Waimanalo Blooms

Hawaii Department of Health
Early Intervention Section
Early Intervention Software Solution Project
Assessment and Feasibility Study

Prepared for:

Hawaii Department of Health – Early Intervention Section

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EIS Table of Contents

Introduction

Waimanalo Blooms has prepared this assessment and feasibility study for the Department of Health (DOH) Early Intervention Services (EIS) to examine the existing software systems and provide insight into current operating procedures and explore options for a desired future state.

Through a thorough systems analysis process which included on-site interviews with key DOH and EIS personnel, phone interviews and research, the Waimanalo Blooms team has compiled the findings into this comprehensive report. The report intends to provide leadership with a current picture of EIS section software systems and operating procedures, what are their future goals, and what is the feasibility and potential level of effort needed to achieve these goals.

This assessment and feasibility study is the first step in the process of determining the best way to modernize the existing software and systems used in the EIS. This study provides the starting point for the creation of a traceability matrix to prioritize requirements, a request for information (RFI) and subsequent request for proposal (RFP) for systems vendors who have a solution fit for Hawaii DOH EIS purpose.

Purpose of the Assessment

The purpose of this assessment is to provide the Department of Health (DOH) Early Intervention Section (EIS) leadership with a representation of how the EIS systems and software are functioning to service the individuals. The assessment takes a high level look across EIS staff, programs, and providers and presents issues, challenges, and constraints of the current system along with macro recommendations for system improvements and desired end states.

The assessment will provide potential vendors a common operating picture of high level ‘as-is’ system architecture and operations and also a desired end state of system functionality.

Assessment Goals

The goals of the assessment include analysis of people, technology and process.

- Identify and Document High Level System Requirements
- Identify and Document High Level Operations across business processes
- Identify Key Findings across the EIS system
- Provide Platform and Software Considerations

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Background of Early Intervention Services

The Early Intervention Section (EIS) within the State of Hawaii, Department of Health provides early intervention services for infants and toddlers age 0 to 3 years with a developmental delay in one or more of the following developmental areas: communication, cognition, fine motor, gross motor, social, self-care/adaptive; and/or have a medical diagnosis that has a high probability of contributing to a developmental delay in any of the areas previously mentioned. Early intervention (EI) services provided are mandated under the Individual with Disabilities Education Act (IDEA), Part C. Therefore, EIS must adhere to policies and procedures that meet federal and state requirements which include but are not

limited to specific timelines, service delivery activities, documentation requirements, and performance reporting.

EI Services are delivered statewide through 20 EI Programs that are State-operated (3) or contracted (17) providers. Each EI program delivers services within a specified geographical area. The program administration staff includes a Program Manager, Data Clerk, and Office Assistant who supports the business operations. Services are provided by Care Coordinators, Social Workers, Physical Therapist, Occupational Therapist, Speech-Language Pathologist, Special Educator, Teacher, General Educator, and/or Educational Assistant. The actual composition of the staff is determined by each program.

EIS uses a combination of database and other tools to organize their information and provide services.

Pain Points with Current EIS Software System

The following pain points were articulated by EIS staff:

- **Inefficient Use of Staff** –The staff spends too much time troubleshooting operational errors and determining the causes and workaround to issues.
- **Inefficient Use of Time** – There is a central EI Database and each of the programs has a copy of the database. In order to proceed with end of month procedures and reporting, the database from each of the programs has to be reconciled with the central database. This is a time consuming process to reconcile this information to proceed with operations.
- **Duplicate Data Entry** -- The current system is data entry intensive. There is duplicate data entry from the program level to the EIS staff, redundant data entry inside EIS staff, and also redundant data entry in the reimbursement process to Medicaid.
- **Manual Entry for Medicaid Reimbursement** – The Medicaid reimbursement process is manual and labor intensive. There is an automated way to bill Medicaid which is less prone to error and not as labor intensive which currently isn't being employed.
- **Personnel Tracking** – Personnel tracking is currently decentralized. Often it is difficult to determine where there are staff openings (i.e. a program needs a new specialist to fulfill services). The method in which specialist qualifications are tracked is rudimentary. Currently the system does not provide the ability to easily check qualification for care coordinators. There is no easy way to track specialist capacity.
- **Contract Tracking** – Contract tracking and billing reconciliation is cumbersome in the current system.
- **Auditing Program Service Delivery** – Since the system is decentralized, it is difficult for EIS staff to oversee service delivery.
- **State and Federal Reporting** – The current system does not easily provide the necessary reports for state and federal accountability.
- **Paper Based Processes at Program Level** – All forms are paper based, and many of the data elements entered on every form are the same on all forms. There is no way to auto-populate information once it has been entered in the database.

EIS Wish List

Prior to the assessment kickoff, the EIS staff compiled a wish list of functionality a new system. The results have been consolidated.

- State staff and contracted providers (purchase of service, fee-for-service, and small purchase contracts) would like a web-based system in which all participants would have real time access to data. In a future iteration, the staff and providers would also like to be able to allow families to see portions of their information. This information is to be determined.
- The system must provide the ability to safeguards data access control so that only the appropriate individuals have access to their information. The system must be flexible enough to provide role based access across all the various partners, providers and EIS staff.
- The system must provide the ability to capture information electronically (i.e. progress notes) at various user levels.
- The system must provide the ability to notify staff of key dates and schedules in a determined manner. If FERPA compliant, possibly send meeting reminders to families via email or text, as well as, allow for a confirmation reply from the family.
- The system must provide validation rules to minimize data entry errors and to avoid inappropriate billing
- The system must provide the ability to generate reports needed for federal and state reporting and quality assurance. Reports are needed at State and Local levels. In addition, have the flexibility to produce new reports, as needed.
- The system must provide the ability for programs to submit their billing to EIS electronically.
- The system must have the ability to verify services delivered and process payments for services delivered.
- The system must provide the ability to support reimbursement claim functions from Medicaid, Tricare, and support billing private insurance.
- The system must have the flexibility to add other financial functions such as billing families for services based on a sliding fee schedule.
- The system must provide the ability to streamline business and administrative functions such as contract monitoring and personnel tracking.
- The system must provide the ability to support data sharing across DOH programs and State departments (e.g., DOE for sharing longitudinal data).
- The system must provide the ability to keep a historical record of changes made to the data at any level, including who did it.
- The system must provide the ability to allow data managers at different levels the ability to assign relevant team members appropriate access to the child record and other sections of the system. (Role Based Access Security)
- The system must provide the ability to adhere to a determined service level agreement to support appropriate and timely technical support available to database users (e.g. HELP Desk Support).

- It is desired that the new system be hosted by a 3rd-Party Vendor, Virtual Server at HISO, Microsoft Azure Infrastructure, or other Platform as a Service provider. If Web Application is hosted by non-State Resources, the software should adhere to a determined service level agreement.
- The system must provide the ability to collect relevant staff information for credentialing and reporting capacity (filled positions vs. vacancies). Produce reminders and/or restrictions at the program level to ensure staff credentials are up-to-date prior to the delivery of services.

Key Findings

- **Microsoft Access Databases for EIS Operations** – EIS uses a series of Microsoft (MS) Access databases for data entry and reporting. Since MS Access is a desktop database management system, it is not efficient for use in a disperse environment in which EIS staff needs to work closely with partners and providers. The system requires more concurrent users than MS Access is able to handle in an efficient manner.
- **Complicated Extract, Transform and Load (ETL) Process** – EIS operations rely on a series of Microsoft Access Databases to work together in order for staff, programs and partners to work. The outputs of one database are inputs for another across the various business functions. In several cases, reporting functions are separate stand-alone databases.
- **Redundancy and Duplicate Data Entry Across Systems** – There is a significant amount of redundancy and duplicate data entry across the Access databases used in EIS operations. The most significant example is every program has a copy of the EI database. At the end of the month the 20 programs email their entire program database to EIS personnel, and the ETL process updates the master EI database with the changes the program has made over the month.
- **Sharing Sensitive Information via Email** – The databases being emailed can potentially contain sensitive information and email is a vulnerable means of transport. Currently the databases are password protected in transit via email, but may not be encrypted in all cases.
- **System is Complicated and Confusing** – Current system is not intuitive and only expert information managers can derive any necessary information from the system often only with the aid of complicated instruction sets.
- **System is not Interoperable** – The system is not client-server or web-based, therefore multiple copies of various functionality exist across EIS personnel and programs.
- **System not Scalable** – The system cannot be accessed by the necessary staff, programs and partners in a central location for secure and easy access. MS Access has both concurrent user and data limitations which makes the current architecture of the EIS system not a good fit for EIS staff and programs. In additional, there are functional and security limitations.
- **System is not Flexible** – In order for new reporting capability or system tweaks to occur, the EIS data experts have to work hand in hand with IT to carefully make changes in order to not potentially disrupt operations in another area.
- **Data Integrity Issues** – Due to many of the findings above (redundancy, complication, no scalability, flexibility or interoperability), the system is prone to data integrity issues. A few samples of data integrity issues include: 1) Ability to track and audit services delivered by programs and partners; and 2) the kickbacks from the Medicaid billing process.

- **Dedicated Support** – The system needs dedicated support from a data manager. Currently there is a staffing and expertise gap between the EIS staff who work with and analyze the information on a daily basis and IT personnel in which the EIS software is only a portion of their responsibility.

As-Is System Overview

The follow section outlines the most prominent databases used in the EIS. There are various offshoots to these databases, but most of the important information flows from these sources.

EIS Related Databases

EI Referral Line DB

Database that 1) Assigns unique ID for EIS system 2) Used in verification process to see if child is already in the system

EI DB (Central)

Central EI database that contain information from all programs. In addition, this database contains all the fee for service authorization forms and information

EI DB (Programs)

Databases at the programs used to enter child information, eligibility and enrollment (contains only children associated with program)

Roster DB

Database used to house services to be billed to third parties (Medicaid and Tricare)

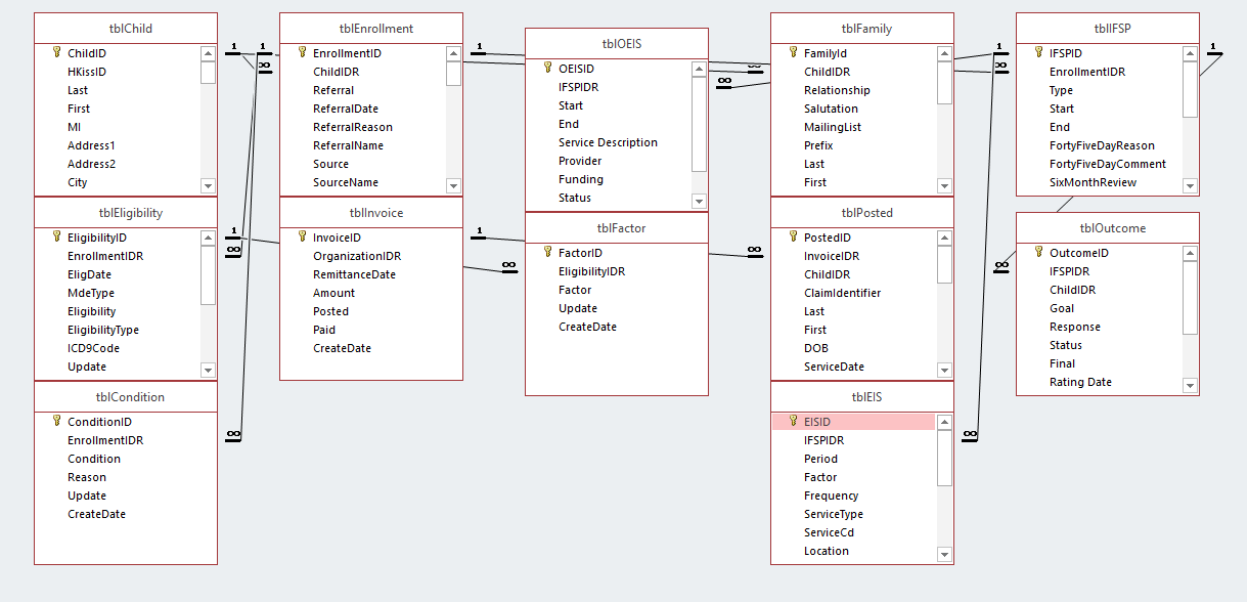
EI Central Database (DB)

The EI central DB is housed and maintained by the state EIS staff. This database is updated monthly from input from the EI DB's that exist at the programs.

The EI DB contains approximately 27,000 – 28,000 child records. Records date back to 2007-2008 when the current EI DB was implemented. EIS averages approximately 2,000 newly enrolled children per year. Currently there are roughly 5,000 active cases in the EI DBe. The delivered services table is currently approaching 1 million records.

Below is the current entity relationship diagram in the EI DB. In order to determine which tables are relevant a deeper analysis is needed. There are currently 75 tables and 17 queries in the EI DB.

Notional Entity Relationship Diagram



EI Program DB's

Each program contains a copy of the central database. While this copy maintains the same data structure, only the child records and services delivered from the particular program are housed in the program db.

When reconciling the information from the program databases to the central database, the following tables are updated in the central database.

- tblChild
- tblCondition
- tblServicesDelivered
- tblEIS
- tblEligibilty
- tblEnrollment
- tblFactor
- tblFamily
- tblIFSP
- tbl0EIS
- tblOutcome
- tblStaff

EI Referral Line Database

The EI Referral Unit's database contains approximately 5000 current records and 17,500 archived records. The EI Referral Unit's database dates back to 2003. The database contains 21 tables, 28

queries, 8 forms and 42 reports. A deeper dive is essential to understanding the relationships of these entities as well as their place in the greater Department of Health (DOH) organization.

Roster Database

The Roster database is utilized by the financial reimbursement group for third party billing to Medicaid. The key data element in this database is the HAWI#. The state is eligible for reimbursement from Medicaid for children who have an HAWI # number. The billing group extracts individuals on a monthly basis with delivered service records that have a HAWI# and through a processes determines which service records can be submitted for Medicaid reimbursement. This database is also used for submitting TRICARE reimbursement claims. Currently the TRICARE submissions are inactive in order to make necessary coding changes to the conversion and submission process.

The roster database has 44 tables, 68 queries, 13 forms and 1 report. A deeper dive is essential to understanding the relationships in the database and how they interact.

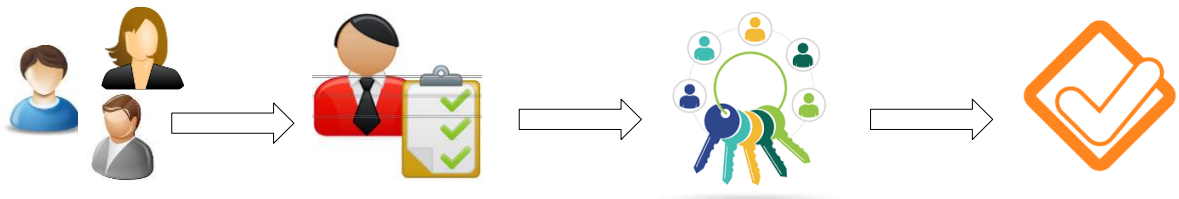
Additional Databases and Spreadsheets

In addition to the primary databases mentioned above, there is a small database for Intensive Behavioral Support (IBS) services. There are also many Excel spreadsheets that work in conjunction with these databases.

Role Based Access Security (RBAC)

The EIS system will need a robust and flexible Role Based Access Security Model. The Early Intervention Section is broken down into several roles. The different providers and programs will only be able to see the information relevant to them.

An appropriate role based access security model will assign users to the appropriate roles. The roles will have permission to the appropriate resources. *(See Figure)*



Early Intervention Section RBAC

Through the assessment, the following roles have been noted in the EIS staff. A deeper dive will need to be performed in order to create the appropriate security model for EIS staff.

- Management
- Data Entry
- Billing
- Fiscal
- Financial Resources
- EIS Program Support Staff
- Reporting
- Care Coordination
- Authorization for Service (AFS)
- EI Referral Line (Referral)
- Direct Service Providers

State EIS Programs (ECSP) RBAC

The current operations differ from program to program, as well as the staff who operate and utilize the system. The future system could employ a standard security model to eliminate confusion and help standardize operations across programs.

Purchase of Service / Fee for Service Providers and Small Purchase Contracts (RBAC)

A role based access security model will be needed to ensure all entities will be able to interact with the system to query the necessary information and provide their inputs.

Consolidated Health Profile

The Hawaii Department of Health (DOH) envisions a consolidated health profile in order for better service delivery and tracking of child progress in accordance with Individuals with Disabilities Educational Act (IDEA), Part C and over the different DOH initiatives. A key issue DOH hopes to resolve with a consolidated health profile is tracking Family Educational Rights and Privacy Act (FERPA) consent across the programs and initiatives.

Currently the communication efforts to track who enters the Early Intervention System (EIS) program and who leaves the EIS program is complicated and prone to error. The DOH also would like an easier way to know if children are eligible for services covered under the state.

The EIS staff has a two-pronged challenge in its efforts to ensure data integrity.

- Working with the Programs – EIS needs to provide and obtain accurate data to/from the programs in order to determine that appropriate services are performed and tracked the services delivered.
- Working within the Department – EIS needs to provide accurate data as to which children are in the EIS program and what services are being delivered.

EIS is a program within DOH, Family Health Services Division (FHSD), Children with Special Health Needs Branch (CSHNB). CSHNB currently uses Neometrics (http://www.neometricsinc.com/) software from Natus (http://www.natus.com/).

The following Neometrics modules are being utilized or on the roadmap:

- Module 1 – Metabolic Screening DB (currently in production)
- Module 2 – Birth Defects (production use pending)
- Module 3 – Newborn Hearing Screening (Timeline TBD)
- Potential Module 4 – Children with special needs module (No Neometrics NATUS module exists, but could be built)

A major benefit of using Natus for a EIS system is the ability to keep track of children transitioning to different programs or types of treatment.

Any solution being considered should keep in mind the HL7 common computer language standards to serve the DOH interoperability needs. (http://www.hl7.org/implement/standards/)

EIS and Program Processes

EIS staff has broken down current operations into 11 areas: Referral, Intake, Multidisciplinary Evaluation (MDE), Eligibility and Family Directed Assessment (FDA), Individualized Family Support Plan (IFSP), Transition Plan, Assessment, Child's Record, Program Monitoring, Financial Reimbursement, and Fiscal.

The EI programs are responsible from the referral through the IFSP. The timeframe for these processes is from Day 1 of the referral to Day 45. Below is a table provided by Kapiolani Medical Center Central EI Program with details on each step of the process.

Referral Is Made to the Early Intervention (EI) Referral Line	**Day 1:** • Referral is made to the EI Referral Line or to EI Program. • Timeline starts when the EI Referral Line or the EI Program receives the Child's Name, Date of Birth, Parent/Legal Guardian's Name, Address, Phone Number • There are specific data elements that are required in order for a referral to be determined complete
Initial Meeting (Intake)	• General information about family and child's activities, is gathered • Discussion about EI and services available, child and family's next steps in the eligibility process.

	• Explanation about IDEA, Family Rights, and Confidentiality policies and procedures • Written Consents are obtained
Multidisciplinary Evaluation (MDE)	• Is completed with a standardized evaluation tool (Battelle Developmental Inventory 2nd Edition (BDI-2)) • Required to determine child's eligibility for EI services • Provides information about child's developmental skills • All areas of development are evaluated (Communication, Cognitive, Gross Motor, Fine Motor, Social, and Adaptive Skills) • Information is used to help develop the IFSP if child is eligible for EI services
Eligibility Meeting and Family Directed Assessment (FDA)	• Care Coordinator (CC) meets with family to review child's evaluation results • If family is interested in services, CC explains the IFSP process and schedules IFSP Meeting • CC completes the FDA *prior to the Initial or Annual IFSP* • This assessment will include information about family and child's daily routines, family's values, support system, and priorities
Eligibility Meeting (Not Eligible)	**By Day 45:** **If child is not eligible**: • Evaluation team meets with family to review the evaluation and provide suggested strategies for family to implement into their daily activities. • Child's case is closed after this meeting. If family has continued concerns about their child's development, family can re-refer child *directly to the program* for another MDE, no sooner than 3 months from the date of child's first MDE, as long as child is still less than 3 years old and it is 45 days prior to the child's third birthday.
Individualized Family Support Plan (IFSP) Meeting	**By Day 45:** **If child is eligible**: The IFSP is developed and will include:

	• Information from the FDA, including child & family's strengths, child & family's daily routines • Family's concerns & priorities • Child's Evaluation results, goals and objectives that everyone (especially family) will work on during child and family's daily routines. • Service(s) which child qualifies for and determines the frequency, intensity, and location of services • Transition Plans (what will happen to prepare child and family to "graduate" from Early Intervention • Team will complete a rating called "Child Outcomes Summary (COS)", to establish a starting point that will be used to measure how children benefit from EI services at the first IFSP and again when child exits EI services.

Referral

Overview -- This is the initial contact with the EI Referral Line or EI Program to initiate services for the child and family. Referrals are received from various sources such as a parent, pediatrician, preschool, or may be court ordered.

Current State – Referrals can be called or faxed in to EIS, or the program can refer the children to EIS. In order for the child to officially be in the system, an EI Identification number (EI-ID) is assigned in the EI Referral Unit's database. Once EI-ID is assigned and the child is deemed eligible for the program, EIS staff will enter the child into the EI database to begin enrollment.

For referrals over the phone, EIS staff usually enter information directly into the EI Referral Unit's database, but at times they use a hard copy referral form, which is stored in file cabinets. The programs send fax referral forms to the EI Referral Unit, the information is entered into the EI Referral Unit's database, and the faxes are stored in file cabinets.

Desired State – Create a central one-stop repository for referrals where all appropriate parties can enter referrals. The system should be a secure web-based interface in which EIS staff and programs can enter all the relevant information about the child, and an efficient manner in which the child's information can be routed to the appropriate program to deliver EI services. The program should receive automatic notification when the referral is assigned to the program.

Intake

Overview -- Intake is a meeting that the Care Coordinator (CC) conducts with the family to gather information about the child and family. Activities during Intake include but are not limited to obtaining signed consent(s) to use and share information with others involved with the family, as well as, billing consents, answering questions, and explaining family rights, service timelines, confidentiality, etc.

Current State – The CC and the program work together to get the appropriate documents, consents and signatures in order for services to begin for the child. The intake forms are all paper based and certain parts of the intake documents manually inputted into the database. The way intake documents are maintained through the time the child is in the EIS program makes it difficult to track which data components are the most recent (the entries in the database or the entry on the printed copy). The process can often be prone to error without a discerning eye and data integrity checks.

There is a lot redundant information on the intake and consent forms. For example, the child's name, address, and name of parents are on several of the intake and consent forms. In order for the consent forms to be completed, they are printed, brought to the household, and signed by the child's parents.

There is currently no method to employ digital signatures for the intake forms.

The way the programs perform as it pertains to EIS operations varies drastically: programs will use the format of the state EI database while others will maintain a separate and local copy as well as updating the necessary information in the state EI database. How the programs handle operations differs primarily due to adherence to the programs policies and procedures.

Desired State – Devise a system in which the intake paperwork is organized by checklist based on the services that are necessary for the child, the documents captured digitally during the family consultation, and electronic signatures used for consents.

The common data elements after being entered once and could auto-populate for the remainder of the intake, notification forms, and consent forms. The data would be captured in the database electronically and the forms could be generated with the appropriate information on-demand. The signature can be captured digitally or printed. The most current information is always stored in the database and modifications to the form result in generating another on-demand.

MDE

Overview -- Must be completed within 45-days of the referral date. The MDE and MDE-2 are completed by two qualified professional staff. Results are used to determine eligibility for EI services. The Initial MDE is used to determine eligibility for EI services. MDE-2 is conducted annually to re-determine eligibility for EI services or when the team (which includes the family) feels that the child may no longer be eligible for EI services.

Current State – Similar to the intake process, the MDE is a paper-based process in which certain data elements are entered in the database. The system does not notify the program of when the child is

close to the MDE deadline or past due, nor is there a notification in which the MDE-2 date is approaching.

The coordination is with the program and care coordinators via reports (in the case of the Kapiolani Medical Center – Central EI Program, the report is generated quarterly by care professionals, any deviation from this report requires additional coordination and communication)

Desired State – Provide notifications to the assigned program, CCs and the service delivery professionals to inform them that individuals in their region and area of expertise are slated for their MDE or MDE2. Similar to intake, auto-populate the MDE documents based on the child's demographics in the database. The MDE report is stored as an electronic record and a printable hard copy available for the family.

Eligibility and the FDA

Overview -- The FDA is completed after the child has been determined eligible for EI services. This information is used in the development of the IFSP and during the delivery of services.

Current State – The FDA meeting notes are paper based. The notes captured in the FDA meeting are used as an input to the IFSP process.

Desired State – Capture the notes from the FDA meeting electronically and add them to the child's record in the database.

IFSP

Overview -- An Initial IFSP must be completed within 45 days of the referral date. This document is reviewed at least 6 months from the Initial IFSP date and annually. It contains sections such as Priorities, Present Levels of Development, Services, Outcomes and Objectives, Transition Plan, and Meeting Notes that may be updated at the IFSP meeting.

Current State – Similar to the intake and FDA processes, the IFSP is a paper-based system in which certain elements are captured in the database. There is redundancy in the IFSP documents, many of the data elements captured in the IFSP were captured either in intake, MDE, or FDA processes. The content of the IFSP will determine what services should be provided to the child. A transition plan is also included in the IFSP to determine if it is necessary to transfer the child to another program after EIS.

Desired State – Automate IFSP form population with existing data as much as possible. Provide easy tracing of what services are being delivered to the child. Efficiently notify organizations of children being transferred to their services.

Transition Plan

Overview -- This is a section within the IFSP document that is reviewed and updated at each IFSP meeting. The transition plan is used to ensure a smooth transition from early intervention services to the next setting. As part of the transition process, a Transition Notice and Transition Conference are

required elements that must be completed no later than 90 days from the date of exit or the child's third birthday, whichever comes first.

Current State – In the current system it is often difficult to determine when a child leaves the EIS system. Once a child leaves the EIS system, some will go to the Department of Education (DOE) to continue services, others will leave the system entirely. There is no data sharing system in place to gather longitudinal data of all children exiting EI services.

Desired State – A system in which all EI providers can seamlessly enter their information. This will allow the children to be tracked more effectively thus giving awareness as to when children are leaving EIS and where they are going next. The system to have the ability to share information with the Department of Education (DOE) to determine the progress, status, and outcomes of children who received services through IDEA, Part C.

Assessment

Overview -- This is a discipline specific evaluation to determine if the child is eligible for services in an area that he/she is currently not receiving services.

Current State – Since the child data is decentralized, it is difficult to determine if the child needs additional services that currently aren't being provided. The assessment results are not captured in the database.

Desired State – Provide an easy way to track the services currently being delivered to the children in the EIS programs. Create a heuristics checklist that shows which services that could be delivered to children. The system should provide comprehensive reporting on the services provided to the child.

Child's Record

Overview -- Each child referred for early intervention services must have a record of information that includes but is not limited to the following: demographics, timelines, billable services, IFSP, documentation, service notes, and Child Outcomes Summary.

Current State – The current system doesn't tie all the necessary information about the child to a central record in the database. Although there are relationships to the central child record, these relationships are inadequate for tying all the information together. Since the child information isn't consolidated and centralized, an information analyst is required to manually assemble information for analysis, inquiries and reporting.

Desired State – The system should put the child record at the center of all operations. This would enable EIS staff to search by child information and all the relevant information is present for that child to include demographics, timelines, service note documentation, services delivered and IFSP.

Program Monitoring

Overview -- EIS monitors all EI Programs on an annual basis to ensure that federal and state requirements and performance measures are met. If an EI Program does not meet the target performance level of an indicator, the EI Program is required to develop a Corrective Action Plan (CAP) that involves queries from the database, gathering documents from the child's record to demonstrate compliance, and submit them as evidence of change to EIS.

Current State – In the current, services delivered are difficult to audit due to the distributed nature of the system. In some cases, services that were provided are not being recorded and often services that need to be delivered do not occur or are delinquent. Services that are not being delivered are often due to the fact that specialists are not available to deliver the service.

Desired State – The desired system would provide the ability to report on services that are coming due or past due for individual children, by program and specialist. Notifications would also be employed to inform specialists and EIS staff and programs of daily, weekly and monthly services that need to be delivered. Additionally, the system should have the ability to track services delivered and those that were not delivered due to EI provider or family (e.g., vacation, sick, no show, etc.).

Financial Reimbursement

Overview -- EIS Financial Resource Unit coordinates the reimbursement of early intervention services for Medicaid and Tricare eligible children. The main duties of the Unit are verifying insurance eligibility, verifying provider licensing, submitting and reconciling claims. Future goals include identifying other potential payers such as private insurance carriers.

Current State – EIS programs enter the services they deliver into the EI DB. Every month, the programs turn in their EI DB, back-end file, to the EIS IT Unit which is then placed on the EIS Billing Server. The Financial Resource Unit picks up the back-end file for each program and consolidates it into (1) back-end file. The Financial Resource unit runs the (1) back-end file service data thru a "converter process" (a series of MS Access queries- that edits the data. Some of the edits are: matching each child's program database Medicaid ID number with the Unit's Roster Medicaid ID #, deletes services if the provider is not a Medicaid qualified provider, deletes services that do not fall in between the child's Medicaid eligibility dates, attaches the Procedure Code (HCPC code) applicable to each service, deletes services that are not approved Medicaid reimbursable services, deletes services that are not provided at an approved service location, attaches the provider rate reported from the programs, etc.). After going thru the converter process, a list is generated (Fee-For-Service List) of billable services that the Financial Resource Unit, Hospital Billing Clerk (HBC) staff work from to manually input the delivered service data into the Medicaid Direct-data entry, WINASAP system.

Services that are entered into the Medicaid WINASAP system as claims for payment are adjudicated and may be paid or denied by Medicaid for reimbursement. The week after claims are entered into WINASAP, a remittance advice (RA) is sent back from Medicaid to let the HBC staff know which services were paid, the amount paid, or the reason code for why the claim was denied. All records that are billed, whether paid or not are also manually entered into the Financial Resource Unit Roster database

documenting date of service, amount charged, claim reference number (CRN), HCPC code, etc. For billed services that were paid, the check number and the amount paid is also entered into the Roster. For billed services that were denied, HBC staff will enter the reason code for the denied payment into the Roster and analyze whether the claim can be re-submitted for payment or denial is justified (duplicate claim, recipient not eligible, frequency limit exceeded/other, etc.).

Tricare Billing, in general, follows the same process. The Financial Resource Unit is currently updating the converter for Tricare requirements so that billing to Tricare can be resumed.

Desired State – For a new Web Based System, several improvements could be made to the current billing system by automation. Automation would eliminate the need for a separate, Roster Database and also eliminate having the staff manually enter service information into the Medicaid WINASAP direct data entry system. In the new Web Based System, it should be able to verify Medicaid or Tricare eligibility, add HCPC codes, delete providers that are not qualified, etc. (do the work of the converter process). It would also be able to generate and electronic claim (HIPAA standard 837) so that staff would not need to do direct data entry into the WINASAP system but rather the system could send claims electronically to Medicaid, Tricare, other payers, etc. The RA from the payers (Medicaid, Tricare, etc.) would also return in the HIPAA standard 835 and would electronically update in the new Web Based System eliminating the need for HBC staff to manually enter claims that were billed whether paid or not into the Roster database.

These new features would be a significant improvement in utilizing staff time, reducing data entry errors, time spent on claims reconciliation, verifying that services billed are supported with documentation and overall improvement in claiming for EI Reimbursement.

Fiscal

Overview -- EIS Fiscal Unit processes accounts payable. The accounts payable is typically contracted agencies and individuals who deliver early intervention services. Other activities include those required for business operations.

Current State – The Administrative Services Office (ASO) provides negotiated contracts with no spending limit that expire in a determined amount of time. Purchase of Service (POS) contracts are larger contracts, often supported by fee for service contracts. POS invoices are mailed to EIS staff along with a report of services delivered. The report is reviewed by EIS staff and the invoice is checked against the contract rate and budget. After the invoice is reviewed by EIS staff it is sent to ASO and the clerk issues this information to the state accounting system. The accounting system issues payment to the provider.

Fee for service contracts have a different billing process. Most fee for service providers provide more than one type of service which require a service log attached to the invoice. EIS has to work with these fee for service providers to conform to this system. The fee for service invoices along with the service log are emailed to EIS staff, validation is performed, and the appropriate invoice information is sent to accounting.

Each provider has their own invoicing system. There is currently an effort underway to standardize the invoice system across providers. Some providers send a consolidated monthly invoice while others send an invoice as services are delivered. Currently around 10 – 25% of invoices are kicked back to the

provider because it doesn't pass the appropriate validation checks. Often this results in a back and forth reconciliation process that could go on for months.

The POS and fee for service contracts are largely tracked by a combination of Excel spreadsheets, an AFS database and a POS database.

Other operating costs [non direct service costs] are mostly paid using pCard but there is a monthly pCard limit for each pCard holder. EIS accepts emailed invoices for these payments because there is no client information on the invoices. For vendors who do not accept payment by credit card, a P.O. is encumbered and payments are made using the P.O. The State pCard system has a technical manual and pCard transactions must be finalized by the 14th of each month. pCard expenditures are reported on Centresuite.

Desired State – A centralized and standardized system for tracking POS and Fee for Service contracts. The system should provide the ability to input invoices and provide the appropriate validation and error checking to provide a smooth reconciliation process for invoicing. The system would also provide a clean transition to accounting in their desired input format.

EIS Software Providers

In 2015 an inquiry to the Infant Toddler Coordination Association as to what other states were using for an EIS software solution. This inquiry re-occurred August 2016. Several respondents developed the system in-house, while others contracted for development or respondent did a hybrid approach with some of the development being in-house and some contracted. None of the respondents used the same system and all were generally satisfied with the system they are using. The system developed in-house are modified by state IT staff while contacted systems require a support contract for maintenance and changes.

Here were the results of this inquiry:

State	EIS System Developer
North Dakota	Therap (https://www.therapservices.net/)
Rhode Island	Welligent (http://www.welligent.com/)
Connecticut	In-House Development
Arkansas	Northrop Grumman
Mississippi	Computer Science Corp.
South Dakota	In-House Development
Kentucky	YahaSoft (http://www.yahasoft.com)
Indiana	In-House w/ Contractor Support
Colorado	Custom Application on Salesforce CRM Platform
Maine	YahaSoft (http://www.yahasoft.com)
Kansas	In-House Access Database
Vermont	In-House Access Database

Natus has an EIS module is being used in California, and they have a presence for early intervention in 20 states across America. The Natus software provides a software platform that can be configured with minimal effort to perform common roles of EIS systems including referral, intake, MDE, FDA, and IFSP. Importing the data from the current system could be performed, however this could be a time consuming process. Natus works with partner organizations to provide financial reimbursement from Medicaid and other providers.

Additional EIS providers:

- http://www.providersoftllc.com/
- http://childintervention.com/
- http://www.earlyinterventionsoftware.com/

***Note: At the time the assessment and feasibility study was delivered to DOH from the Infant Toddler Coordination System query there was still input being provided from other states. More insightful data may not have been added to the report due to the timely nature of its delivery.*

Platform and Software Considerations

The following bullet points contain points to consider when choosing a platform and software for the new EIS system. The section also displays conceptual architecture of an on-premises and cloud solutions.

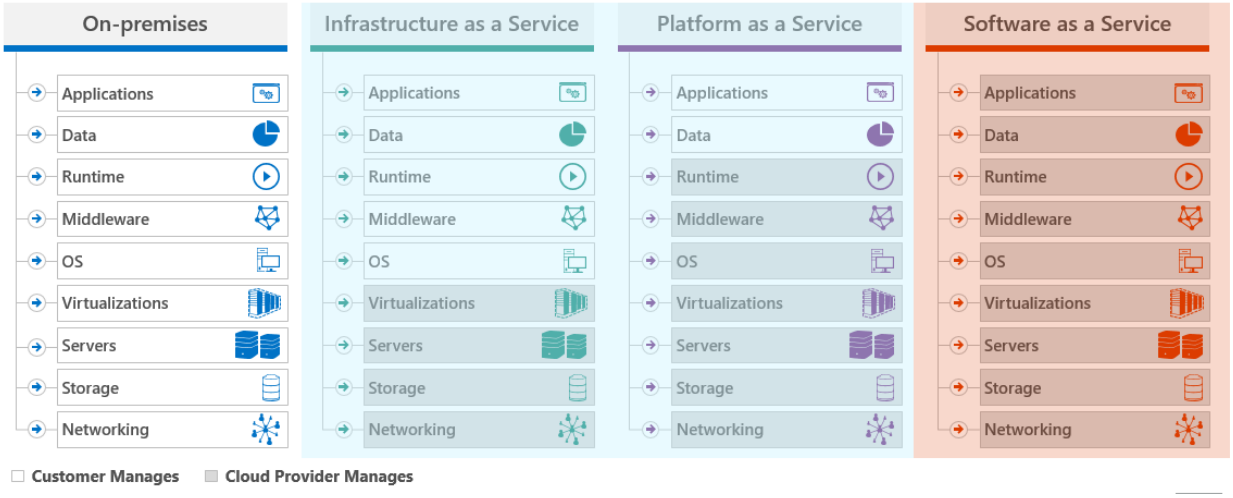
- **New Turnkey System / Legacy Data Integration** – For any new EIS system, a key decision has to be made as to if the new system will start with fresh data, or will the new system require the legacy data integrated. The data integration portion could be a difficult task, and there is a high potential that parallel systems will need to be run while the new system is coming online and being tested.
- **Commercial Off the Shelf Products (COTS)** – COTS products that can provide a solid platform for a starting point and can be configured to fit EIS business requirements would save a lot of legwork and uncertainty that comes with building a custom application.
- **Cloud Based or On-Premises Solution** – The EIS wish list contained a wish for a cloud based solution. In talking to the programs, potential issues were raised at the prospect of a cloud solution. Any cloud solution would need to be HIPPA and FERPA compliant and adhere to the appropriate security policies and procedures to safeguard patient information. A cloud solution would require low operational maintenance, while an on-premises solution would require more operational and maintenance needs.
- **Compliance Requirements** – EIS staff and programs may have differing compliance needs. For the new system, a baseline compliance requirement should be established in which are parties are in agreement, or there is prevailing policy that will appease all parties.
- **Security Requirements** – In addition to role based access controls, the system should employ a defense in depth strategy where each tier and layer of the application is secured including transport, presentation tier, and database tier.
- **Mobile Enabled** – The given solution should be web based, therefore assessable via mobile device. In order for end to end utility of the system, care coordinators and providers may need

to procure mobile devices to leverage the new system. Some programs are already making steps in this direction.

Cloud vs. On-Premises Solutions

On-premises solutions and cloud solutions primarily differ in who manages different components of the solution. There are also many flavors of cloud solutions: Infrastructure as a Services (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). An on-premises or Infrastructure as a Service (IaaS) will require a moderate to heavy degree of operations management by DOH IT staff. PaaS and SaaS solutions will allow the staff to focus more on data and information management.

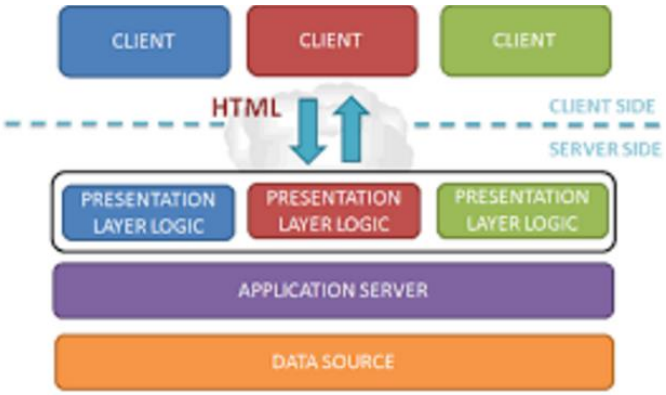
The diagram below displays customer vs provider management. Items highlighted are usually managed by the cloud provider. As you can see, the custom will manage the entire on-premises stack which the cloud provider manages the entire stack for a SaaS offering.



Security for on-premises or cloud solutions should also be taken into consideration. Commercial (Microsoft and Amazon) cloud providers both have cloud infrastructure that adheres to most government standards for privacy and security.

On-Premises Conceptual Solution

An on-premises web based system would be hosted in a DOH datacenter and managed by DOH IT staff. This solution would entail a classic custom three-tier client server application built either in-house or supplied by a vendor. Typical on-premises solutions would have web server(s) and database server(s) and be assessable via web browser from client computers.



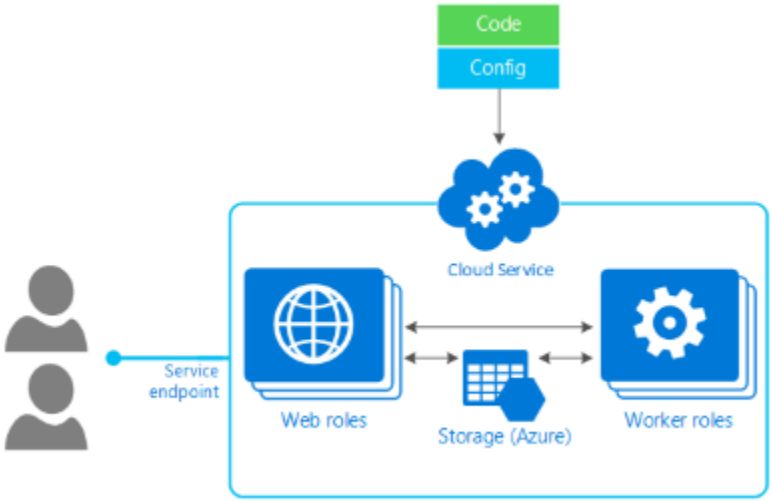
Microsoft Azure Conceptual Solution Architecture

A Microsoft Azure Cloud Based Solution would eliminate many of the traditional costs associated with on-premises, however, based on the solution architecture variable consumption (computing and storage) and potential subscription (Azure AD or Office 365) costs would incur.

In regards to identity, the solution would either have to be configured for a federated identity for all programs and providers involved or have an account provided by DOH / EIS. The federated identity solution (Active Directory Federated Services (ADFS)) has a high degree of complication and cost.

The solution would consist of a combination of the following components: (*See Diagram*)

- Azure Load Balancer
- Azure Cloud Service
- Azure Web Role(s)
- Azure Worker Role(s)
- Azure SQL Server Platform as a Server (PaaS)
- Azure AD or Office 365 Account



Amazon Web Services (AWS) Conceptual Solution Architecture

Similar to Microsoft Azure, Amazon Web Services have a host of IaaS and PaaS models to build a solution. An AWS solution have similar components to AWS and would require significant thought on how to manage an identity solution.

Conclusion

Waimanalo Blooms would like to extend a sincere thank you from our company for letting us be a trusted advisor as you partake on this journey to modernized your systems. Not only is it vital to stay on pace with the current trends for efficiency and security, but also a modern system will help provide better service to the children and their families. It is vital for the EIS software and systems to adapt for the myriad of reasons discussed in this assessment and feasibility report.

In the coming weeks, complimentary items to this report such as the traceability matrix, RFI and RFP will be forthcoming.

Appendix of Supplemental Material

The following artifacts provided by EIS and the programs were essential to writing this assessment. Further insight into the inner workings can be gained from these documents and databases.

- **EI Referral Line Database** – Primary Database and tables Reviewed
  - Provider Information
  - Fee for Service Table
  - Reports (State and Federal)
  - FFS Payment Report (Only Headers)
  - EIS FFS Cost Report (Only Headers)
  - EIS POS Cost Report (Only Headers)
  - EIS Fee for Service Provider Report (Headers Only)
  - EIS Services by Provider Report (Headers Only)

  - PCARD Report (Only Headers)
  - AFS (Authorization for Service)
- **EI Database / EI Database Manual** – Documentation provided by New Mexico when the system was adopted by DOH. Over the years EIS staff has augmented the functionality of this system to support their business functions.
- **EI Referral Line Database** – Database that captures referrals and used to assign a unique ID
- **Roster Database** – Database for Medicaid reimbursable individuals
- **Intake Forms** – Older version of these forms are available on the DOH EIS website
  - EI-1a: Referral Form and Instructions
  - EI-1b: Request for Identification Number
  - EI-2a: Consent for Method of Sharing Information
  - EI-2b: Consent for Multidisciplinary Evaluation (MDE)
  - EI-2b: Consent for Multidisciplinary Evaluation (MDE) Instructions-09.27.10
  - EI-2c: Consent for Release of Billing Information – 07-08-14
  - EI-2c: Consent for Release of Billing Information Instructions – 07-08-14
  - EI-2c: Consent for Release of Billing Information Sample – 07-08-14
  - EI-2d: Authorization for Use or Disclosure of Protected Health Information
  - EI-2d-NBHS: Authorization for Use or Disclosure of Protected Health Information
  - EI-2e: Consent for Evaluation/Assessment
  - EI-3a: IDEA Part C Procedural Safeguard Requirements (Insert for Family Rights)
  - EI-3b: Notice of Confidentiality and Access to Records (FERPA Notice)
  - EI-3c: Written Prior Notice
- **Individual Family Service Plan (IFSP)** – Primary document used to deliver and monitor services provided to EIS participants
- **Converter Queries for Medicaid Reimbursement** – Cross references EI Referral Line DB with Roster Database to send billable services to Medicaid
- **WINASAP System** -- Data Entry service for Medicaid Billing
- **Human Resource Management System** – System that is being developed to potentially aid with personnel tracking
- EIS Database Wish list – Excerpt of this wish list was used in the assessment.
- EIS Funding Request Document
- FFS Conversion Guild for Medicaid Billing
- Provider Shortlist Update Instruction
- State of Hawaii Purchase Order (Blank Sample) – Purchase order template sent to the EIS staff from the providers
- EIS Personnel List Information Request
- AFS (Authorization for Services) Form
- AFS Instructions
- Sample Staff List
- Medicare Billing Form 837
- Neometrics Information Brochure
- Kapiolani Central Timeline for Services Delivered