, manage, implement, and eventually train the application to the user base. His skills revolve around helping businesses meet their needs by implementing the SDLC end to end in an agile fashion. He possess Business/Data Analytical skills with Product management, Project management and Scrum skills.

Education and Certification

- 2015 – Master in Computer Sciences from Wayne State University, Detroit
- 2013 – B.Tech in Information technology from GRIET, Hyderabad, India
- Oracle Certified Java Programmer
- Microsoft Certified Solutions Associate (070-461)

Core Competencies

- System Development SDLC
- Requirement Analysis (Functional & Technical)
- Business Process Analysis
- Reengineering
- Testing
- Documentation
- Setups and Implementation
- Leadership Skills: Product Manager, Project Coordinator, and Scrum master
- Tools:SQL and on TOAD, SSMS, Octopus, Release Management, Balance Sheets, SSRS
- Databases: MS SQL Server, Oracle, Teradata, MS Access, MySQL 5.5, SQL Loader, MS Access
- Operating Systems: Windows, Linux, Macintosh
- Languages Known: C, C#, Java, Python, R, SQL, HTML, CSS, C#, ASP.NET, CMD/Shell Programming
- Source Control: Team Foundation Server 2010, Visual Source Safe 2005, GitHub, Slack
- Tools: ServiceNow, Jira, Kibana, Schedulers, MS Office, MS SQL Server Integration Services (SSIS), Tableau, Pentaho, and several other BI tools

Work Experience

Senior Business Analyst, Cardinality-ai (January 2024 - Present)

- Currently engaged as a Senior BA for the Oregon Department of Early Learning & Care on the Provider Management Platform, where he analyzes, designs, and implements the software solutions
- Responsible for conducting business requirements analysis, developing BRDs and Use Cases, and translating business needs into technical requirements.
- Provides software solution design and development, ensuring technical feasibility and adherence to architectural guidelines.
- Responsible for managing project timelines, deliverables, and resources, and facilitates JAD sessions and agile ceremonies.
- Develops and executes test plans and facilitates UAT with business users.

Boeing Inc - Senior Business Analyst **Jun 2021 to January 2024**

- Worked with Data architects and business users to understand business processes, document project requirements and translate them into functional specifications for BI reports and applications
- Gathering, understanding, and analyzing the Payment application suite called Bottomline and providing scalable software solutions to manage and implement the developed application to the user which caters to business and operational requirements in SDLC
- Used Jira to track issues from time to time and have new projects and stories built and published on their respective swim lanes, so all users are aware of happenings across the teams.
- Documented business requirements on multiple projects including defining scope and objectives for projects for the technical team to develop a prototype and overall system by organizing JAD sessions between Dev and Business.

Optum Technology- Data SME Analyst **Nov 2016 to Jun 2021**

Worked as a Business Analyst and SQL Developer, gathering and analyzing business requirements to develop a platform for Bottomline payment clients to manage pay schedules and control usage across teams. Organized JAD sessions and brainstorming meetings for requirement elicitation and created Use Case Diagrams, Data Flow Diagrams, Activity Diagrams, Sequence Diagrams, and ER Diagrams in UML to document system functionality. Developed requirement specifications, process diagrams, and vision documents to define project scope and functional/non-functional requirements. Designed and optimized T-SQL/PL-SQL stored procedures, triggers, and queries, improving SQL Server performance. Led the design and development of SSIS Packages for data extraction from multiple sources, utilizing transformations such as Data Conversion, Conditional Split, Bulk Insert, Merge, and Union All, and managed FTP components using Configuration Manager. Designed user interfaces, wireframes, and prototypes, acting as a functional lead to review and validate business requirements. Monitored industry trends and provided recommendations to support IT objectives. Implemented capacity monitoring, disaster recovery planning, and backup strategies, developed Linked Servers to connect OLE DB data sources, and ensured optimal database performance. Scheduled subscription reports using the Subscription Report Wizard and provided troubleshooting and problem resolution to support business operations.

Redmane Technology Inc - Business Analyst **Mar 2016 to Oct 2016**

As a Business Analyst, collaborated closely with business stakeholders to gather and analyze requirements, translating them into clear, actionable functional specifications for the development team. I played a key role in designing and creating databases while assisting data analysts with data modeling and mapping, ensuring accurate field attributes. I led reviews of functional requirements for major initiatives and prepared detailed work plans, conducting research and recommending design changes as needed. I monitored industry trends and applied them to enhance business IT objectives. Additionally, I developed and enforced quality assurance measures and testing standards throughout the development lifecycle, ensuring new applications and enhancements met functional and technical requirements. I wrote test plans, conducted testing, and tracked defects to ensure seamless software integration. I was also involved in the implementation and conversion of projects, collaborating with cross-functional teams such as production support and EME. My technical contributions included developing complex stored procedures and SSIS packages for data migration, and creating reports using SSRS for finance-related applications.

RailCarRX - Software Engineer **Jan 2015 to Mar 2016**

As a Software Engineer, gained extensive experience in Business Intelligence (BI) tools, focusing on ETL processes using SSIS, report creation with SSRS, and developing complex OLAP cubes with SSAS. I designed OLAP cubes with star schemas and multiple partitions, creating intricate SSAS solutions involving multiple dimensions, perspectives, hierarchies, and measures. My responsibilities included setting up and maintaining production and pre-production environments for both web and SQL applications, adhering to Microsoft standards for optimal performance. I played a key role in deploying builds and patches during quarterly and monthly releases, while also handling security patching, certificate renewals, and job monitoring. I proactively resolved issues related to job failures and SSIS package errors and scripted routine tasks using Shell scripting for efficient management. I contributed to building and onboarding new environments with minimal business impact and was involved in maintaining application data, generating reports, and providing support. My expertise extended to designing and developing data warehouses and data marts, using multi-dimensional models like star and snowflake schemas, and building MDX and DMX queries for data analysis and reporting.

Google - Data Specialist **Jun 2013 to Dec 2013**

As a Data Specialist, played a key role in enhancing the performance of Google Maps by managing and organizing data using the Niantic Geo Store tool. I coordinated with multiple teams in both India and the U.S. (Bothell, WA) to make critical decisions regarding data submissions, ensuring accuracy and quality through pre-defined codes. My responsibilities included troubleshooting glitches to improve portal performance and meeting daily and weekly productivity targets. I also oversaw the Quality Control processes, ensuring high-quality content went live while rejecting subpar data. As a final quality control operator, I worked with internal teams to ensure data accuracy and collaborated with teams handling roads, buildings, and businesses to update map information. Additionally, I managed data updates for regions like Canada, Europe, and South America, adhering to local laws. I executed manual and automated testing, logged defects, and provided detailed reports on test cycles. I also facilitated communication with end-users to minimize errors and improve data quality.

Solution Architect - Chanakya Katukojwala

Professional Summary

Chanakya is a software professional with over fifteen years of total IT experience with expertise in architecting, designing, and deploying solutions. Adept at maintaining focus on achieving bottom-line results while formulating and implementing technology and business solutions to meet diverse needs.

Education and Certification

- B.Tech (Computer Science) - Jawaharlal Nehru Technological University, India, 2006
- TOGAF-certified professional
- Microsoft-certified Azure Developer, Microsoft-certified Azure Architect
- Reactive Architecture: Domain-Driven Design, Sun-certified Java Developer

Core Competencies

- Expert in digital transformation for large-scale enterprises.
- Developed a low-code platform reducing client time-to-value by 75%.
- Skilled in multi-cloud and hybrid system architectures.
- Full lifecycle product implementation specialist.
- Experienced in cloud migration strategy and technical architecture.
- Proficient in AWS DevOps, CI/CD, and serverless deployment.
- Data pipeline development for healthcare analytics.
- Implemented compliance standards for data security.
- Converted monolithic architectures to microservices.
- Holds TOGAF, Azure Developer/Architect, and Java certifications.
- Established automated testing and coding best practices.
- Led the deployment of analytical tools and executive dashboards.
- Mentored teams and led technical strategy in various projects..

Work Experience

Cardinality.ai - Solution Architect **Dec 2019 to Present**

Chanakya associated with Cardinality.ai provides consistent access to quality project opportunities in different architectural roles, below are the roles and programs which I am associated with: -

- Jan 2022 - Present, MDTHINK, Solution Architect
- Coming up with a migration strategy for agency application into the Cloud Platform
- End-to-end design of migration strategy and the activities included.
- Coming up with documentation for platform standards and technical reference architecture
- Closely working with the implementation team to ensure standards are met.

Amber Engine - DevOps Architect/Technical Architect **May 2020 to Present**

- End-to-end implementation of CI/CD in AWS infrastructure, came up with branching strategy for AWS CodeCommit, Implemented CI/CD for Serverless deployment strategy for AWS Lambda, SQS, API Gateway, s3 static web hosting, ECS, ECR using AWS CDK
- AWS Aurora cluster deployment
- AWS Blue/Green deployment

Goldfinch.ai - Principal Architect **Jun 2020 to Dec 2020**

- End-to-end implementation of Analytical products for Goldfinch AI
- Worked with the health care provider in the USA to establish their data strategy.
- Developed data pipelines for cleansing and transforming data for analytical needs.
- Implemented CI/CD for Serverless deployment strategy for AWS Lambda, SQS, SNS, and DynamoDB using Terraform.

Petram AI - Technical Architect **Dec 2019 to Apr 2020**

- Implementation of CI/CD for the existing product
- Designed and Implemented PII/PHI compliance for the product.
- Established best practices guidelines for branching strategy.

- Established Coding guidelines for quality product development.
- Incubated automated testing group for the product.

Infosys - Technical Architect **Oct 2013 to Dec 2019**

- Worked as Lead engineer in converting existing monolith applications to Microservices
- Worked with Azure service fabric for container orchestration.
- Worked with Solaris and PRO C for Monolith routine understanding.
- Migrated ETL systems to Azure cloud with serverless architecture, created Core framework for re-use between Azure functions.
- Worked as Technical SME on Microsoft technologies, worked on modernization solution for Legacy CRM
- TFS GIT Implementation for Continuous Integration and Deployment
- Worked on Analytical CxO dashboard for KPIs on critical systems
- Worked on creating Outlook extension for Callback Scheduling

Infosys - Technology Lead, .NET **Sep 2010 to Sep 2013**

- Worked as Senior developer for a Web application for the Renewable Energy Intake program
- Created a solution for template-based form design for the Intake
- Implemented best practices for Service-oriented Architecture
- Implemented integrations with TIBCO software
- Worked on performance tuning for Demand System Management which reduced process run time to 2 hours from 8 hours.

Infosys - Senior Software developer **Sep 2008 to Oct 2010**

- First member of flagship product under utility domain
- Demoed the program to various stakeholders
- Worked as a .net developer
- Tuned the notification logic to reduce the processing time

Development Lead - Subash Chandra Bose Muthu

Professional Summary

Bose Muthu has 15 years of IT experience in software analysis, design, development, and unit testing using Java/J2EE, AWS cloud-based applications, and related technologies. He has experience as a Technical Lead and Full-stack developer, as well as leading teams of developers with various technical skills.

Education and Certification

- Master of Engineering, Computer Science & Engineering, Anna University, Chennai, India, 2010 (University top ranker and gold medalist in M.E. Computer Science & Engineering)
- Bachelor of Engineering, Computer Science & Engineering, Anna University, Chennai, India, 2007
- Certified SAFE 5 Agilist/IBM Certified Developer - InfoSphere MDM Server v9.0

Core Competencies

- **Technologies:** Java/ J2EE, Angular JS, Spring MVC, Spring Batch, Apache Camel, Spring Boot, RESTful/ SOAP Web services, EJB, Postgres, MySQL, DB2, Hibernate, JPA, AWS S3, JSP, CSS, Servlet, Struts, Maven, Junit and Mockito.
- **Database:** Postgres, Aurora, IBM DB2 and MySQL.
- **Product:** IBM InfoSphere Master Data Management
- **Web Server:** IBM WebSphere, JBOSS and Tomcat.
- **Methodologies:** AGILE, Waterfall
- **Operating Systems:** Windows
- **Tools:** Eclipse, Spring Tool Suite, Visual Studio Code, IBM RAD, PUTTY, CA Scheduler, Control M, New Relic, Splunk, Git GUI, Source Tree, Jira, Version One, Jenkins, Postman, SOAP UI, HP Command Center Professional and HP Quality Center.

Work Experience

Cardinality.ai - Senior Developer **Jan 2022 to Present**

Project: MDTHINK Child Support Administration (CSA): MD THINK is a cloud-based data repository that uses a scalable, pay-as-you-go, cloud-based platform. It is designed to break down data barriers between State agencies and provide integrated access to programs administered by the Department of Human Services, Department of Juvenile Services, and the Department of Labor, Licensing and Regulation. MD THINK will streamline service delivery for the most vulnerable Marylanders, including children in foster care, disconnected youth, and families in need.

Led the Enforcement Team, ensuring compliance with policies for enforcement actions against Non-Custodial Parents (NCP). I collaborated with customers to gather and refine requirements, contributed to technical design documentation, and reviewed low-level design as part of application re-engineering. My role involved full-stack development using Spring Boot, REST API, and Angular, integrating web applications with backend services. I developed and executed JUnit 5 test cases with Mockito, resolved vulnerabilities using SonarQube, and optimized application quality through Jenkins CI/CD pipelines deployed to AWS EKS Fargate. I played a key role in legacy system analysis, data mapping, and migration, ensuring seamless integration with external agencies. I also implemented Spring Batch jobs for file transmission, performed cross-platform validation, performance testing, and led pre-production acceptance testing. Additionally, I provided architectural recommendations, drove process improvements, identified system challenges, and coordinated with stakeholders to enhance functionality. As a Scrum Master, I facilitated Agile processes, ensuring smooth project execution and defect-free delivery.

Maryland Department of Human Services (DHS) - Technical Team Lead **Oct 2018 - to – Dec 2021**

Project: MDTHINK Eligibility and Enrollment: As a Senior Developer on the MD THINK project, I managed the Benefit Issuance and Benefit Recovery (BI/BV) module and led a team of 10+ professionals across Java, UI, ETL, Mainframe, and Testing. I collaborated with business stakeholders to gather requirements, design technical solutions, and re-engineer the system. I played a key role in developing a web application for benefit issuance and claim recovery, ensuring seamless service delivery for Marylanders receiving Food Stamps, Cash Assistance, and Emergency Assistance programs. I led the Pandemic EBT (PEBT) project, successfully issuing $60M in benefits to 450K students via EBT cards. I worked with external agencies (EBT, TOP, CCU, SSA, IAR, STO) to

establish data transmission processes, ensuring compliance with security and integration standards. I was responsible for analyzing legacy system rules, mapping data for system conversion, and implementing Spring Batch job frameworks for automated file transfers.

I ensured cross-platform validation, source code management (GitHub), build automation (Maven), and code quality analysis (Fortify) while conducting rigorous performance testing to meet stability and scalability expectations. Additionally, I configured batch jobs in CA Scheduler and Control-M, performed pre-production acceptance testing, and recommended architectural and process improvements. As a Scrum Master, I facilitated Agile ceremonies, ensured sprint progress alignment with stakeholder expectations, and drove defect-free project delivery. I also contributed to cloud-based shared services architecture, defined technical standards, and worked closely with architects to refine high-level designs.

Farmers Insurance Inc - Senior Developer **Jun 2014 to Oct 2018**

As a Senior Developer at Farmers Insurance Inc., I played a key role in modernizing the forms generation platform for auto, home, and umbrella insurance lines. I led major initiatives such as renewal billing summary, auto data prefill, and severe prior damage surcharge, acting as a Tech Lead and Subject Matter Expert (SME) for Personal Line Auto insurance forms. My responsibilities included analyzing legacy system rules, designing system components using Java, XML, and Web Services (JAX-WS, JAX-RS), and developing SOAP and REST APIs integrated with external services.

I contributed to batch and on-demand forms generation, implemented multithreading using the Executor Service Framework, and developed business rules for agent details, barcode image population, and audit tracking using Java, J2EE, and MySQL. I also worked extensively on Spring MVC, Hibernate, JSP, JavaScript, AngularJS, and ensured seamless system integration and database synchronization. I coordinated with business stakeholders, offshore teams, and Quality Assurance teams to ensure defect-free project delivery. Additionally, I maintained code quality through Junit testing, IBM ClearCase for version control, and Apache Maven for build lifecycle management, ensuring system stability and scalability.

Bank of America - Senior Developer **Jun 2010 – May 2014**

Led multiple projects including Preferred Rewards, GAI MQ Cutover (achieving $640K MIPS cost savings) and COIN Decommission focusing on API development, system integration, and modernization.

First Soft Technologies - Team Member **Jul 2007 – Jun 2010**

As a Team Member at First Soft Technologies from June 2014 to October 2018, I contributed to the development of a Health Care Monitoring System designed to track biomedical parameters such as cardiac values, blood pressure, and body temperature, along with environmental factors like humidity and room temperature using Crossbow Motes. My responsibilities included designing and developing the user interface (UI) using JSP, Servlets, JavaScript, and CSS, ensuring an intuitive and responsive experience. Additionally, I was involved in writing unit test cases and conducting end-to-end testing to validate system functionality and performance. My work ensured seamless alert notifications via SMS to physicians and caregivers, enabling prompt medical intervention in abnormal conditions.

Testing Lead - Ravi Motwani

Professional Summary

Result-driven IT Management professional having 14 years of evolving experience in Release & Deployment Management, Test Engineering/automation in the IT industry with proven experience driving strategy in testing and validation of state-of-the-art solutions enabling clients to thrive in diverse domestic and worldwide marketplaces.

Education and Certification

- Master of Computer Applications from MANIT, Bhopal with 8.3 GGPA in 2008
- Bachelor of Science (Statistics Honors) from BHU, Varanasi with 81.9% in 2005
- ISTQB Foundation level certification
- IBM AIX Basic operations Certified
- Red Hat System Administrator Trained

Core Competencies

- **Functional Modules:** Siebel CRM, Jasper Reports, Medicaid/MMIS System, 834 Transaction
- **RDBMS:** Oracle 11g-18c, DB2 v8.1, Sybase
- **Languages:** SQL, Core JAVA, Shell Scripting
- **O/S:** Windows Family, UNIX (AIX), RHEL (System admin Trained), Sun Solaris, Ubuntu
- **Tools:** HP ALM, WebLogic 10.3.6, Jboss, Selenium APIs, Siebel Tools, Rational Tools (RCQ, RMT, RPM), SSH tools (Put-ty, WinSCP), DB Client Tools (SQLDbx, Toad), JIRA, Understanding of DWH, SoapUI, Jenkins, AWS, Chef, SVN

Work Experience

UnitedHealth Group **Sep 2014 to Till Date**

Sr. Manager Quality Engineering

- Day-to-day tasking of resources across multiple parallel releases.
- Managing E2E testing activities from requirement traceability, validation of customer requirement to delivery phase and till production support.
- Responsible for test staff development and performance evaluations.
- Leading Test Strategy development, executing Test Plan and organized tracking and disposition of internally identified defects along with thorough analysis. Designing test plans, scenarios, scripts, and procedures.
- Ensuring all QA deliverables and deployment packages are timely and meet customer expectations. Ensuring the quality and integrity of all software products for distribution. Producing & maintaining test coverage reports for functional and automation coverage.
- Driving Test Automation initiatives for regression phases and leading Release Deployment reviews
- Overseeing and managing the deployment of various quality software modules.
- Publishing test reports, defects report, daily status reports, defect disposition and release notes.
- Daily defect triage discussions with State and primary vendor comprising BA and SMEs by representing QA team
- Ensure that test activities are realized within approved time and quality

- Knowledge of Medicaid & MMIS system, 834 Enrollment structure
- Writing complex SQL queries for Jasper Reports
- ALM administration for Test migration, Test execution, defect reporting and reports for business stakeholders.
- Training test staff and UAT members on ALM test and defect processes.
- Publishing test reports, defects reports, daily status reports, defect disposition and release notes.

hCentive Technology India Pvt. Ltd. **May 2012 to Sep 2014**

Sr. QA Engineer

- Documenting, tracking, and communicating Test plans, Test results, Analysis, and Unresolved problems for Agent Portal
- Coordinating with team-members for end-2-end QA/QC activities for Agent and WPMS Portal
- Understanding requirements (user stories) and drafting test cases for the same.
- Preparation of test artifacts to ensure quality deliverables.
- Build deployment over Weblogic/Oracle & MySQL/tomcat platform
- Execution of Tests for a specific sprint for different public exchange portals
- Perform scripting activities to automate the potential automation areas
- Onsite client facing experience (For KHBE & COHBE) for participation in business meetings and planning QA activities that are required to be performed between on-shore and off-shore teams.
- Support activities for Non-functional (Performance/Security) test and Client demo.

Ericsson (RM R&D department) **Oct 2011 to May 2012**

Verification Engineer

- Prepare test plans for the UMI design activities
- Participate in Installation and Upgrade strategy for product deployment
- Ensure that test activities are realized within approved time and quality
- Perform scripting to automate the product installation/upgrade and test activities

IBM India Pvt. Ltd. **Aug 2008 to Oct 2011**

Associate Software Engineer

- Understanding the business requirements
- Writing and execution of Test Cases (Integration Testing, Regression Testing)
- Constant interaction with the development team for technical blocker/issues.
- Delivering the complete test artifacts as per the standards and scheduled plan.
- Automation of regression test cases using automation tool QTP 8.2
- Participations in design jams to understand the business requirement
- Writing/Executing test cases in RMT for telecom applications
- Preparing traceability matrix, defect reports and status reports.
- Interaction with dev team for quick resolution of defects & technical blockers.
- Writing SQL queries and execution of Unix batch jobs to perform testing.

Training Lead – Derrick Stephens

Professional Summary

Derrick Stephens is a dynamic professional with a robust background in business development, immersive learning, and clinical social work. At Florida State University and in his previous roles, Derrick has skillfully merged behavioral science with cutting-edge technology to devise and lead transformative solutions in the human services sector. His leadership has not only spurred strategic growth and streamlined operations but has also markedly enhanced educational and clinical outcomes. His expertise in Agile methodologies and product lifecycle management has been pivotal in driving innovative projects, such as the development of AI-enhanced training platforms and mixed reality simulations, which have set new standards in child welfare training. Additionally, Derrick is a member of the American Bar Association's Center for Children's Law. His visionary thinking and data-driven decision-making have established him as a leader adept at spearheading complex, impactful projects.

Education and Certification

- Master of Business Administration, University of Central Florida, Orlando, FL
- Master of Social Work, University of Central Florida, Orlando, Fl
- Bachelor of Social Work, University of Central Florida, Orlando, FL
- NVIDIA Fundamentals of Deep Learning (2024)
- Licensed Clinical Social Worker (FLDOH #11477)
- Lean Six Sigma White Belt (2015).

Core Competencies

- Training Delivery & Facilitation
- Instructional Design & Curriculum Development
- Performance Measurement & Data-Driven Training
- Coaching & Team Development

Work Experience

March 2022 - Present: Florida State University (College of Social Work, Florida Institute for Child Welfare) Innovation and Immersive Learning Manager | Research Faculty.

- Responsible for developing, testing, and deploying visionary innovations and technological solutions.
- Analyzing Florida's child welfare workforce and growing ecosystem to stay ahead of market trends in artificial intelligence, mixed reality, SaaS platforms, mobile applications, and simulation labs.
- Cross-Functional Leadership: Collaborates closely with FICW's executive director and assistant directors to hire, lead, and retain a high-performing, cross-functional team comprising Directors, Product Managers, Researchers, Instructional Designers and UX/UI Designers.
- Market Analysis: Performs in-depth market analyses, crafting FICW's value proposition and product positioning, leveraging data analytics, logic models, and implementation science to develop informative product strategies.
- Agile Methodology: Leads a team in end-to-end software development projects, regularly evaluating product performance and experience, ensuring we remain at the industry's forefront.
- Research and Development: Collaborates with the Director of Research on product conception, UX/UI design, and implementing iterative improvements based on data-driven insights, user feedback, and industry trends.

- Collaboration and Influence: Represents FICW at local, state, and national meetings, workgroups, and boards to build and enhance the institute's reputation, ensuring a robust and trustworthy ecosystem.

April 2018 - March 2022: Florida State University (College of Medicine, Department of Behavioral Sciences and Social Medicine) – Principal Investigator I Research Faculty

- Cross-Functional Leadership: Served as Principal Investigator on a statewide comprehensive behavioral health curriculum and training program grant for child welfare professionals. Trained 2500+ professionals.
- Problem-Solving: Oversaw and monitored all aspects of contract negotiation, training curriculum and program development, monitoring and evaluations, deliverables, key performance metrics, and customer relations.
- Innovation and Creativity: Designed and implemented comprehensive training programs rooted in adult learning theories, leveraging interactive, immersive, and remote learning approaches.
- Collaboration and Influence: Collaborated with and maintained genuine, authentic, and consistent relationships with adult learners, administrators, faculty, state government officials, and community stakeholders.
- Team Management: Effectively led and managed a team in delivering mixed-mode (in-person/virtual) training content throughout the Covid-19 pandemic.
- Data and KPI Tracking: Used data to measure success, analyze trends, and develop proactive actions to continuously improve the learning experiences for adult learners. Motto: Learn, Iterate, and Improve.

May 2017 - April 2018: Cogstate – Director of Sales and Business Intelligence

- Go-to-Market Strategies: Played a pivotal role in developing and executing a comprehensive go-to-market strategy for the deployment and performance of the company's SaaS platform, Cognigram, a scientifically valid rapid cognitive
- assessment tool.
- Cross-Functional Leadership: Modeled behaviors to foster a culture of innovation, collaboration, and accountability. Provided guidance and mentorship to team members to ensure individual and collective success. Accomplished 185% of the goal.
- Communication and Presentation: Prepared and delivered technical content to customers, including presentations about validity and reliability, cognitive assessment tools, SaaS platforms, and brain science.
- Conducted regular customer meetings for product demonstrations, customer onboarding, cognitive testing, and relationship management.
- Problem-Solving: Led development and contract negotiation for 3yr vs. 1yr subscription model for the SaaS platform in alignment with the company's overall objectives to drive growth and customer satisfaction.
- Data and KPI Tracking: Had a hands-on approach in monitoring key performance indicators (KPIs), financial metrics, and market research to identify opportunities for product enhancement, differentiation, and new market penetration.
- Cross-Functional Collaboration: Developed, published, and maintained a product roadmap in collaboration and consultation with the broader Leadership, Product Management, and

Clinical team across a global company.

June 2016 - May 2017: Home Healthcare of Florida - Director of Business Development

- Collaboration and Influence: Responsible for driving end-to-end home healthcare solutions for health systems, surgical centers, skilled rehabilitation facilities, and physician offices, offering the company's full set of service lines solutions based on the identified needs of customers.
- Communication and Presentation: Prepared and delivered technical content to customers, including presentations about services and solutions, medical device products, specialty topics, etc. Conducted regular customer meetings for relationship management, tracking health outcomes, and education on new services.
- Team Management: Led a sales team utilizing reflective supervision and motivational interviewing techniques to foster a culture of innovation, collaboration, and accountability. This resulted in exceeding the annual Medicare referral targets by 30%.
- Innovation and Creativity: Led the rollout of Salesforce CRM (the SaaS platform) to the sales team, improving productivity and customer relationships. Collaborated with the Clinical Director to establish new service line solutions based on identified market needs (PICC line, transitional care, and psychiatric nursing).

May 2014 - June 2016: Insight Telepsychiatry – Southeastern Account Executive

- Go-to-Market Strategies: Led Southeastern region go-to-market sales and marketing strategy, achieved increased brand recognition and market penetration, and achieved a 25% growth in the territory within two years.
- Problem-Solving: Responsible for revising the company's consult response time matrix, leading to increased customer satisfaction and engagement, resulting in a 25% increase in renewal contracts across the sales team.
- Collaboration & Influence: Developed and maintained relationships with c-suite healthcare executives, resulting in consistently exceeding sales targets. Achieved $5M+ in new and renewal contracts within two years.
- Product Lifecycle Management: Participated in the end-to-end development lifecycle of an online tele-behavioral health SaaS platform, from concept to deployment. Collaborated with product management, design, clinical, and other cross-functional teams to define product requirements, prioritize features, and deliver high-quality solutions on schedule.

May 2010 - May 2014: Mederi Caretenders – Account Executive

- Team Management: Managed internal and external relationships and maintained contacts within the field, which resulted in increased Medicare referrals. Was part of the top AE 400+ Referral Club and achieved 1M+ annually.

May 2010 - Present: Clinical Social Worker (SW #11477) | Executive Coach

- UX/UI Design Principles: Expertise in behavioral sciences and human behaviors provides me with unique perspectives and insights on user-centric design, ensuring both functionality and emotional engagement for users.

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CRFP BSS2500000001

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

☒ Addendum No. 1	☐ Addendum No. 6
☐ Addendum No. 2	☐ Addendum No. 7
☐ Addendum No. 3	☐ Addendum No. 8
☐ Addendum No. 4	☐ Addendum No. 9
☐ Addendum No. 5	☐ Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Elixir Lab USA Inc. d/b/a Cardinality.ai

Company

Kevin Jones

Authorized Signature

6-Feb-2025

Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

(Printed Name and Title) : Anna Harper, Chief Administrative Officer

(Address): 267 Kentlands Boulevard Suite #5092, Gaithersburg, MD 20878

(Phone Number) I (Fax Number): (513) 907-1068

(email address): sales@cardyai.com

CERTIFICATION AND SIGNATURE: *By signing below, or submitting documentation through wvOASIS, I certify that: I have reviewed this Solicitation/Contract in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation/Contract for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that this bid or offer was made without prior understanding, agreement, or connection with any entity submitting a bid or offer for the same material, supplies, equipment or services; that this bid or offer is in all respects fair and without collusion or fraud; that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; that I am authorized by the Vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on Vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.*

By signing below, I further certify that I understand this Contract is subject to the provisions of West Virginia Code s SA-3-62. which automatically voids certain contract clauses that violate State law; and that pursuant to W . Va. Code SA-3-63, the entity enterinv into this contract is prohibited from engaging in a boycott against Israel.

Elixir Lab USA Inc. d/b/a Cardinality.ai
(Company)

(Signature of Authorized Representative)

Anna Harper, Chief Administrative Officer (06-Feb-2025)
(Printed Name and Title of Authorized Representative) (Date)

(513) 907-1068
(Phone Number) (Fax Number)

sales@cardyai.com
(Email Address)

General Terms and Conditions

Team Cardinality's Exceptions

ATTACHMENT/SEC/PG.NO	Exception or Addition	Reason	PROPOSED VERBIAGE
General Terms and conditions – RFP Sec 30, Privacy, Security and Confidentiality	Additional language	The purpose of the clause is to protect the Vendor's confidential and proprietary information from being disclosed, used, or misused during the performance of the agreement and to clarify the confidentiality obligations of the State/Agency and to provide a legal framework for the protection of Vendor Confidential Information in alignment with applicable laws governing trade secrets, intellectual property, and business privacy.	**Vendor Confidential Information.** The State/Agency acknowledges that during the performance of this Agreement, it may be provided with or otherwise gain access to confidential and proprietary information, data, materials, and intellectual property owned or controlled by the Vendor (collectively, **"Vendor Confidential Information"** or **"Exempt Information"**). Such Vendor Confidential Information includes, but is not limited to, trade secrets, proprietary information or financial information, including any formulae, plan, pattern, process, tool, mechanism, compound, procedure, production data, or compilation of information which is not patented, which is known only to the Contractor, and which gives the Contractor an opportunity to obtain business advantage over competitors who do not know it or use it. The State agrees that it shall treat all such Vendor Confidential Information as strictly confidential and shall not disclose, distribute, or use it for any purpose other than as explicitly necessary for the performance of its obligations under this Agreement. The State shall not, directly or indirectly, use Vendor Confidential Information for any purpose other than as expressly permitted under this Agreement, and shall not reverse-engineer, decompile, or disassemble any proprietary materials provided by the Vendor.
General Terms and conditions – RFP	Additional language	Force Majeure clause is being added to protect both parties from unforeseen events, clarifies expectations for handling these situations, and aims to prevent conflicts related to uncontrollable circumstances.	**FORCE MAJEURE:** Neither party shall be deemed to be in default of its obligations hereunder if and so long as it is prevented from performing such obligations as a result of events beyond its reasonable control, including without limitation, fire, power failures, any act of war, hostile foreign action, nuclear explosion, riot, strikes or failures or refusals to perform under subcontracts, civil insurrection, earthquake, hurricane, tornado, or other catastrophic natural event or act of God. In

			the event of any such occurrence, the affected party shall promptly notify the other party in writing of the nature of the event, the anticipated duration, and the effect it has on the performance of its obligations. The affected party shall take reasonable steps to mitigate the impact of the event and to resume performance as soon as possible after the event has concluded or circumstances have improved.
General Terms and conditions – RFP	Additional language	Requesting the inclusion of an Intellectual Property (IP) clause to clarify the ownership and use of intellectual property developed, created, or conceived during the performance of the contract and also safeguarding the Vendor's rights to any intellectual property developed prior to or independent of the contract.	**INTELLECTUAL PROPERTY.** The Vendor acknowledges and agrees that any intellectual property developed, created, or conceived by the Vendor in the performance of this Contract, including but not limited to software, inventions, designs, documents, data, or other works, which are based on or derived from State-owned resources, funding, or materials, shall be considered the exclusive property of the State/Agency. The Vendor agrees to assign and hereby assigns all rights, title, and interest in such intellectual property to the State/Agency. **PREEXISTING INTELLECTUAL PROPERTY.** The Vendor retains all rights, title, and interest in any intellectual property that is owned or developed by the Vendor prior to the effective date of this Contract, or independently of the services provided under this Contract ("Preexisting IP"). The State acknowledges and agrees that the Vendor's Preexisting IP is and shall remain the sole property of the Vendor. The State shall not modify, distribute, or sublicense any Preexisting IP.

WEST VIRGINIA DEPARTMENT OF HUMAN SERVICE CHILD WELFARE MOBILE APPLICATION COMMUNICATION SOFTWARE

BID SOLICITATION NO. CRFP 0511 BSS250000001

DRAFT PROJECT MANAGEMENT PLAN (PMP)

Elixir Lab USA Inc. d/b/a Cardinality.ai
267 Kentlands Boulevard Suite #5092
Gaithersburg, MD 20878

Web: www.Cardinality.ai

Change History

Date	Version	Description	Modified By
31/01/2025	0.1	Draft Plan	Team Cardinality

Signatures

The signatures below represent authorization for the West Virginia DHS team to use Team Cardinality and project/ work resources to perform tasks in association with the successful completion of this Project Work Plan and subsequent activities.

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Harsha Velamuri, Project Manager, DHS,Child welfare mobile application communication software	Date
[Name], State Contract Manager (SCM), DHS,Child welfare mobile application communication software	Date

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1. EXECUTIVE SUMMARY

This Project Management Plan (PMP) provides detailed plans, processes, and procedures for managing and controlling the life cycle activities of the WV DHS Child welfare mobile application communication software

1.1 Purpose

This plan establishes the overall approach for managing and conducting the activities of this project. This plan provides a foundation for the project management, configuration and integration activities for our successful design, integration, and implementation of our Child welfare mobile application communication software. It enables the project to be executed in a disciplined, well-managed, and consistent manner. It communicates the following:

- The project's objectives;
- The project's schedule;
- The project's scope;
- The project's stakeholders and outline of their involvement/expectations/responsibilities; and
- The project's approach to risk management.

The information in this plan and its subsidiary plans provide the basis for communication and understanding amongst the project team or work group members and all other stakeholders. This plan will be updated as necessary during the life of WV DHS Child welfare mobile application communication software. It also addresses Team Cardinality's approach to the Requirements, Communications, Risk, Change, Quality, and Subcontractor Management.

The intended audience of this document is all of the project stakeholders, including the project sponsor (e.g.,DHS), senior Team Cardinality leadership, and the project team.

1.2 Objectives

We will implement a secure, user-friendly, and efficient Child Welfare Mobile Application Communication Software to enhance the effectiveness of child welfare processes. The solution aims to improve communication and collaboration among key stakeholders, including caseworkers, foster parents, legal representatives, and service providers, ensuring timely and accurate information sharing. By integrating with the Comprehensive Child Welfare Information System (CCWIS)/PATH system and complying with federal and state regulations, the solution will streamline workflows, reduce administrative burdens, and focus on delivering better outcomes for children and families. The ultimate goal is to promote safety, permanency, and well-being for the vulnerable populations served by the agency.

1.3 Approach and Methodology

Section 5 of this plan details our Approach and Methodology for our PMP.

1.4 Contents of this Document

(Summary of section contents)

1.5 Acronyms

The following is a list of acronyms and associated descriptions used within the document.

Table 1: Acronyms List

Acronym	Definition
DHS	Department of Human services
ChM	Change Management
CM	Configuration Management
CMMI	Capability Maturity Model Integration
EAC	Estimate at Completion
FAR	Federal Acquisition Regulations
GTL	Government Task Lead
ISO	International Organization for Standardization
MA	Measurement and Analysis
M&O	Maintenance and Operations
Team Cardinality	Cardinality.ai, Cyquent Inc
PCD	Process Compliance Dashboard
PHR	Process Health Review
PM	Project Manager
PMBOK	Project Management Body of Knowledge
PMO	Program Management Office
PMP	Project Management Plan
PSO	Program Support Organization
QA	Quality Assurance
QMO	Quality Management Office
RASCI	Responsible, Accountable, Support, Consulted, Informed
RMP	Risk Management Plan
RTM	Requirements Traceability Matrix
SAM	Supplier Agreement Management
SOW	Statement of Work
WBS	Work Breakdown Structure

1.6 Referenced Documents

The processes employed to manage and support the execution of the DHS Child welfare mobile application communication software project/work will be documented in the below documents. Depending upon the complexity of the process area's tasks and activities, each subsection may include details about the respective management approach, or refer to a separate management plan, guideline, or process document. This PMP is the overarching plan that governs the use and applicability of these documents over the entire life cycle of the project/work.

Table 2: Referenced Documents

Document Name	Document Number
Audit & Accountability Policy	[Document Number]
Change Management Process Description	[Document Number]
Contingency Planning Policy	[Document Number]
Change Management Plan	[Document Number]
Communication Plan	[Document Number]
Interface Plan	[Document Number]
Issues Management	[Document Number]
Maintenance and Operations Plan	[Document Number]
Project Management Plan	[Document Number]
Project Work Plan	[Document Number]
Quality Management Plan	[Document Number]
Requirements Traceability Matrix	[Document Number]
Status Reports	[Document Number]
Training Plan	[Document Number]
Transition Plan	[Document Number]
Turnover Plan	[Document Number]
Estimation Process Description	[Document Number]
Incident Resolution and Prevention Policy	[Document Number]
Incident Resolution and Prevention Process Description	[Document Number]
Team Cardinality Execution Process Description	[Document Number]
Team Cardinality Information Security Acceptable Use Policy	[Document Number]
Team Cardinality Measurement & Analysis Policy	[Document Number]
Team Cardinality Project Orientation Checklist	[Document Number]
Team Cardinality Project and Work Management Policy	[Document Number]
Team Cardinality Quality Assurance Policy	[Document Number]
Start-Up Process Description	[Document Number]

1.7 Assumptions/Constraints/Risks

1.7.1 Assumptions

This PMP is based on the signed Statement of Work (SOW) for DHS child welfare mobile application communication software. This document will be updated as dictated in the SOW. This document assumes that all assumptions made in the technical proposal are valid.

1.7.2 Constraints

This PMP is constrained by the activities for which Team Cardinality is responsible as detailed in the SOW.

1.7.3 Risks

The DHS child welfare mobile application communication software project team or work group manages and defines risks and executes mitigation strategies in accordance with the Risk Management Plan (RMP). There are no risks associated with the content of this PMP.

2. PROJECT SCOPE

2.1 Scope Statement

The West Virginia Department of Human Services (WV DHS) is seeking to implement a Child Welfare Mobile Application Communication Software to enhance secure real-time communication, collaboration, and information sharing among child welfare stakeholders, including caseworkers, foster parents, biological parents, legal representatives, and service providers. The goal of this project is to replace manual and fragmented communication processes with a modern, digital, mobile-first solution that integrates with the state's existing Child Welfare Information System (CCWIS/PATH).

This project will be executed in two phases, ensuring a structured rollout of communication functionalities while maintaining compliance with federal and state child welfare mandates.

The Child Welfare Mobile Application Communication Software will:

- Facilitate Secure Communication – Provide a secure and encrypted platform for real-time messaging, alerts, notifications, and document sharing.
- Enhance Collaboration – Enable caseworkers, foster parents, biological parents, and legal representatives to communicate efficiently within role-based access controls (RBAC).
- Improve Case Management – Support secure access to case documents, court records, safety plans, and assessments for authorized users.
- Streamline Scheduling & Appointments – Allow automated scheduling for visitations, court hearings, MDT meetings, and SNS service appointments.
- Ensure Compliance & Security – Adhere to HIPAA, CJIS, and federal/state data security requirements while integrating with CCWIS/PATH.
- Support AI-Driven Data Insights – Provide reporting, tracking, and analytics dashboards for performance monitoring and decision-making.
- Integration - with PATH/CCWIS system

2.2 Deliverables

In performing services and providing support described in the SOW, the DHS project team or work group will provide the deliverables as outlined in the Project Schedule.

3.OVERALL PROJECT/WORK MANAGEMENT APPROACH

The Team Cardinality project team manages the DHS child welfare mobile application communication software project/work in accordance with WV State guidelines, Team Cardinality's Project and Work Management Policy and Execution Process Description. The project team applies and uses established Team Cardinality processes, procedures, and job aids, which leverage industry best practices to include, but are not limited to, Capability Maturity Model Integration (CMMI) practices, and the Project Management Body of Knowledge (PMBOK).

3.1 Estimating

Estimating is performed in several ways, all of which rely on counting various element(s) of the work in order to understand the magnitude of the effort. DHS child welfare communication software applies expert opinion and historical data in performing estimation activities, in accordance with Team Cardinality's Estimation Process.

Team Cardinality regularly collects, organizes, and analyzes technical and cost data from projects and/or work and then uses the historical data to estimate the costs and resources required to perform similar work. We perform this historical, expert opinion-based estimating whenever new tasks are assigned to the project, or whenever DHS requests evaluation of a change order.

During project execution, Team Cardinality monitors cost using tools such as monthly financial reports and forecasting. Periodically, the project final cost requirements are forecasted based on its performance against the plan and the estimate at completion (EAC).

3.2 Schedule Management

The Project Manager (PM) maintains the project schedule in Microsoft Project throughout the life of the project/work. The project schedule indicates the tasks to be executed, duration, estimated work, planned start and end dates, % complete, actual start and end dates, internal and external reviews (e.g., Quality Assurance (QA), peer, exit gate/milestone, client and/or customer), milestones, and dependencies.

The team reviews the schedule to ensure all the necessary tasks are included. When the effect of a change adversely impacts a key deliverable, the DHS child welfare communication software project team evaluates actions that can be performed in order to deliver the product on time.

3.3 Staff Management

Staffing needs are considered in the initial project/work planning stage to ensure that adequate staff is available in order to execute the project satisfactorily, on time and within budget (see Figure 1). Staffing is also reviewed at key phases of the project/work life cycle to verify that the staff in place remains fully adequate.

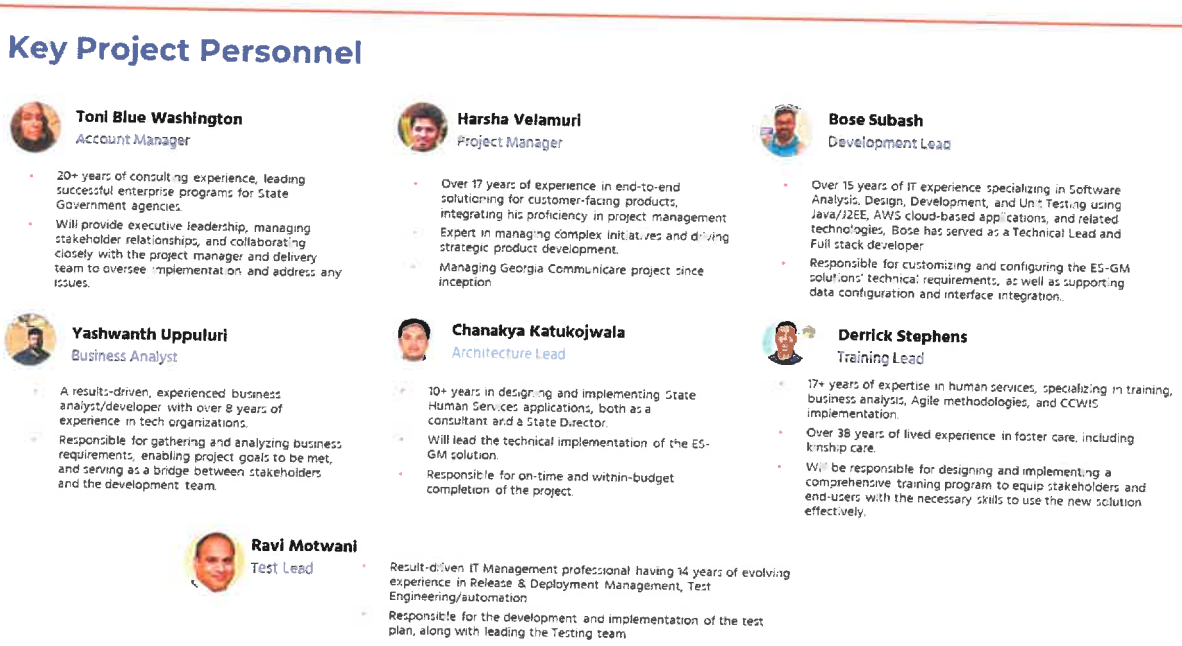

Figure 1: Team Cardinality Organizational Chart

Team Cardinality will provide clients with notification and justification when substitutions to the key personnel are required. Replacements for key personnel will possess qualifications equal to or exceeding the qualifications of the personnel being replaced.

Our project leverages internal staffing processes and resources when a replacement is necessary. As resource requirements are identified, the PM documents a requisition highlighting the skills, experience and educational background required for the candidates. A Human Resource consultant works with the PM to identify both internal and external candidates and manages the interview and hiring process.

3.4 Roles and Responsibilities

The PM has the ultimate responsibility for verifying if staff members are working under documented expectations, responsibilities, and roles that are aligned with the needs of the project. The PM works with the project management team to document, communicate, manage, and evaluate against these expectations for each team member using a Responsible, Accountable, Support, Consulted, Informed (RASCI) Matrix (see Table 3). Project team or work group members and stakeholders are evaluated against an agreed upon set of expectations on an annual basis by their direct manager (team lead or PM). Expectations are also re-set on an annual basis or when there are changes to assignments. Roles and responsibilities for each project team or work group member and stakeholder are defined in the Roles and Responsibilities table below.

Table 3: Roles & Responsibilities (e.g., RASCI Matrix)

Role	Organization	Responsibility
[Role]	[Organization]	[Responsibility]
[Role]	[Organization]	[Responsibility]
[Role]	[Organization]	[Responsibility]
[Role]	[Organization]	[Responsibility]
[Role]	[Organization]	[Responsibility]
[Role]	[Organization]	[Responsibility]
[Role]	[Organization]	[Responsibility]

3.5 Financial Management

The PM has overall responsibility for verifying that the project resources are being expended according to the principles outlined in the SOW. Project team members document their work time on a daily basis in Deltek. The PM has established categories/charge codes to which time is allocated. Charge codes, once approved, are entered into the timekeeping system so that members may log their time daily. The Team Cardinality Accounting Department maintains access to the charge codes and upon request will add members to the specific charge codes they need in order to log their time accurately. On a semi-monthly basis, the PM or designee reviews and approves time logged by team members for that period. Team Cardinality will provide clients with a list of these time categories upon request.

Invoices will be generated monthly from Team Cardinality's Deltek accounting system and submitted to:

[Name]

[Title e.g. Contracting Specialist]

[Client and/or Customer Name]

[Address]

3.6 Project Work

Team Cardinality project work will be managed in accordance with the Project Work plan. The project work plan includes key planning elements that will help the team achieve the project goals and deliver the project on time and within budget. These elements include approach, methodologies, and processes that will be used to manage the project. The Project work plan will also include Work Breakdown Structure (WBS) where the project work is broken down into smaller work packages and tasks that are tracked to completion.

3.7 Transition

Transition of the project through the Project Phases and knowledge transfer will be managed in accordance with our Transition Plan. This plan establishes standard processes, procedures and strategies to transition project work through different phases of the project life cycle to minimize disruption to on-going services and normal business operations. The transition plan will also include Team Cardinality team's approach for knowledge transfer to DHS state team.

3.8 Communication Management

Communications for this project are managed in accordance with the project Communications Management Plan. This plan establishes standard communications and interactions among project team or work group members and stakeholders. The Communications Management Plan is established in accordance with Team Cardinality's Start-Up Process.

3.9 Weekly Status Reporting

Weekly status reports are managed in accordance with the project Weekly Status Reporting Plan. The Team Cardinality program team will prepare and deliver weekly status reports, and attend meetings by the Department to discuss issues, details, and status of work and work products.

3.10 Requirements Management

Development and management of requirements are managed in accordance with the project Requirement Management Plan. Requirements are tracked using a Requirements Traceability Matrix (RTM) to maintain bi-directional traceability through the life cycle of the project.

The Product Backlog is the single source of requirements. The Product Backlog is an ordered list of everything the product might need. The Product Owner puts requirements in the form of user stories into a Product Backlog prior to Sprint inception. The Scrum team assigns these requirements into Sprint Backlog items through Sprint Planning. The Scrum Master controls and manages the requirements process.

3.11 Change Management

Changes to the project requirements are managed in accordance with the project Change Management Plan. Change Management is an element of management where proposed changes are systematically evaluated, coordinated, approved, disapproved, or deferred, and approved changes are implemented after formal establishment of the baseline. The Change Management (ChM) Plan describes the plan for tracking and controlling changes to identified items developed or maintained by the project team.

3.12 Issues Management

Project issues are managed in accordance with the project Issues Management Plan. Team Cardinality project team will use processes defined in Issues Management Plan to identify, log, monitor, and resolve project issues identified throughout the life of the project.

3.13 Risk Management

Risk and opportunity management for this project is managed in accordance with the project Risk Management Plan (RMP). Project/work risks and opportunities are identified, tracked, and managed throughout the project/work life cycle in a Risk Log located on the project's/work's dedicated QCore site. The RMP is established in compliance with Team Cardinality's Project and Work Management Policy.

3.14 Training

Training for this project is managed through the Project Training Plan. The DHS child welfare mobile application communication software Training Plan describes the overall scope, technical and management approach, resources, and schedule of the system training activities to include those in the current statement of work (SOW). Training Plan will include guidance and recommendations on training approach, best practices, guidance to the technical efforts needed to accomplish training, Coordinate training planning and delivery logistics.

3.15 Maintenance and Operations

Maintenance and Operations activities for this project are managed through project Maintenance and Operations (M&O) Plan. This plan addresses ongoing operations services, including all processes, resources, and required applications/tools. This plan also includes an approach and methodology for ongoing maintenance and operations services for the duration of the System Development Life Cycle

3.16 Administrative Completion Reporting

Team Cardinality will work with the team and WV State and prepare and submit the required Administrative Completion Report/Checklist to comply with the general and plan requirements listed in SOW for each phase from Planning phase through M&O.