South Carolina Public Employee Benefit Authority

PEBA Future State IT and Operational Research & Development Demand Fulfillment

Operational Assessment: Phase II

Linea Solutions, Inc.
Final 2/29/2016

Contents

Future State IT and ORD Demand Fulfillment

1   Introduction

A new Benefits Administration System (BAS) modernization program will result in a single consolidated, enterprise level solution supporting all PEBA benefit programs. This enterprise solution will drive new and potentially different information technology and business system demand and substantial PEBA IT and Operational Research and Development (ORD) transformation. The IT and ORD departments have already taken significant and continuous progressive steps towards the targeted culminating post production organization. The efforts to implement the current state organizational structure of IT and ORD were critical transitional steps towards the future state. Implementing new integrated, web-based systems will continue this progression throughout the project, impacting staff roles and responsibilities, how future system support work is accomplished, and the working relationships with internal and external business partners. Modern BAS solutions provide for a more customer-centric business process approach (as opposed to separate program centric approaches), including significant self-service and information-on-demand strategies to proactively service members, employers and partners. These web intense solutions require an even higher focus on all aspects of system and information security.

Enabling technologies and the new business capabilities identified in the Operational Assessment To-Be Big Idea design will help drive PEBA to a new business system focused on integrated services and data. A shift will occur from the current practice of supporting unique and somewhat independent business subsystems ("application silos") to supporting an enterprise-wide system and integrated data model. This change, along with a new and more modern system, will impact nearly every aspect of production support demands. With these impending change impacts, the goal of this document is to proactively identify how PEBA can best define the post production information technology support structure, roles and responsibilities to satisfy future PEBA demands.

2   Guiding Principles

The following guiding principles were defined to ensure that the new demand-based organizational structure and associated support model aligns with PEBA's long term strategy and operational preferences:

- PEBA will maintain a primarily self-sufficient IT/ORD post production maintenance and support model
- Ongoing production support will be performed by PEBA IT and ORD resources, with PEBA resources fulfilling an estimated 70%-90% of all production support demands
- Implementation vendor resources will support the new system and operations infrastructure as required and defined by PEBA, with demand for these external services to decrease over time

- The IT and ORD department staff levels will not increase as a result of the recommendations, although there may be shifts in underlying resource demands and team composition
- The IT and ORD departments will continue to work closely together, extending the business analyst centric approach which will directly service PEBA business units
- The IT and ORD management and support structure will provide an environment for perpetual enhancements and continuous improvement
- An independent ORD Quality Assurance (QA) function will continue, with resources dedicated to system quality and user acceptance testing (UAT) assistance
- Security will continue to be one of the highest priorities of the To-Be production support organization
- This document assumes that PEBA will not be mandated to participate in a statewide centralization effort, while recognizing that there is some uncertainty regarding the statewide centralized IT infrastructure program.

3   Post Production IT and ORD Support Models

Given the guiding principles above, this section depicts a peer benefit and pension production support organization, an initial view of the proposed IT/ORD organizational structure, as well as a matrix of future PEBA IT and ORD roles and responsibilities.

3.1   Peer Production Support Options

As a pension and benefit agency moves to the post implementation phase of a system replacement project, there are multiple production support options to consider. These options range from outsourcing certain IT and project management functions to a model where nearly all production support activity is performed by an agency. As stated as a guiding principle, PEBA's model is one of self-sufficiency. Notwithstanding, as part of the production support demand, a number of peer agency models were analyzed while defining PEBA's preferences. Several of the models aligned closely with PEBA's stated goals, whereas others were quite different. With many option variants, the goal is defining the best "fit" for new PEBA demands.
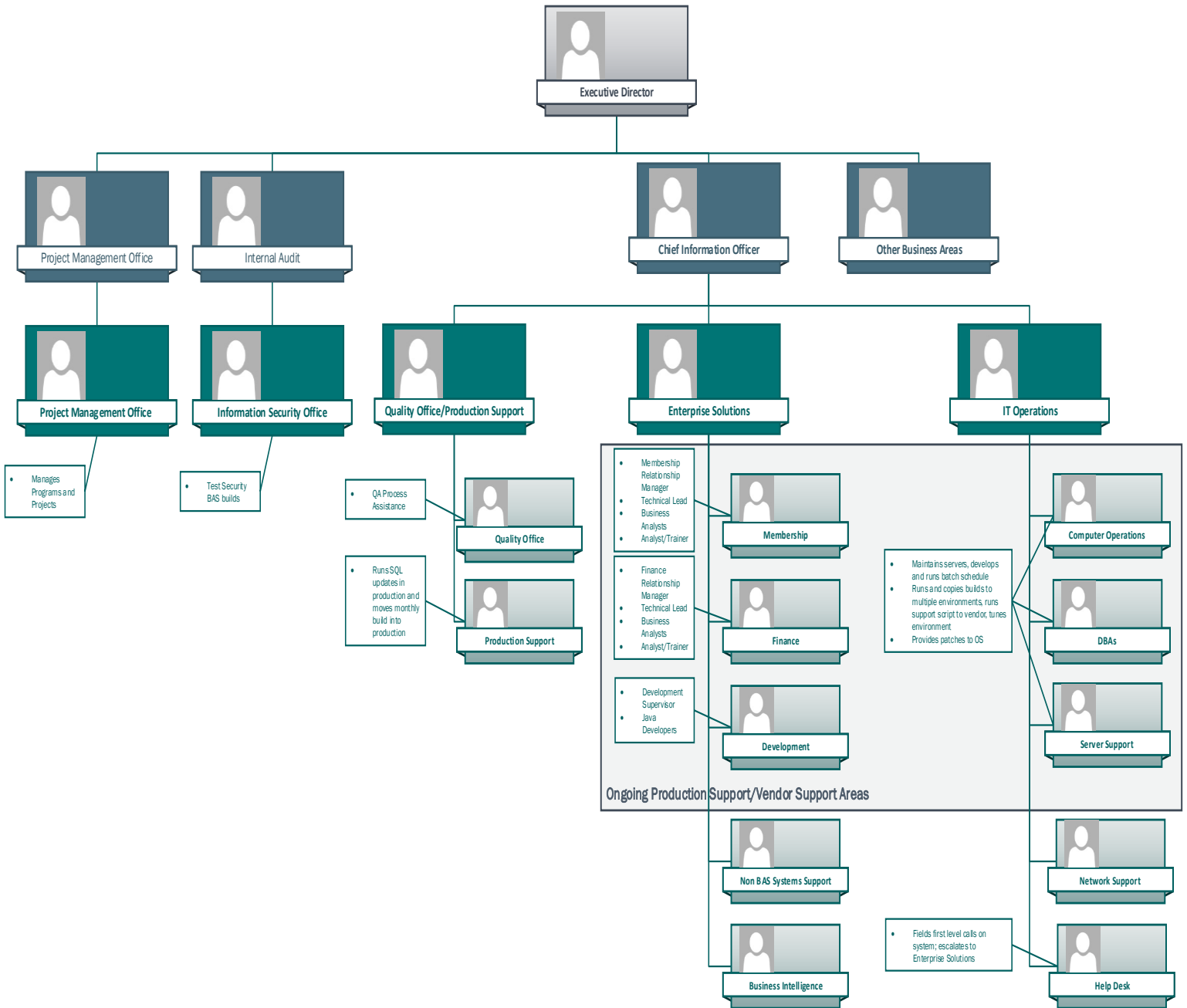
All agencies define IT and post production support as key to agency success. Certain agencies determine that IT production support (and sometimes IT in general) is not a core agency strength. With such, they define a model that provides for nearly all the core business analysis, project management, application development and infrastructure support as a vendor supplied service. This scenario drives an agency to contract with an implementation vendor to provide service across all phases of the production support model, likely including the hosting of the application and technical environment. The implementation vendor support staff can be made available onsite, offsite or any number of hybrid approaches. This model, heavily dependent on the implementation vendor to support production and operations, is not the model that PEBA prefers.

Other agencies determine that their organization will retain core IT competencies and develop new skills to provide in-house support of the new production system. Sometimes the transition from the

current skill competency to new skills is significant, as will be the case for PEBA. In this model, the internal infrastructure is defined and current resources are targeted to one or more of the new system competencies. Demand for implementation vendor resources will vary widely across the production support areas, as well as varying over time. In this model, implementation vendor staff is used to augment agency staff. The agency can then leverage into the implementation vendor expert pool when and if required. This model requires a lower level of implementation vendor resources and cost, but at a minimum, vendor resources are contracted to support product upgrades and new complex business enhancements.

The following diagram is just one of several peer production support options that are currently being used that is similar to PEBA's vision. In this highly self-sufficient model, the gray shaded area depicts implementation vendor support areas, with vendor resource requirements varying across each of the support areas. Over time, it is expected that implementation vendor support requirements demand will be minimized. The "callout" boxes in the diagram below (groups of bulleted descriptors associated with a support area) provide further clarification of the implemented support model.

Executive Director

Project Management Office

Internal Audit

Chief Information Officer

Other Business Areas

Project Management Office
- Manages Programs and Projects

Information Security Office
- Test Security BAS builds

Quality Office/Production Support

Enterprise Solutions

IT Operations

- QA Process Assistance

Quality Office

- Runs SQL updates in production and moves monthly build into production

Production Support

- Membership Relationship Manager
- Technical Lead
- Business Analysts
- Analyst/Trainer

Membership

- Finance Relationship Manager
- Technical Lead
- Business Analysts
- Analyst/Trainer

Finance

- Development Supervisor
- Java Developers

Development

- Maintains servers, develops and runs batch schedule
- Runs and copies builds to multiple environments, runs support script to vendor, tunes environment
- Provides patches to OS

Computer Operations

DBAs

Server Support

Ongoing Production Support/Vendor Support Areas

Non BAS Systems Support

Business Intelligence

Network Support

- Fields first level calls on system; escalates to Enterprise Solutions

Help Desk

Any number of hybrid production support options can be defined based upon unique agency needs and the allocation of production support responsibilities between an agency and vendor partners. It is a best practice to establish role and responsibility delineation early in the process, which guides the initial support approach, defines potential vendor requirements and communicates the support model that best meets agency goals and guiding principles.
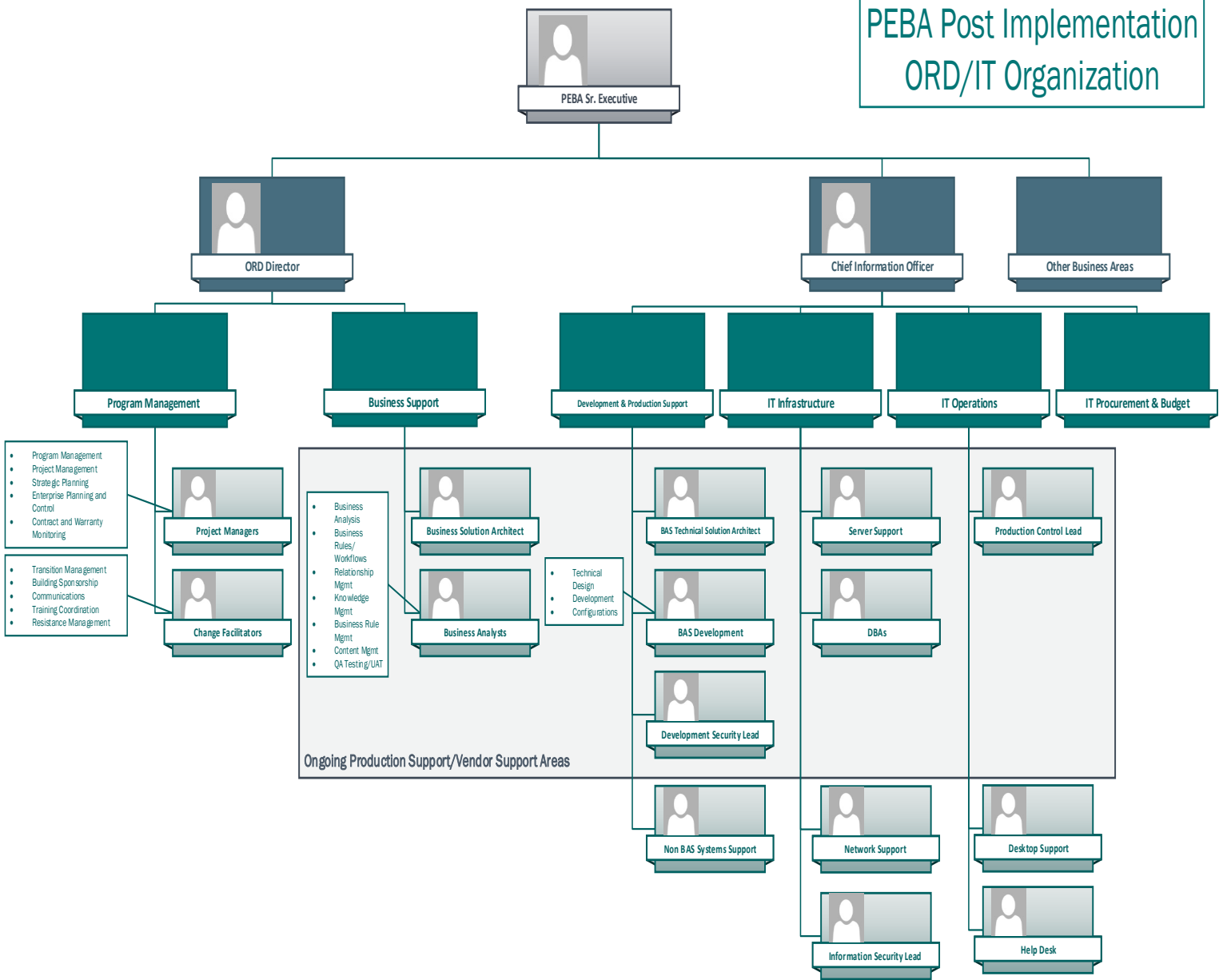
3.2   Proposed PEBA IT and ORD Support Model

In recommending a future state IT and ORD organizational demand fulfillment model, there has been a thorough review of the PEBA As-Is organization, PEBA's To-Be process and technology outcomes, peer agency organization structures, and typical implementation vendor support strategies. This research, along with IT and ORD leader meetings and confirmation of PEBA's organizational design guiding principles, was used to create the initial PEBA post implementation support model.

The following diagram depicts a high level view of PEBA's initial To-Be IT and ORD organizational structure. Given that future demand and the support structures will evolve as the solution, requirements, and key vendor partner are solidified, this initial structure can be used as a starting point and baseline for evolving the IT and ORD departments.

PEBA Post Implementation ORD/IT Organization

PEBA Sr. Executive

- **ORD Director**
  - **Program Management**
    - Program Management
    - Project Management
    - Strategic Planning
    - Enterprise Planning and Control
    - Contract and Warranty Monitoring

    → **Project Managers**
    - Transition Management
    - Building Sponsorship
    - Communications
    - Training Coordination
    - Resistance Management

    → **Change Facilitators**
  - **Business Support**
    - Business Analysis
    - Business Rules/ Workflows
    - Relationship Mgmt
    - Knowledge Mgmt
    - Business Rule Mgmt
    - Content Mgmt
    - QA Testing/UAT

    → **Business Solution Architect**
    → **Business Analysts**

- **Chief Information Officer**
  - **Development & Production Support**
    - **BAS Technical Solution Architect**
    - **BAS Development**
      - Technical Design
      - Development
      - Configurations
    - **Development Security Lead**
    - **Non BAS Systems Support**
  - **IT Infrastructure**
    - **Server Support**
    - **DBAs**
    - **Network Support**
    - **Information Security Lead**
  - **IT Operations**
    - **Production Control Lead**
    - **Desktop Support**
    - **Help Desk**
  - **IT Procurement & Budget**

- **Other Business Areas**

Ongoing Production Support/Vendor Support Areas

3.2.1 ORD and IT Department Director Level Leadership

In the proposed future state, there will continue to be a separation between ORD and IT departments. This separation will allow each department to focus on their unique core competencies, while providing coordinated services to business units. Each department will continue to have a separate Director level leader.

3.2.2   ORD - New Positions, Relationships and Organizational Structure

ORD will be responsible for the enterprise business support team, including the key role of business analyst. The business analyst will continue to perform business impact analysis, lead business enhancement prioritization and design, as well as performing quality management and test support functions. The new role, as envisioned, will go beyond the typical business analyst role and include responsibilities for the relationship management between the business units and the production support teams.

With the implementation of a new enterprise solution, there will be a demand for business analysts to understand the holistic impact and options of the new solution. Coordination between the business analysts and the business solution architect will be important, as the architect's role is to accommodate the best approach and design when implementing business change. The business solution architect will work in tandem with the technical architect, who will report to the IT organization, to identify and confirm the best approach to technically implement requested business changes. There are always several ways to implement a business change. The business solution and technical architects will be responsible for identifying the best approach, as well as assess change impact on the enterprise solution.

It is recommended that PEBA develop a program management support capability. Program management support will work with external vendor management to define the structure, approach, and overall project management discipline that will be used across the portfolio of concurrent PEBA projects. Program management support will directly manage projects that are PEBA's responsibility and will have project management oversight responsibilities for implementation vendor progress, process, issues and risks. Program management support will be established for the implementation project and will likely continue during post implementation support activities.

Change management will ensure that stakeholders understand, learn, and adopt change, and will be one of the implementation vendor focuses. The ORD department will support this function and have dedicated change coordination resources (change facilitators) that will work hand-in-hand with the implementation vendor and business analysts. This coordination will help bridge the gap between old and new processes, by leveraging PEBA's cultural understanding and relationships as communication, training and new processes are deployed to stakeholders.

3.2.3   IT - New Positions, Relationships and Organizational Structure

IT leadership will continue to oversee application development, the technical infrastructure and production operations. The technical solution architect will confirm and direct the appropriate technical system changes, while the development and production support area will be a pooled group of developers. The developer pool will be cross-trained with applicable technologies and deployed via the priorities and timelines defined by development and production support leadership. As it exists in the current organization, the development and production support leadership will also be responsible for development and support of non-BAS related applications.

The development and production support leader will oversee a new position, given an increased application security focus. The development security lead will be established to support

development related security efforts. There currently is significant focus on network security, but with the deployment of new, web-based solutions, heightened application security focus is required. This new role will not only be responsible for user and application security conformance, but will approve that each new production release adheres to defined intrusion and security standards.

Last, the new proposed organization creates a central production control function under the operations area. Currently, production support is decentralized and in many cases is dependent on the programmer analyst that is responsible for the current system application. The proposed organization would bring all production job control, data exchange (internal and external), and production scheduling in the centralized IT operations area.

4   Roles and Responsibilities

4.1   ORD

In the future state, the ORD team will be a business focused department supporting all BAS projects and production support efforts. This group will be the external face of the IT/ORD departments and will provide solution options to business area issues and system enhancement requests. At a high level, ORD key responsibilities include:

- Project and change management – Project managers and change facilitators, with competencies in project management methodology and organizational change management concepts, will incorporate these practices across the organization during the implementation project and beyond. Resources supporting these functions will be instilling project management disciplines, overseeing multiple concurrent projects, working in concert with the implementation vendor management, overseeing vendor project outcomes, and developing, reinforcing and monitoring new user behavior. Executive directed strategic planning implementations will be supported by this group.

- Business analysis – Business analysts will provide business acumen, analytical skills and a deeper understanding of new enabling business and technology capabilities that can be leveraged to solve business problems. The business analyst will act as a trusted advisor for their respective business unit. The business analyst will be expected to develop and apply critical thinking skills, identifying big picture impact of proposed enhancement and system changes. Process design, business rule management and system content coordination (forms, letters, help documents, etc.) will also be a business analyst responsibility. Exceptional oral and written communication skills are required.

- Business solution architecture – The business solution architect requires full knowledge and understanding of the business, technology and data underpinning of the new application and integrated environment. They will act as key thought leaders to confirm that system enhancements are designed for strategic alignment and optimal performance.

The architect will be the authority on change impact and the final decision maker on the best approach to implement operational system changes.

The table below represents an inclusive list of the To-Be ORD department roles and responsibilities:

TITLE	ROLE	RESPONSIBILITIES
Project Portfolio Manager	The project portfolio manager works as a liaison between executive leadership and the project teams. They facilitate enterprise planning, overseeing and coordinating project resources and budget on all project related activity. Provides project management consulting in all project areas.	• Works with vendor resources as needed, IT technical leads and project staff on project schedule, budget and change requests. • Manages a portfolio of multiple concurrent projects and associated resources.
Project Manager	The project manager plans, manages, directs and controls all resources for a project. They coordinate communications between project staff, business sponsors, vendor project managers, and oversight PM/QA.	• Resolves project related issues. • Facilitates key organization / budget decisions for the project. • Helps to assure the availability of essential project resources.
Change Facilitator	The Change Facilitator applies change management tools, assesses change impact, and creates the change strategy supporting adoption of the changes required by projects or initiatives.	• Acts as Change Facilitator for change initiatives, and supports communication and training efforts. • Manages change resistance and monitors change readiness. • Drives faster adoption of change. • Builds change sponsorship from executive leadership and establishes change advocacy networks.
Business Solution Architect	The business solution architects are Sr. business analysts with very detailed knowledge of systems, products and functional needs. They act as primary liaisons between IT technical architects and the business units.	• Partners with technical architect to determine the optimal approach to enhancement requests with a focus on meeting business functionality requirements. • Assists in product requirements / design decisions. • Participates in UAT. • Oversees business analyst project activities.

TITLE	ROLE	RESPONSIBILITIES
		• Assigns testing tasks to business analysts. • Reviews and approves scenarios, acceptance criteria and test cases.
Business Analysts	<u>Relationship Manager</u> The BA is the relationship manager/liaison between IT, implementation project teams and business stakeholders. They are the Primary IT/ORD point of contact for business users. <u>Requirements Analysis</u> The BA analyzes, communicates, documents and validates business requirements. Completes tasks assigned by business solution architect. <u>Quality Assurance</u> The BA reviews and tests scenarios and acceptance criteria and supports users during UAT. <u>Knowledge/Content Management</u> The BA facilitates knowledge/content management, updates, and assists in formulating the knowledge management strategy and influencing change in an organization. Oversees all the creation of forms and letters for their assigned business unit. <u>Business Intelligence</u> The BA designs Key Performance Indicator reporting and dashboard analytics for business units.	• Works with business unit SMEs to define the conceptual vision for solution functionality. • Provides functional BAS expertise and moves conceptual vision to detailed design recommendations. • Documents business user identified system issues and provides status updates to manage business user experience and expectations. • Documents current and future processes and related system impacts. • Recommends solutions that enable the project team to achieve its stated goals. • Defines requirements for system changes. • Works with project manager and business users to ensure the solutions achieve the defined business requirements. • Works with vendor resources as-needed during requirements confirmation and QA. • Supports business users during UAT. • Develops automated test projects, executes test scripts and reports bugs. • Uses Business Intelligence tools to query BAS data repositories for business user ad hoc reporting needs. • Designs and maintains BI dashboards displaying business area performance metrics.

4.2   IT

The IT organization will continue to focus on providing application development, technical expertise, operations support and ongoing continuous improvement to the newly implemented benefits administration solution. The IT department will support all technology and infrastructure initiatives for the agency, including security on non BAS applications. This group will provide the

technical capabilities required to administer, maintain and extend the PEBA technical environment. At a high level, some key IT responsibilities include:

- Development – The developer group will experience significant change in the tools and expertise required to achieve PEBA's goal of high self-sufficiency. With very different production support requirements inherent in a new system, enabling developers with the new tools, planning co-development activities, and mandating hands-on experience with vendor implementation staff will be important change management activities during the modernization project. The time horizon for this skill attainment will be 4 to 5 years. PEBA will strive to create a developer pool that is well-rounded in each of the new solution technology disciplines and have the ability to flexibly deploy technical expertise across any supported technology or application.

- Infrastructure and database support – The roles supporting infrastructure and databases will also experience significant change. The database team will likely be working with a new database technology. This team will work hand-in-hand with the application development team and architecture group to design and implement best practice database tools, strategies, and metrics. Server and network support skills and tools will be aligned to the selected BAS solution, with the implementation vendor defining the environment, network, and server support procedures. New configuration management tool management and system deployments will also be the responsibility of this group.

- Production control – Production control will provide a structured and centralized approach to managing the production environment, which will include batch job submission and partner data exchange management. This function will be consolidated in the To-Be operations environment.

The table below represents an inclusive list of the To-Be IT roles and responsibilities:

TITLE	ROLE	RESPONSIBILITIES
Development and Production Support Manager	The development and production support manager oversees and manages developer resources. They act as primary liaison between PEBA and the implementation vendor for developer resources and subject matter expertise on an as-needed basis. They work closely with the CIO, technical solution architect and infrastructure manager to define IT strategy and system structure.	• Oversees the development of application interfaces, solution components, configurations, customizations and deployments. • Oversees testing of completed units of work. • Ensures complete and sufficient technical documentation. • Manages vendor development resource needs.

TITLE	ROLE	RESPONSIBILITIES
Development (Technical Lead, Developers)	The technical lead and developers will collaboratively complete tasks assigned by the development and production support manager on the BAS. The BAS development groups may be divided further into server code development and web front-end development and other sub-groups as necessary.	• Develops required application interfaces. • Designs solution components. • Completes required customizations. • Completes unit test and system integration tests for completed units of work. • Creates technical documentation. • Supports testing processes. • Provides updates and documentation to the project manager regarding project development activities.
Development Security Lead	The development security lead works with development and the development and production support manager to ensure that applications are secure, prior to deployment.	• Oversees security component of development. • Tests security of BAS builds and non BAS system builds. • Finds security issues and works with development team to resolve them. • Complies with risk management and compliance director's established information security policies, procedures and guidelines.
Technical Solution Architect	The technical solution architect is responsible for defining and overseeing the overall structure of a system and is a key contributor to the organization's long term IT strategy. Works with business solution architect on optimized technical design. They work closely with development and production support manager on IT Strategy.	• Reviews all technical enhancement specifications. • Ensures that solutions meets all run time performance requirements. • Reviews modifications and guides code and configuration changes. • Manages vendor infrastructure resource needs.
Infrastructure Manager	The infrastructure manager oversees and manages server support, DBA, network support and network security resources. They have overall responsibility for the development and on-going management of IT infrastructure and acts as the primary liaison between PEBA and the implementation vendor for	• Oversees configuration management processes (help files/traceability). • Oversees document security assessment framework. • Oversees information security testing processes. • Manages infrastructure upgrades technical change controls.

TITLE	ROLE	RESPONSIBILITIES
	infrastructure resources. They work closely with the development and support manager and technical solution architect on the technical development of solutions and centralized data storage.	• Develops and manages processes to ensure that infrastructure is configured and managed to provide users with stable performance. • Defines data governance policy to ensure integrity and security of enterprise data and oversees data governance compliance.
Information Security Lead	The information security lead works with the infrastructure manager to manage security systems across the entire organization's network including Intrusion Detection System (IDS), firewalls, log capture, etc.	• Works with development security lead to establish security assessment framework in compliance with information security policies procedures and guidelines. • Establish and document security assessment framework. • Monitors and reacts to network security system output. • Supports Development Security functions on as-needed basis. • Complies with risk management and compliance director's established information security policies, procedures and guidelines.
Production Control Lead	The production control lead manages and controls the processing of programs and batch jobs across all systems and works with Infrastructure Manager and Development to ensure coordination of high levels of service and systems availability.	• Develops schedules for production jobs according to business requirements. • Establishes instructions for execution of jobs and ensures full documentation. • Performs batch job recovery procedures and ensures appropriate follow-up actions, escalations and resolutions. • Oversees secure transmissions of data to and from vendors and institutions.
IT Procurement & Budget Lead	The IT procurement & budget lead manages the agency's procurement processes relating to the acquisition and delivery of IT services. Works directly with CIO to ensure acquisitions completed efficiently and in compliance with policy.	• Conducts all IT related procurements. • Tracks and manages the establishment and renewal of all IT contracts. • Develops and manages vendor relationships. • Tracks and manages IT budget usage and performance. • Assists in the IT audit, risk management, and compliance efforts.

TITLE	ROLE	RESPONSIBILITIES
		• Provides product and market research to business departments.

4.3   Implementation Vendor Support

Post production implementation vendor support will augment PEBA skills and subject matter expertise across many of the IT/ORD support areas. It is envisioned that the majority of ongoing implementation vendor production activity will be in supporting business design and configuration, fully leveraging the solution's technical architecture, and performing product/framework upgrades. When a complex business change is identified, expertise will be required to quickly assess system impact and determine alternative business and architectural implementation approaches. The implementation vendor will be relied upon for this guidance.

It is expected that the demand for implementation vendor resources will remain steady during development periods, but will decline as user acceptance testing and final system deployment occurs. A lower level of implementation vendor resource is usually required throughout the warranty period, given that the required level of quality is achieved in the implemented system.

The implementation vendor will also be responsible for post-production warranty support. This support is usually part of the implementation contract mandating vendor responsibility for software defects and system outcomes not aligned to the agreed-upon design. There may also be unresolved issues and sometimes user acceptance testing defects that carry over (upon client agreement) into the warranty period that may require implementation vendor focus. The implementation vendor will be expected to resolve defects within the agreed upon timeframe, given PEBA priorities.

It is proposed that the implementation vendor contract be as flexible as possible, as production support demands shift and PEBA becomes self-sufficient. There are a number of business issues that can occur that may impact the ability of PEBA to support the system to the level planned (legislative changes, resignations, product upgrades, etc.). With a flexible contract structure, the implementation vendor can be a virtual "bench of experts" that can be leverage when and if production support demand increases and additional skilled resources are required.

5   Stakeholder Change Impact Summary

With an extensive organizational change, as described above, there will be a significant impact on the way the IT and ORD departments support their stakeholders. As the implementation project progresses, IT and ORD staff will develop new skills and processes, enabling the organization to transition from the current state operating model and meet the new system operational demands.

A change will occur in the way the IT and ORD departments interact with other PEBA business units, data exchange partners, and external vendors. The changing system, organization and support structure will create the following system support operational impacts:

- Business units will be heavily reliant on their dedicated ORD business analyst. The business unit will depend on this trusted advisor and liaison role to accurately understand, assess, and represent issues and enhancement requests. With the business areas driving the prioritization of issues and requests, the BA will be responsible for tracking and communicating the status of business unit requests, while managing business unit expectations. The business area will not interact directly with programmers to initiate enhancement requests or certain other interactions as they do in the current state, but rather will primarily work through their assigned BA. However, the business area will have lines of direct communication with programmers and their assigned BA for other interactions (e.g. requirements definition, clarifications, etc.).

- Business units and executive leaders will drive innovation through continuous improvement and system enhancements requests, which will be incorporated into the managed project portfolio/strategic plan. A formalized intake process will be followed for new project requests, and project resources will partner with business resources to complete data driven business case/project documentation. Requests will be strategically prioritized against all projects in the project portfolio and resources assigned accordingly. Executive leaders will be continuously informed of PEBA strategy through recurring project status and project portfolio updates.

- Data exchange partners (e.g. deferred compensation TPAs and insurance providers) will exchange more data in the future state, according to To-Be process redesigns, through a central transmission team, following security and privacy protocols. The production control lead will oversee data flows in and out of the central transmission team and will be responsible for data exchange partner technical compliance (i.e. security and gating protocols) and ensure privacy agreements are in place. Information security protocol will be comprehensive and documented, proving that PEBA and data exchange partners are taking appropriate steps to safeguard communications from unauthorized release, interception and intrusion. Data exchange business content oversight will remain a business area responsibility. When the business areas identify a technical data exchange issue (e.g. missing file, duplicate file) they will work with the production control lead for resolution.

- Implementation and data vendors will support the new IT and ORD operating model to some level. PEBA will define support requirements to execute the model depending on the issue or system enhancements in consideration. As mentioned above, a flexible support contract, in addition to the mandated post production warranty period, will provide a vehicle to leverage expert resources, when required to support operations.