State of California

Franchise Tax Board

Enterprise Data to Revenue (EDR) Project

Feasibility Study Report

FTB FSR 08-05

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1.0 Executive Project Approval Transmittal

2.0 Project Summary Package

3.0 Business Case

3.1 Business Program Background

The Franchise Tax Board's (FTB) primary function is to administer the California Revenue and Taxation Code, which includes collecting the proper amount of tax revenue and operating other programs entrusted to us at the least cost. FTB strives to serve the public by continually improving the quality of our products and services and performing in a manner warranting the highest degree of public confidence in our integrity, efficiency and fairness.

Annually, FTB processes more than 15 million Personal Income Tax (PIT) returns and one million Business Entity (BE) returns, responds to more than three million phone calls, handles over seven million Internet contacts and collects about $60 billion, which represents more than 65 percent of the state's general fund revenue. In addition to the various non-tax debt collection programs including Court Ordered Debt (COD) and Department of Motor Vehicles (DMV) collections, FTB also administers the annual senior and disabled assistance program for renters and homeowners.

FTB's Tax Business Model (Figure 3.1) illustrated below represents a customer-focused, graphical depiction of FTB's business processes at the highest level.

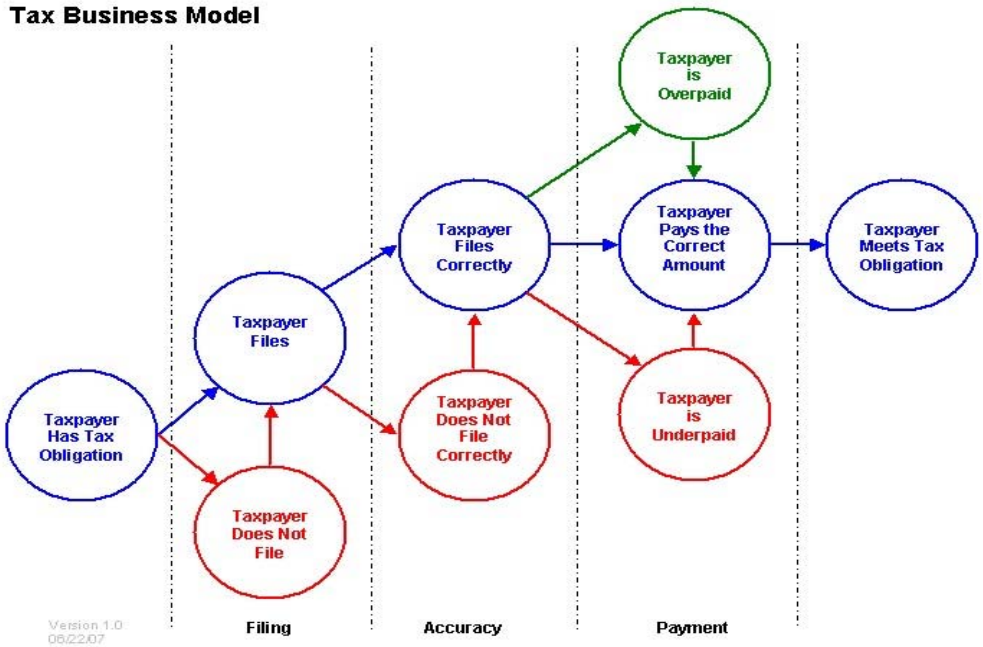


Figure 3.1

The Tax Business Model processes colored in blue in Figure 3.1 are the most effective and least costly way for FTB to conduct its tax business. FTB uses the phrase "Blue Path" to

represent the processes used to process taxpayer self-assessed, correct and timely tax obligations. The Blue Path impacts all taxpayers and are integral to FTB's success because they account for roughly 90% of the $60 billion in revenue collected. Conversely, the processes shown in red represent the systems and programs engaged in processing tax obligations filed incorrectly or requiring intervention to collect taxes owed. These processes are referred to as the "Red Path" and represent the most costly way for FTB to carry out its mission. The Red Path processes are particularly costly because they concern recovery of revenue often with unavailable data, redundant systems, and functions that are not shareable and reusable. Historically, FTB's information technology (IT) investments have been directed towards Red Path activities such as identifying particular income sources for specific non-filing taxpayers or collecting underpaid accounts. There has been no real significant IT investment in the self-compliance Blue Path processes, which impacts nearly all taxpayers and represents the bulk of FTB's workloads. FTB's workloads break down into seven key Systems of Work (SOWs), which include Return Filing, Return Validation, Filing Enforcement (FE), Audit, Underpayment (also referred to as Collections), Payment and Overpayment (Refunds).

Over the last two years, FTB's Tax Systems Modernization (TSM) Bureau undertook an extensive effort to perform Business Problem Analysis (BPA). The BPA consisted of enterprise strategic planning for the FTB Tax Systems IT Strategic Plan (ITSP). The BPA targeted FTB's SOWs, specifically analyzing Return Filing, Return Validation, FE, Audit and Underpayment with an overall objective to align FTB's goals and strategies with initiatives designed to deliver breakthrough improvements at both the enterprise and SOW levels. The BPA clarified, defined and detailed FTB's Strategic Goals and defined the Enterprise Vision reconciled against the vision plans of the Filing, Audit, and Collections business areas. In addition, the BPA defined the Strategic Business Problems (SBPs) faced by the business areas that are obstacles to achieving the Enterprise Vision and identified opportunities for solving the problems.

The Strategic Business Plan, business goals and visions developed by the business areas were the sources used to identify the SBPs. The BPA not only defined and highlighted business problems but illuminated strategies and opportunities to enable the business areas to achieve their visions and goals more efficiently and effectively. With validation from both the business and technology stakeholders, the SBPs produced a business focus intent on establishing a clear and comprehensive business vision to increase revenue through narrowing the tax gap (the difference between the amount of tax owed and the amount of tax paid) by improving and streamlining the Blue Path processes, reducing waste, minimizing redundancy and reducing technology maintenance and operations costs. The BPA facilitated the formulation of a strategic IT portfolio with the EDR Project as the first in the series of the TSM IT projects strategically directed to provide profound revenue generating and cost saving solutions all within the context of FTB's ITSP.

3.1.1 Return Filing

With the onset of e-file technology, FTB has experienced a reduction in the number of PIT paper returns filed. In fact, since the passage of the 2004 mandatory e-file law for tax preparers filing over 100 returns annually, the number of e-filed returns has doubled. In the 2006 tax year, 60% of all PIT returns were e-filed. E-filed returns not only provide the obvious benefit of using less paper, but FTB also benefits from having all return data in an electronic format, which results in reduced processing costs due to minimal return fallout for manual correction. Even though e-filed returns constitute the majority of returns filed, FTB projects the amount of

e-filed returns to plateau at 75% by 2011, leaving FTB to process roughly 5 million paper returns annually. In order to process the annual flow of paper returns, FTB will continue to hire and train nearly 1,000 temporary employees every year to open, extract, sort and physically move paper returns to meet the demands of timely deposits to the general fund and timely refunds to California taxpayers.

In addition to the labor costs associated with physically moving paper returns, FTB forgoes revenue opportunities related to the limited data captured from paper returns along with the manual methods used. FTB's ability to capture data was originally designed around a paper-based system, which has since been modified to incorporate e-file data with a significant drawback that the data cannot be accessed via a centralized location. The capture, enterprise storage and usage of return data affords FTB many opportunities to analyze filing trends, increase modeling capabilities and minimize exception processing; however, electronic data captured via e-file versus data captured through manual input has considerably different results. An e-filed return captures all data associated with a return including all schedules. The data manually captured from paper returns is limited to only the data necessary to process a return (e.g., adjusted gross income and withholding are captured and data on the schedules is not). Approximately 65% of the paper returns are software generated and data captured via high-speed scanners, whereas data from the remaining 35% of the paper returns are captured via manual input. In essence, both methods currently capture the same data; however, capturing data via a high-speed scanner allows for greater production rates, along with the opportunity to capture and store all paper data in a similar format to the data captured via e-file. In support of the Return Filing process, FTB employs a Taxpayer Service Center responsible for responding to customer inquiries, including both taxpayers and tax professionals. FTB's strategic goals of operational excellence and improved customer service revolve around the following strategies:

- Decrease paper-based processes
- Improve return processing speed
- Continue promoting e-services
- Streamline processes and modernize IT systems

Based on these strategies, FTB must proactively address methods to streamline the processing of paper returns through imaging and automated data capture, thus creating a gateway to all data that can be used throughout the FTB enterprise which promotes Blue Path compliance. Applying return data across the enterprise for use in Audit, Underpayment and Return Validation, along with streamlining redundant IT systems will generate substantial revenue and reduce the tax gap, while also improving FTB's operational efficiency.

3.1.2 Return Validation

Each year nearly 2.5 million PIT returns and over 300,000 BE returns require some degree of manual intervention to complete processing. Unlike e-filed returns, which undergo additional edits before acceptance and validation by FTB, all paper returns complete processing prior to the identification and correction of any data or input errors. The validation system processes all returns (paper and e-file), primarily identifying math, entity and payment discrepancies. In order to process these discrepancies, FTB hires roughly 200 temporary staff to make manual tax return adjustments and complete the return filing process.

In addition to making manual adjustments, FTB attempts to identify fraudulent PIT returns for investigation proceedings. Analysts request detailed queries from limited accounting system information to identify fraudulent activities. Due to the labor-intensive process that goes into identifying fraud along with the limited data, FTB is unable to adequately detect fraudulent behavior early in the filing process. These difficulties result in the issuance of inappropriate refunds of which FTB expends further audit and collection resources to recoup. On a similar note, the Business Entities Section lack of resources, return complexity and limited data capture constrains a BE fraud prevention program capable of curbing fraudulent behavior. Similar to PIT, all BE returns submit to the validation process; however, due to the complexities of the BE return, the lack of captured data and the accounting system's current architecture, the identification and manual corrections of BE returns take a considerably longer period of time than PIT returns. The cumbersome BE accounting system leads to never-ending BE backlogs because of a BE return's potential to run through multiple batch processes before the correction of all discrepancies. In fact, FTB continues processing 100,000 current year returns into the following tax year requiring a consistent use of additional temporary staff and overtime. Keeping in line with FTB's strategic vision of identifying approaches to narrow California's tax gap, opportunities exist to take a proactive approach in identifying fraudulent behavior along with using more data to reconcile all aspects of a return, such as using 3rd party data and reconciling schedule information.

3.1.3 Filing Enforcement (FE)

The FE program serves as one of FTB's primary methods to reduce the tax gap and gain compliance with the state's tax laws. The FE program identifies and pursues individuals and corporations with potential filing requirements and no tax return filed. The Integrated Non-filer Compliance (INC) computer system plays a key role in the FE program through the identification of potential non-filers by matching income records against filed tax returns. In order to ensure accurate non-filer information, all income records pass through a variety of data cleansing processes. The INC database uses names and identification numbers to determine the total income earned by each non-filer in a given year and subsequently create a non-filer case. These potential non-filers are notified of their filing requirement and if they fail to file a tax return, tax is assessed based on available income information. Through notifying potential non-filers, the FE program obtains approximately 250,000 tax returns and $500 million in total revenue each year.

The FE program identifies potential non-filers by comparing California source income and income indicators to a database of taxpayers who have filed returns. FTB has agreements with 3rd parties who provide income and income indicator records at different times throughout the year. FTB currently receives approximately 250 million records per year for use in FE activities. Additionally, the FE program places a high priority on identifying innovative ways to identify non-filers by adding new income sources each year.

Roughly 12 million possible non-filer cases are identified annually. Of these, approximately 9.8 million have no filing requirement (i.e., $0 gross tax) and 400,000 are not pursued because they have a net tax (tax after credits) under a threshold to impose an assessment. The remaining 1.8 million pursuable non-filer cases are assigned one of two categories: "Ready to Pursue" or "Under Review." The 1.25 million "Under Review" cases are manually worked and either a notice is issued or it is closed (e.g., have no filing requirement) while the remaining 550,000 "Ready to Pursue" cases receive a notice. The "Under Review" cases require significant

resources to research better addresses and manually determine filing requirements. The ability to add additional data sources to improve non-filer matches would alleviate the dependency on manual intervention and promote Blue Path behavior in future years, thus increasing revenue potential.

3.1.4 Audit

The Audit Division is responsible for auditing California resident and nonresident PIT taxpayers with California source income, Pass Thru Entities and BE taxpayers doing business in the state. Audit also plays a significant role in reducing California's annual tax gap. The Audit Division's mission is to ensure that taxpayers report and pay the correct amount of tax, performing approximately 350,000 audits per year that produce approximately $1.4 billion[1] in additional revenue.

Critical to the support of Audit's mission is the ability to identify candidates for audit. A key component of the identification process is the acquisition and analysis of return and 3rd party data sources. Third party data sources include information from industry, other state and federal agencies. Today, the Audit Division uses separate systems to store tax return and 3rd party data for each of the respective audit programs. Each system stores some of the same data and each system has its own extract, transform and load (ETL) processes. These systems do not provide automated data cleansing and perform limited matching functions, which prevent them from making the best use of available data. These separate and redundant data silos present a problem when adding new data, as each one must be updated to process and store new data. In addition, no single system has access to all of the data.

Once the data is loaded and available within a data store, it may be analyzed through a process called modeling. Modeling is a system functionality that supports the querying of data against a selected data store. Specific tax return and 3rd party data elements captured and stored provide the basis for audit models and ultimately the selection of tax returns for auditing. Audit models range from very simple single-issue models to sophisticated and complex multiple-issue models.

FTB generally cannot start the audit process (or cycle) involving complex or multiple issue audits until 18 months after the filing of a tax return. This is due to various processing issues that impact the availability and timeliness of key data elements from other FTB business areas and external 3rd party sources. Additional steps are required once the data is received to process our modeling programs.

Audit's non-integrated technology environment limits the pursuit of revenue producing business opportunities. These opportunities are specific to data and improving audit modeling and candidate selection. Currently, a need exists to improve data quality, data timeliness, acquisition of new data sources and ability to share data.

In addition to the modeling process, the program receives leads from multiple sources including media tips, other states, other California State agencies and other professional committees/organizations. This information is often reviewed manually for potential noncompliance issues that would prompt FTB to select additional taxpayers for audit or to create new models to detect a noncompliance trend.

[1] Source: 2005-06 Operations Report

3.1.5 Underpayment

The Underpayment program enforces the laws entrusted to FTB to collect the proper amount of tax or non-tax debts. The Underpayment program provides direct assistance to taxpayers and tax professionals by educating them through reactive call centers and field offices, notifying them of outstanding debts and encouraging them to voluntarily pay in full. For those customers who do not comply, involuntary collection action is taken. This may consist of contacting customers, filing liens, issuing levies and seizing assets. It is the collector's role to explain and resolve the balance due and educate the customer on how to comply with California tax laws.

FTB administers four Underpayment debt types:

- Personal Income Tax
- Business Entity
- Court Ordered Debt
- Vehicle Registration Collections

During fiscal year 2007/2008, the Underpayment program successfully collected $1.5 billion for PIT, $473 million for BE, $73 million for COD and $155 million for Vehicle Registration Collections (VRC).

Each of the four debt types has a separate system and performs the same collection functions (e.g., levies, installment agreements, and notices); however, each debt type operates in a silo unable to leverage information or technology from the other underpayment systems. This has resulted in increased training costs, the inability to redirect resources from one debt type to another, duplicate efforts, redundant data, out-of-sync systems, miscommunication and increased IT costs.

Bringing common services to an enterprise level (e.g., address, notification, modeling and customer self-services) will decrease training costs, redirect resources, reduce duplicate efforts, reduce miscommunication and decrease IT costs. Additional data will be more defined increasing the accuracy of account evaluations and lead to more effective and efficient collections producing additional revenue. In addition, the opportunity of using 3rd party data along with return data will allow for the optimization of PIT and BE modeling. Introducing new data into PIT and BE scoring models will enable more cases to be collected by the automated system as opposed to a collector.

3.1.6 Legacy System

The Business Entities Tax System (BETS) is the accounting system which administers the California Revenue and Taxation Code as it applies to more than 3.5 million corporations, partnerships and limited liability companies doing business in the State of California. BETS processes approximately 1.2 million BE tax returns annually, accounting for roughly $10 billion in revenue a year. Additionally, BETS interfaces with other FTB mission critical systems managed by Audit, Underpayment and FE along with interfacing with systems managed by other state departments.

Implemented in 1996, BETS uses proprietary INSTALL/1 and DESIGN/1 products, which are highly integrated into the BETS online environment and development processes. The INSTALL/1 and DESIGN/1 products have been "functionally stabilized" by the vendor, meaning that no enhancements to the existing products will be made. Since their peak worldwide usage in the mid 1990s, approximately two-thirds of the original customers have discontinued the use of the products, leaving only approximately 50 customers. The vendor has not provided active support for INSTALL/1 and DESIGN/1 since their last release in October of 2003.

3.2 Business Problems and Opportunities

Strategic Business Problems

1. **Data Availability - Returns are not corrected, payments and taxpayers are not properly identified, fraud goes undetected, cases are not properly prioritized and assigned the most effective resolution strategy because data is unavailable, unshared and costly to maintain.**

FTB's infrastructure lacks the ability to share mission critical information across the enterprise and the ability to capture additional data needed for all SOWs including Return Validation, FE, Audit and Underpayment resulting in delayed and lost revenues. FTB experiences a data gap between the amounts of data captured via e-file and data captured via scanning or manual input. The e-file process captures all return information including valuable schedule information whereas scanning or manual input of paper returns captures roughly only the first two pages of return information, which doesn't include any schedule information. The gap created by not capturing all the necessary data from paper returns results in substantial revenue loss across all SOWs in the department. For instance, available data regardless of the source would provide a comprehensive audit selection process producing more highly effective audit cases.

FTB stores most data in siloed systems and applications throughout the enterprise making the prospect of sharing data extremely costly. Scattered data, in conjunction with non-integrated systems, results in FTB's inability to provide proper data and trend analysis. With isolated data, all SOWs struggle to achieve desired revenue potential. Currently, the unavailability of the data hinders FTB's ability to identify more return filing errors and detect fraudulent behavior sooner in the return validation process to allow significant enforcement through the establishment of taxpayer and tax professional relationships. Furthermore, since all data remains in silos and managed locally by SOW business areas, no enterprise governance process exists to ensure proper procedures for integration, quality, utilization, availability and standardization of data. The lack of enterprise governance promotes the fragmented management and maintenance of multiple systems with redundant functionality thus driving up maintenance costs and requiring annual changes to multiple platforms instead of just one. Finally, the data matching process aimed at identifying non-filers lacks the ability to add new data to improve quality and take full advantage of sharing enterprise data. The lack of data is the single most significant problem that constrains FTB's ability to close the $6.5 billion tax gap; therefore, the ability to share data across the enterprise using mechanisms such as Data Services will result in the ability to identify additional non-filing PIT taxpayers.

2. **Business Processes - Changes take too long to implement or cannot be made, data is not captured, returns are not corrected and performance cannot be monitored**

because return filing processes are old, manual, redundant, inflexible and costly to maintain.

Paper drives FTB's current return filing and validation functions even though 60% of PIT returns are e-filed. The current system architecture revolves around a paper-based workflow with modifications made to incorporate e-file resulting in inefficiencies, redundancies and exception processing. The physical movement of paper returns anchors the return filing workflow process that operates under redundant and independently managed filing systems requiring extensive manual intervention to maintain. In addition, each processing workflow lacks the ability to optimally capture, validate and process PIT and BE data, which limits the ability to make timely systems changes without adversely impacting the timeliness of deposits and refunds. Due to limited automation, the return filing process remains dependent on temporary staff to manually process tax returns and IT staff to maintain separate redundant systems. The return validation systems maintain business rules embedded within IT legacy systems with insufficient or no documentation. As a result, all business rule changes must adhere to a cumbersome condensed annual change process window due to the risk associated with making changes during peak filing season months, which could prevent the collection of revenue. In addition, without the use of an enterprise workflow, a roadblock exists to successfully monitor and evaluate business performance. This results in decisions being based on historical rather than current data.

3. **System Redundancy and Reuse - Systems and functionality are costly to develop and maintain because they are redundant, have different technologies, different platforms and are not integrated or reusable.**

FTB maintains numerous standalone systems that lack standardized functionality across the enterprise resulting in redundant maintenance costs and almost no reusable services that may be leveraged by other systems. The reliance on redundant systems, data, processes and functions hinders FTB’s ability to make timely updates due to the fact that changes to a similar function must be performed across the various siloed systems on multiple platforms throughout the enterprise. Such numerous changes require significant development hours to complete which undermines quality along with lost opportunities to focus on additional revenue generating activities. For example, FTB has twenty-six separate noticing systems each with isolated functionality and technology platforms. A recent legislative change requiring the removal of social security numbers from all notices mailed to taxpayers required lengthy code changes on twenty-six systems, as opposed to one change if common functionality was standardized in services across the enterprise. In addition, multiple noticing systems contributes to higher processing costs as FTB must process over 1.4 million pieces of return mail as a result of address information being stored separately with no ability for systems to share the best address. The lack of reusable services adds costs to the development of new systems as existing functionality in systems cannot be leveraged and must therefore be built from scratch. Lack of technical agility and responsiveness due to redundant systems keeps operating cost high and revenue stagnant.

4. **Self-Services - Taxpayer self-services are limited due to outdated technologies and limited security.**

Limited taxpayer self-services encourage the use of costly traditional methods for taxpayers to self-comply with California tax law and prevent Blue Path behavior. Traditional customer service avenues, like costly phone centers and walk-in service, are employed to change addresses or identify balance due amounts as opposed to self-service functionality allowing taxpayers to manage their own tax accounts. Self-service brings forth self-compliance efforts and proper taxpayer and tax professional participation while allowing FTB to reallocate resources to revenue generating activities.

FTB lacks the ability to provide a single, secure, common and coherent data view to internal FTB staff and external customers. Typically FTB staff must access several systems to obtain all information needed to perform their work duties. A single secure view of taxpayer data, such as a Taxpayer Folder, not only promotes taxpayers to take “ownership” of their tax account and maintain Blue Path behavior, but also improves FTB’s cost effectiveness by reducing wasted time spent by FTB staff accessing multiple systems. A solution that would facilitate the integration of various data and business functions services through a common view would make it possible to easily plug-in new services as they are developed without the need for customized programming resulting in a cost effective way to provide transparency and enhanced service to taxpayers and tax professionals.

5. Data Analysis - Noncompliance discovery and fraud detection, tracking and prevention are limited because taxpayer behavior analytical tools are unavailable.

No automated BE fraud detection program currently exists and the PIT fraud detection program lacks sufficient data analysis, processes and data mining tools along with access to additional data to comprehensively identify noncompliance and detect fraudulent behavior. Data queries require technical support and a considerable amount of run time to produce trend analyses. This time dependency contributes to FTB’s inability to deal effectively with fraud early in the filing process. This results in the detection of fraud too late in the process and in some cases after refunds have been issued. Without early fraud detection through data analysis, the growth of the tax gap will continue due to the lack of an effective deterrent. As a result, FTB’s lack of the right data mining tools hinders the amount of revenue retained/collected and the ability to discover non-compliant behavior and trends. With increased data and a robust data analysis tool, FTB can identify emerging patterns of noncompliance, refine audit selection models for better audit accounts and detect fraud prior to the issuance of refunds thereby narrowing the tax gap and increasing revenue.

6. BETS - The BE accounting system is inflexible to evolving business needs, legislative mandates and poses significant risk to existing business processes due to outdated technologies, siloed data and proprietary software.

BETS risks losing vendor support for its critical components INSTALL/1 and DESIGN/1. The vendor currently provides technical support for INSTALL/1 and DESIGN/1 on a year-to-year maintenance agreement and will provide a maximum of one-year notice of termination of product support. The vendor removed these products from its strategic business plans, categorizing both products as "functionally stable". Designating these products as functionally stable is the precursor to discontinuing support entirely, which puts a major tax system at risk for failure without proper vendor support. The impact of a legacy system failure would have severe repercussions to California's revenue. The vendor continues to provide support but no

longer performs research and development or adds new functionality beyond resolving component failures or near term operating system upgrades.

In addition to loss of vendor support, FTB's legacy system lacks the ability to integrate with new systems and services, which results in high maintenance and operational costs. Developers spend approximately 93% of their time on maintenance, legislation and annual changes, leaving only 7% of their time for enhancements. BETS was originally designed to process paper documents, which makes interfaces with electronic documents and Internet applications difficult. As a result of limited functionality and lack of integration with new systems, the BETS user community has compensated by creating a multitude of manual workarounds that contribute to excessive operational costs. BETS currently uses outdated technology that precludes it from sharing information and services with other systems in the enterprise. Due to a lack of current technology and the inability to share information or services in a Service Oriented Architecture (SOA) environment, the decoupling of BETS remains a cornerstone for the successful implementation of the EDR project.

Finally, the BETS limitations have contributed to a growing backlog of return processing fallouts stemming from entity match, return validation and supervisor quality reviews. The backlog has been steadily growing over the years and is now up to nine months past due. The backlog is largely attributable to the growing complexity of the tax law over the years and the limited functionality, rigid design and closed architecture of BETS that does not support needed changes.

EDR Business Problems, Magnitude and Consequences

The following table represents a summary of the magnitude and consequences of the EDR business problems:

No.	Business Problem	Magnitude	Consequences
1.	Data Availability – Returns are not corrected, payments and taxpayers are not properly identified, fraud goes undetected, cases are not properly prioritized and assigned the most effective strategy and resources because data is unavailable, unshared and costly to maintain. o Data is in silos o Data is redundant o Not all the required data is	Insufficient data is available for the following SOWs: o Return Filing o Return Validation including fraud detection o FE o Audit o Underpayment	1. Returns fall out for manual processing because taxpayers cannot be accurately identified resulting in processing delays that lead to interest charges on refunds and delays on making returns available for audit causing lost and delayed revenue and increased costs 2. Payments fall out for manual processing or are misapplied to the wrong account because taxpayers cannot be accurately identified resulting in processing delays, erroneous adjustments, notices, taxpayer contacts and poor customer service 3. Math verification of taxpayer computations is limited to the first two pages of the return and absent in the adjoining schedules

No.	Business Problem	Magnitude	Consequences
	captured o Data is underutilized (e.g., data matching) o Data is untimely o Data management is distributed o Data quality suffers		resulting in returns not being corrected and revenue lost 4. Self-compliance suffers because errors are not reported or reported timely to taxpayers or practitioners resulting in lost revenues 5. Fraud goes undetected, is not enforced and revenue is lost because taxpayers and their tax preparers cannot be effectively associated 6. FE cases selected for enforcement fallout for manual review because there is limited confidence in the data resulting in increased costs, delays and notices sent to non-filers with minimal tax potential 7. 3rd party data matching is incomplete resulting in taxpayers being excluded from Audit and FE selection leading to lost revenues 8. Return data available for audit selection is limited resulting in nonproductive returns selected for audit causing lost and delayed revenues and increased costs 9. Underpayment cases are assigned the wrong priority resulting in the deployment of ineffective enforcement strategies causing lost and delayed revenue and increased costs 10. Data processing takes too long, leads to redundancy and higher costs 11. Revenue is lost because some compliance activities are cost prohibitive due to manual processes that depend on paper 12. Data is not captured and leveraged resulting in data capture errors, fallouts, bottlenecks, rework, prolonged processing and reduced data quality. 13. Taxpayer requests for information take too long to process or are not processed at all causing some taxpayers to file incorrectly without needed information resulting in increased operational costs and lost revenue

No.	Business Problem	Magnitude	Consequences
2.	Business Processes– Returns take too long to process, there are too many fall-outs, changes take too long to implement or cannot be made, data is not captured, returns are not corrected and performance cannot be monitored because return filing processes are old, manual, redundant, inflexible and costly to maintain. o Business processes are in silos and not integrated o Business processes are fragmented and not adequately automated o Workflow monitoring is limited o Business processes and rules are not adequately documented o Business processes and rules are difficult to access and cannot be easily changed and managed o There are no tools to manage processes and rules o Training is fragmented o Data capture process is	Business processes are inefficient and ineffective for BE and PIT Return Filing and Validation	1. Returns take too long to process which leads to interest payments on refunds and delays on making returns available for audit causing lost and delayed revenue and increased costs 2. Taxpayers file duplicate returns because we cannot provide assurances that returns have been filed resulting in increased operational costs 3. Program performance cannot be effectively monitored because work is scattered among systems and manual processes (workarounds) 4. Response to emerging workload backlogs and bottlenecks is costly and slow resulting in processing delays, delayed and lost revenue and increased costs 5. The department depends heavily on human resources to deal with workload problems (e.g., backlogs) because changes cannot be readily made resulting in increased return processing time and costs 6. Manual intervention contributes to errors, rework and increased processing costs 7. Workload planning is based on personal knowledge and experience without the use of planning tools resulting in inaccurate projections of resource needs 8. The impact of changes is not well understood resulting in production incidents, defects and increased costs 9. Business processes are duplicative and costly to maintain 10. Changes including legislative changes cannot be readily made or accommodated causing delayed or lost revenue and high operational costs 11. Ramp up to productivity is prolonged and costly due to fragmented training 12. Training is not comprehensive and

No.	Business Problem	Magnitude	Consequences
	fragmented and relies heavily on manual keying		therefore costly and contributes to poor taxpayer service, productivity and quality 13. Quality of work suffers and contributes to higher operating costs because work is not standardized 14. Needed data is not captured because of time consuming manual data capture methods 15. Incorrect returns are not thoroughly identified and corrected when filed because of manual and time consuming validation process 16. The Return Filing process is prolonged, bottlenecks routinely occur and return data is unavailable because some critical data is limited to paper returns and is costly to track and obtain 17. Too many taxpayers call in to find out the status of their refund
3.	System Redundancy and Reuse - Systems and functionality are costly to develop and maintain because they are redundant, have different technologies, different platforms and are not integrated or re-useable. o Functionality varies among systems o Some systems lack functionality o Governance is not adequately enforced	Systems are different and duplicative for PIT and BE Return Filing, Return Validation and Underpayment Functionality is not leveraged and shared throughout the enterprise	1. Systems and functionality are not leveraged and shared, therefore, costly to maintain 2. System development is prolonged and costly resulting in lost revenues and increased costs 3. Systems are duplicative and costly to maintain 4. Opportunities are lost because systems go without needed functionality and data resulting in delayed or lost revenues and increased costs 5. Information and data are not shared and therefore contribute to higher operating costs, delayed or lost revenues, poorly coordinated, taxpayer service and diminished quality 6. Technology service delivery is highly specialized and costly 7. Users must access multiple systems to access information resulting in poor customer service 8. Users must access multiple systems to locate enforcement information resulting in delayed and lost revenues

No.	Business Problem	Magnitude	Consequences
4.	Self-Services – Taxpayer self-services are limited due to outdated technologies and limited security.	Taxpayer self-services are limited for PIT and BE Return Filing and Validation	1. Return Filing costs are high because some information and services must be manually researched and provided by internal users to taxpayers 2. Return Filing errors are unnecessarily high, Return Validation costs are high and revenue is delayed because some filing information is not readily available to taxpayers 3. Taxpayer contacts including telephone calls and correspondence are unnecessarily high and costly 4. Tax returns and revenue are delayed because taxpayers cannot readily obtain information
5.	Data Analysis – Noncompliance discovery and fraud detection, tracking and prevention are limited because taxpayer behavior analytical tools are unavailable.	Data analysis tools are limited for Audit, FE compliance discovery and fraud detection	1. Scope of compliance issues is not identified completely and timely, resulting in delayed or lost revenues and repeated noncompliant behavior. 2. Self-compliance suffers because taxpayer patterns including errors are not analyzed and identified early and reported timely resulting in lost revenues 3. Fraud goes undetected and is not enforced resulting in lost revenue 4. Taxpayer behavior and trends are not completely understood and go unidentified discouraging Blue Path behavior 5. BE fraud goes undetected

No.	Business Problem	Magnitude	Consequences
6.	BETS – The BE accounting system is inflexible to evolving business needs, legislative mandates and poses significant risk to existing business processes due to outdated technologies, siloed data and proprietary software.	Outdated components concerns BE accounting system BETS maintainability All tax systems of work are impacted	1. BETS cannot integrate with new systems and services without considerable modification, high risks and costs 2. BETS functionality and data are not leveraged and shared resulting in high operational costs and lost revenue 3. BETS changes, including legislative changes, cannot be readily made or accommodated causing delayed and lost revenue, high operational costs (e.g., backlogs) and poor customer service 4. Quality of BETS changes suffers because of the limited window of time available resulting in incomplete testing and numerous production defects 5. Other system development dependent on legacy systems is prolonged and costly resulting in lost revenues and increased costs 6. Opportunities are lost because systems go without needed functionality and data resulting in delayed or lost revenues and increased operational costs 7. Increasing risk of catastrophic failure potentially resulting in lost revenues and increased operational costs

3.3 Business Objectives

Below are the EDR Project Business Objectives. The numbers in parentheses show how the Objectives map to the Business Problems and Project Scope (Section 6.5.1).

1. By November 2012, the initial phase of Underpayment Modeling Process is implemented and integrated with Accounts Receivable Collections System (ARCS) and Taxpayer Information System (TI) consistent with EDR requirements. (Business Problems 1, 2 and 3; Scope 1, 2, 3, 6, 10 and 13)

2. Beginning January 2013 through December 2015, increase Underpayment revenue by $1.4 Billion. (Business Problems 1, 2 and 3; Scope 1, 2, 3, 6, 10 and 13)

3. By November 2013, eliminate 100 percent of BETS risk of a catastrophic failure due to discontinuance of vendor support for INSTALL/1 and DESIGN/1 proprietary software. (Business Problem 6; Scope 11)

4. By December 2013, an Enterprise Data Warehouse (EDW) is established with Enterprise Operational Data (EOD), and data mining tools with Business Intelligence (BI) consistent with EDR requirements. (Business Problems 1 and 5; Scope 3)

5. By December 2013, Taxpayer Folder is established consistent with EDR requirements. (Business Problems 3 and 4; Scope 3, 6 and 7)

6. By December 2013, a PIT Return Filing and Validation Business Processes and by December 2014, a BE Return Filing and Validation Business Processes including return imaging, data capture and fraud detection are reengineered, integrated with TI and BETS and implemented consistent with EDR requirements. (Business Problem 2; Scope 1, 2, 3, 4, 5, 6, 9, 10 and 11)

7. By December 2013, Enterprise Services for Contact, Notification, Internal Authentication, Single Sign-on and Enterprise Infrastructure are implemented and integrated consistent with EDR requirements. (Business Problems 3 and 4; Scope 3, 6, 9 and 10)

8. Beginning January 2014 through December 2016, increase Return Validation revenue by $162 Million. (Business Problems 1, 2 and 5; Scope 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11)

9. Beginning January 2014 through December 2016, increase Fraud detection revenue by $87 Million. (Business Problems 1, 2 and 5; Scope 1, 2, 3, 4, 5 and 10)

10. Beginning April 2014 through December 2016, increase FE revenue by $104 Million. (Business Problems 1 and 2; Scope 1, 2, 3, 5, 6, and 13)

11. Beginning April 2014 through December 2016, increase Audit revenue by $91 Million. (Business Problems 1, 2 and 5; Scope 1, 2, 3, 6, 10, 12 and 13)

3.4 Business Functional Requirements

The EDR project consists of the coordinated development of four subprojects. Requirements for each of the four subprojects are documented below as well as requirements that apply to all aspects of the project. The numbers in parentheses show how the requirements map to the Business Objectives above.

1. Develop a workflow solution
   - 1.1. Reengineer current business processes **(3, 6, 8, 9, 11)**
     - 1.1.1. The contractor must reengineer, design, and document the PIT and BE Return Filing and Validation business processes **(3, 6, 8, 9, 11)**
     - 1.1.2. The contractor must document BETS and TI systems' business processes to support reengineering of PIT and BE Return Filing and Validation business processes **(3, 6, 8, 9)**

1.1.3. The contractor must document business processes using industry standard modeling such as Business Process Modeling Notation (BPMN) and Business Process Execution Language (BPEL) **(6, 8, 9)**

1.2. Develop rules-based workflows **(1, 2, 3, 6, 8, 9, 11)**

1.2.1. The contractor must document and recommend business rules for PIT and BE Return Processing functions **(1, 2, 6, 8, 9, 11)**

1.2.2. The State will define, validate, and approve business rules for PIT and BE Return Processing functions **(1, 2, 6, 8, 9, 11)**

1.2.3. The contractor must document and recommend business rules for PIT and BE fraud detection and underpayment modeling **(1, 2, 6, 8, 9, 11)**

1.2.4. The State will define, validate, and approve business rules for PIT and BE fraud detection, and underpayment modeling **(1, 2, 6, 8, 9, 11)**

1.2.5. The contractor must document existing BETS and TI systems' business rules to support reengineering of PIT and BE Return Filing and Validation **(3, 6, 8, 9)**

1.2.6. The State will define, validate, and approve BETS and TI systems' business rules to support reengineering of PIT and BE Return Filing and Validation **(3, 6, 8, 9)**

1.2.7. The contractor must develop a centralized and shareable Business Rules Engine (BRE) that can be viewed and managed separately from the Return Processing workflow **(2, 6, 8, 9, 11)**

1.3. Automate workflows **(6, 8, 9)**

1.3.1. The contractor must develop and implement a new automated and integrated PIT Return Processing system **(6, 8, 9)**

1.3.2. The contractor must develop and implement a new automated BE Return Processing system **(6, 8, 9)**

1.3.3. Provide critical functions and data **(4, 6, 8, 9, 10, 11)**

1.3.3.1. The new Return Processing systems must replace existing case management functionality including receiving, banking, return imaging, data capture, routing, storage, validation, duplicate matching, correspondence, and noticing as business required **(4, 6, 8, 9)**

1.3.3.2. The new Return Processing systems must expand return imaging and data capture of all business required return data, integrate it with the new Return Processing workflows, and provide it to the EDW. New data required for this project is quantified in Appendix 3 **(4, 6, 8, 9, 10, 11)**

1.3.3.3 The new Return Processing systems must be able to process returns individually or as part of a larger batch (**3, 6, 8, 9)**

1.3.3.4 The new Return Processing systems must be capable of processing tax returns, including amended returns, for current and prior year tax years **(6, 8)**

1.3.3.5 The new Return Processing systems must capture and retain a complete legal copy of each return as it was filed **(4, 6)**

1.3.3.6 The new Return Processing systems must capture and retain all corrections to a return **(4, 6)**

1.3.3.7 The new Return Processing systems must provide the ability to identify, select, route and manage fraud cases based on the results of data mining in the EDW **(6, 9)**

1.3.3.8 The new Return Processing systems must track and measure workflow effectiveness and efficiency **(6, 8, 9)**

1.3.3.9 The new Return Processing systems must provide production reports that measure performance and inventory including the type of actions taken, volumes, notices sent, amount billed, and amount refunded **(6, 8, 9, 11)**

1.3.3.10 Workflow tracking metrics must be available to the enterprise **(6)**

1.3.4. Provide automated tools **(6, 8, 9, 11)**

1.3.4.1. The new Return Processing systems must provide Business Rules Management tools to monitor, design, simulate, change, and manage business rules **(6, 8, 9, 11)**

1.3.4.2. The new Return Processing systems must provide Business Process Management (BPM) tools to monitor, orchestrate, design, simulate, change, and manage business processes **(6, 8, 9, 11)**

1.3.4.3. The BPM tool must be capable of storing and managing business rules for up to five tax years starting with the year it is placed in service **(6, 8)**

1.3.4.4. The new Return Processing systems must provide PIT and BE forms and instructions, design and development tools.

1.3.5. Interface with new and existing systems **(1, 2, 3, 6, 8, 9, 10, 11)**

1.3.5.1. The new PIT Return Processing system must interface with TI and the EDW to replace the current PIT Return Filing and Validation workflow **(1, 2, 6, 8, 9, 11)**

1.3.5.2. The new BE Return Processing system must interface with BETS and the EDW to replace the current BE Return Filing workflow **(3, 6, 8, 9)**

1.3.5.3. The new Return Processing systems must provide an interface between the new BE Return Processing system and the EDW **(3, 6, 8, 9)**

1.3.5.4. The new Return Processing systems must interface with Withhold at Source System (WASS), Professional Audit Support System (PASS), INC, ARCS, Head of Household (HOH), Internal Revenue Service (IRS) Underreporting Program Computer Paragraph 2000 (CP2000), Selected Tax Returns for Automated Audit Review System (STARS) and Federal State Automated Report System (FEDSTARII) **(1, 2, 4, 6, 8, 10, 11)**

1.3.6. Integrate with and use new and existing processes, programs and services **(1, 4, 5, 6, 7, 8, 9, 11)**

1.3.6.1. The new Return Processing systems must retain the existing Pre-Validation program and add any return or payment validation rules that would be more efficiently applied in pre-validation **(1, 6, 8)**

1.3.6.2. The new Return Processing systems must integrate with and use the existing payment processing hardware and software **(1, 6, 8)**

1.3.6.3. The new Return Processing systems must integrate with and use common services including the new Enterprise Address and Enterprise Notification services **(1, 2, 6, 7, 8)**

1.3.6.4. The new Return Processing systems must integrate with the existing Electronic Content Management (ECM) solution **(5, 6, 11)**

1.3.6.5. The new Return Processing systems must integrate access to enterprise data with return processing workflows to improve taxpayer identification and reduce fallouts and manual intervention (e.g., entity match, payment identification) **(4, 6, 8)**

1.3.6.6. The new Return Processing systems must have the ability to derive missing and/or illegible return data from historical return and 3rd party data **(4, 6)**

1.3.6.7. The new Return Processing systems must integrate data access to needed PIT and BE return schedule data with PIT and BE return processing workflows to expand PIT and BE return validation (i.e., routine validation, complex validation, and fraud detection) **(4, 6, 8, 9, 11)**

1.3.7. Use and provide enterprise shareable processes **(1, 2, 4, 6, 8, 9, 10, 11)**

1.3.7.1 Workflow processes must be dependent on services, but the services must not be technology dependent **(6)**

1.3.7.2 The Message Oriented Middleware (MOM) must be independent of the BPM engine **(6)**

1.3.7.3 BPM functionality must be provided as common infrastructure services **(6)**

1.3.7.4 Workflows must leverage common enterprise services **(6)**

1.3.7.5 The BPM solution must be capable of expanding to all FTB processes for reuse **(2, 6, 8, 9, 10, 11)**

1.3.7.6 The contractor must develop and implement an Entity Match Process that will enable FTB to match returns and other tax declaration artifacts **(4, 6, 8, 9, 10, 11)**

1.3.7.7 The contractor must develop and implement a Payment Association Process that will enable FTB to associate payments to taxpayers and other entities **(4, 6)**

1.3.7.8 The contractor must develop and implement an Income Discrepancy Match Process using 3rd party data to identify returns with discrepancies in the reported return income **(4, 6, 11)**

1.3.7.9 The contractor must develop and implement a FE Match Process that will analyze prior years' return information and other data to determine if lack of current return filing is a case for filing enforcement **(4, 6, 10)**

1.3.7.10 The contractor must develop and implement an Underpayment Modeling Process to replace PIT and BE ARCS modeling (STRATA), improve debt scoring, improve enforcement selection, increase revenue, reduce redundancy, and reduce operational costs **(1, 2, 6)**

1.3.7.10.1 The new Underpayment Modeling Process must integrate with the new Return Processing systems **(1, 2, 6)**

1.3.7.10.2 The contractor must develop an interface between the new Underpayment Modeling Process and ARCS **(1, 2, 6)**

1.3.7.10.3 The new Underpayment Modeling Process must use enterprise data including address data **(1, 2, 6)**

1.3.7.11 The contractor must develop and implement a Return Validation Process that provides logic and rules for determining the appropriate assessment type (e.g., Return Information Notice (RIN), Statement of Tax Due (STD), NPA) and making adjustments to taxpayer returns **(6, 8, 9, 11)**

1.3.7.12 The contractor must develop and implement a Return Adjustment Process that calculates tax, penalties, interest, credits, and other adjustments as business required **(6, 8, 11)**

1.3.7.13 The contractor must develop and implement a Post Proposed Assessment Process that provides logic and rules for determining valid Protests and managing proposed assessments to finalization **(6, 11)**

1.3.7.14 Together, the Return Adjustment and Post Proposed Assessment processes must replace current processes to compile, review, release, issue and acknowledge notices consistent with client instructions **(6, 8, 11)**

1.3.7.15 The contractor must develop and implement an interface from existing HOH, CP2000, STARS, and FEDSTARII Audit systems to the new Return Processing Workflow to automatically make NPA adjustments to taxpayer returns **(6, 11)**

1.3.8 Sustain acceptable levels of system performance throughout the yearly cycle and daily cycles **(4, 6, 7)**

1.3.9 Follow existing backup and recovery policies **(4, 6, 7)**

1.3.10 Support and maintain the workflow solution **(2, 6, 8, 9, 10, 11)**

1.3.10.1 The contractor must develop and implement a new Enterprise Return Processing Workflow Governance process to support timely enterprise decision making, subject to State approval **(4, 6)**

1.3.10.2 The contractor must provide Return Processing system maintenance and operations for 12 months after the systems are placed in production **(2, 6, 8, 9, 10, 11)**

1.3.10.3 The contractor must provide knowledge transfer and documentation to support State operations **(2, 6, 8, 9, 10, 11)**

1.3.10.4 The contractor must provide Return Processing user training including integrated common services (e.g., Address, Notification) **(2, 6, 8, 9, 10, 11)**

1.3.10.5 User training must provide anytime and anyplace access to maximize productivity **(2, 6, 11)**

1.4 The State will reduce validation backlogs prior to implementation of the new Return Processing systems **(6, 8, 9, 11)**

2. Develop an Enterprise Data Solution **(2, 4, 5, 6, 7, 8, 9, 10, 11)**

2.1. The contractor must establish an EDW with EOD to make data available to the enterprise as required by business **(2, 4, 5, 8, 9)**

2.1.1. Store and retain enterprise data as required by the business **(2, 4, 5, 6, 7, 8, 9, 10, 11)**

2.1.1.1. The EDW must centralize all data including PIT and BE return data, 3rd party data, and periodic snapshots of EOD **(2, 4, 5, 6, 7, 9, 10, 11)**

2.1.1.2 The EDW must capture all the required ongoing transactional data from the transactional systems WASS, TI, BETS, and INC as business required. **(2, 4, 5, 6, 9, 10)**

2.1.1.3 The EDW must store and maintain all business prioritized and captured PIT and BE paper return data to make it available and useable for the enterprise **(2, 4, 6, 7, 8, 9, 10, 11)**

2.1.1.4 The EDW must accept new income records as business required **(2, 4, 8, 10, 11)**

2.1.2. Convert data **(2, 4, 5, 6, 7, 8, 9, 10, 11)**

2.1.2.1. The contractor must centralize and convert all data required for modeling from State Business Return Database (SBRD), PASS and Enterprise Customer, Asset, Income and Return (ECAIR) as business required **(4, 10, 11)**

2.1.2.2. The contractor must centralize and convert all business required demographic and financial data from ECAIR, TI, and BETS **(2, 4, 5, 7, 8, 9, 10, 11)**

2.1.2.3. The contractor must centralize and convert data for pending NPAs so they will not have to be recreated when affirmed, revised or withdrawn **(4, 6, 11)**

2.1.2.4. The contractor must centralize and convert protest inventory data including the Legal Department's IT Protest Inventory Control Log as business required **(4, 6, 11)**

2.1.2.5. The contractor must centralize and convert data from the Power of Attorney (POA) database **(4)**

2.1.2.6. The contractor must convert all electronically filed return data, including WASS data, to EDW as business required **(4, 6, 8)**

2.1.3. Process data **(2, 4, 5, 6, 7, 8, 9, 10, 11)**

2.1.3.1. The EDW must centralize enterprise data processing including data acquisition, quality, transformation, delivery, and management as required by the business **(2, 4, 5, 8, 9, 10, 11)**

2.1.3.2. The EDW must provide data profiling to check and improve the quality of data **(2, 4, 8, 9, 10, 11)**

2.1.3.3. The EDW must provide enterprise data delivery services to provide data to SOW tax system applications and enterprise common services as business required **(2, 4, 5, 7, 8, 9, 10, 11)**

2.1.3.3.1. The EDW must provide the Return Processing systems with access to enterprise data for Return Processing workflows to improve entity matching and the association of payments to payers **(4, 6, 8, 9)**

2.1.3.3.2. The EDW must provide the Return Processing systems with access to enterprise data to derive missing and/or illegible return data as required by business rules **(4, 6, 8, 9)**

2.1.3.4. The contractor must redesign the existing 3rd party data matching process (i.e., Vality) to make it efficient and use data to improve matching quality **(2, 4, 8, 9, 10, 11)**

2.1.3.4.1. The data matching process must perform a series of simple and complex matches to associate returns and income records to taxpayers **(4, 6, 8, 9, 10, 11)**

2.1.3.4.2. The data matching process must provide the ability to add new data **(2, 4, 6, 8, 9, 10, 11)**

2.1.3.4.3. The data matching process must meet system performance requirements to satisfy business needs **(4, 6, 8, 9, 10)**

2.1.3.4.4. The data matching process must interface with the mainframe data matching process if necessary **(2, 4, 6, 8, 10, 11)**

2.1.3.4.5. The data matching process must filter out income records of filers and send only non-filer records to INC **(4, 10)**

2.1.3.5 The contractor must provide data generation tools and processes that are capable of producing data for development, testing, and training environments (**4, 6)**

2.1.4. The EDW must meet system performance requirements to satisfy business needs **(2, 4, 5, 8, 9, 10, 11)**

2.2. Provide business intelligence and data mining **(2, 4, 6, 8, 9, 10, 11)**

2.2.1. The EDW must provide a scalable management information reporting system with the ability to change parameters including time frames **(4, 6)**

2.2.2. The contractor must provide BI and data mining tools with comprehensive analytical, sampling, trend analysis, and report capabilities for performance management, fraud detection, and noncompliance discovery **(2, 4, 8, 9, 10, 11)**

2.3. Support and maintain the data solution **(2, 4, 5, 8, 9, 10, 11)**

2.3.1. The contractor must develop and implement a new Enterprise Data Management and Governance process to support timely enterprise decision making, subject to State approval **(4)**

2.3.2. The contractor must provide EDW maintenance and operations, including EOD, for 12 months after the EDW is placed in service **(2, 4, 5 8, 9, 10, 11)**

2.3.3. The contractor must provide EDW and EOD technical training and knowledge transfer including documentation **(4)**

2.3.4. The contractor must provide training on BI and other end user interfaces **(4, 9, 10)**

3. Develop Common Services **(1, 2, 5, 7, 8, 9, 10, 11)**

3.1. The contractor must design and implement a SOA and infrastructure including service composition, service orchestration, event-driven services, and process integration to enable enterprise business and data services that are shared and exposed **(5, 7)**

3.1.1. Services must be reusable by multiple clients to maximize the investment and utilization of the service **(2, 7, 8, 9, 10, 11)**

3.1.2. Enterprise service functionality must not be duplicated unless otherwise planned, controlled and approved by the State **(7)**
3.1.3. Services must be scalable to the needs of the business for the particular application **(7)**
3.1.4. Services must implement standards-based security models **(7)**
3.1.5. Services must use FTB communication protocol standards **(7)**
3.1.6. Services must be developed according to FTB standards and policies **(7)**
3.1.7. Services must be implemented in an environment that provides continued service in the event of component failure **(5, 7)**
3.1.8. Services must be built to minimize time necessary to implement changes and legislative mandates **(7)**
3.1.9. The project must provide a service registry that allows enterprise users to identify and understand the available services and their underlying standards and policies for use **(7)**
3.1.10. The project must follow FTB policies regarding service monitoring, logging and tracking of services **(7)**

3.2 The contractor must develop and implement infrastructure to align taxpayer self-services (e.g., My FTB Account, making payments, etc.) with the Enterprise Technology Vision and create common internal and external views to establish a Taxpayer Folder **(2, 5, 7, 8, 10, 11)**

3.2.1 The new Taxpayer Folder must provide internal and external, view-only display of enterprise data **(2, 5, 7, 8, 10, 11)**
3.2.2 The new Taxpayer Folder must provide a view-only display of PIT and BE taxpayer accounting records from BETS and TI **(5, 7, 8)**
3.2.3 The new Taxpayer Folder must provide view-only display of all notices created through the new notification service (STD, RIN, NPA) **(5, 7, 8)**
3.2.4 The new Taxpayer Folder must provide view-only display of legacy INC NPAs, BETS notices, and ARCS notices (e.g., Income Tax Due, Past, Official, Delinquent, Final, Lien, Levy, etc.) **(2, 5, 7, 8)**
3.2.5 The new Taxpayer Folder must provide view-only display of related parties to a taxpayer including POA, tax professional, spouse, and registered domestic partner **(5, 7)**
3.2.6 The new Taxpayer Folder must provide the ability for internal users to create new entities through the Taxpayer Folder **(7, 10, 17)**
3.2.7 The new Taxpayer Folder must provide the ability to search by word, phrase, and other criteria **(5, 7, 8)**
3.2.8 The new Taxpayer Folder must integrate with other enterprise common services including the new Enterprise Address Service and Enterprise Notification Service **(5, 7, 8)**
3.2.9 The new Taxpayer Folder must provide additional self-services including the ability for taxpayers to calculate penalties and interest, make payments, protest notices, answer HOH questionnaires, respond to FTB inquiries, update address and name information, and specify a preferred method of contact **(5, 7, 8, 11)**

3.3 The contractor must implement an Internal User Authentication Service to increase security and reduce risk for all business required systems **(7)**

3.4 The contractor must implement a Single Sign-on Service to facilitate automatic log-on for the Return Processing systems, related services (including the new Taxpayer Folder), as well as the TI, BETS, PASS, INC, and ARCS legacy systems **(2, 5, 7, 8)**

3.5 The contractor must develop and implement a new Enterprise Address/Name Service that serves as FTB's system of record for address and name data **(2, 5, 7, 10)**

3.5.1 The contractor must document and recommend enterprise address and name business rules **(6, 7)**

3.5.2 The State will define, validate, and approve enterprise address and name business rules **(6, 7)**

3.5.3 The new Enterprise Address/Name Service must integrate with the new Taxpayer Folder to provide taxpayer self-service and internal user address and name update capability **(5, 7)**

3.5.4 The new Enterprise Address/Name Service must integrate with the new Taxpayer Folder to send updates to TI, BETS, and EOD **(5, 7)**

3.5.5 The new Enterprise Address/Name Service must send requests for better address information to third parties including DMV and the Secretary of State (SOS) **(2, 5, 7, 10)**

3.6 The contractor must develop and implement a new Enterprise Notification Service working in conjunction with the Return Adjustment and Post Proposed Adjustment processes to replace current processes used to print and send PIT RINs and STDs, PIT NPAs (including Notice of Revision, Notice of Action and Notice of Determination), and Return Filing and Validation taxpayer forms **(2, 6, 7, 8, 11)**

3.6.1 The new Enterprise Notification Service must format, print, store, and retrieve history of notices consistent with client instructions **(6, 7)**

3.6.2 The new Enterprise Notification Service must communicate with the new Enterprise Address Service to obtain the correct and next best address consistent with business rules **(7)**

3.6.3 The new Enterprise Notification Service must receive return adjustments from the Return Processing Systems **(7)**

3.6.4 The new Enterprise Notification Service must integrate with the Taxpayer Folder **(5, 7)**

3.6.5 The new Enterprise Notification Service must compile and send refund transactions, including any RIN adjustment explanation, to the State Controller's Office (SCO) **(6, 7, 8)**

3.7 Support and maintain common services **(2, 5, 7, 10, 11)**

3.7.1 The contractor must develop and implement a new Governance and Management process to support timely enterprise decision making, subject to State approval **(7)**

3.7.2 The contractor must provide common services maintenance and operations for 12 months after services are placed in service **(2, 5, 7, 8, 10, 11)**

3.7.3 The contractor must provide technical training and knowledge transfer including documentation to support State operations **(7)**

4 Modify Legacy Systems **(2, 3, 4, 8, 9, 10, 11)**

4.1 For all legacy system modifications, the contractor must conceptualize, design, and system test the changes, and assist the State's acceptance testing of the changes **(2, 3, 4, 8, 9, 10, 11)**

4.2 For all legacy system modifications, the State will code, unit test, and acceptance test the changes, and assist the contractor's system testing of the changes **(2, 3, 4, 8, 9, 10, 11)**

4.3 Centralize, consolidate and standardize all 3rd party data load and match processes for the enterprise, currently distributed across legacy systems **(2, 4, 5, 8, 9, 10, 11)**

Legacy system modifications:

4.4 BETS **(3, 6, 7, 8, 9)**

4.4.1 Remove INSTALL/1 and DESIGN/1 products from BETS **(3)**

4.4.2 Provide a new/updated user interface with functionality equivalent to the current BETS online system that is not reliant on any INSTALL/1 or DESIGN/1 components. Including the following: **(3, 6, 7)**

4.4.2.1 User Interface:

4.4.2.1.1 Event driven web user interface **(3, 6, 7)**

4.4.2.1.2 Application and screen flow and control **(3, 6, 7)**

4.4.2.1.3 Screen validation and formatting **(3, 6, 7)**

4.4.2.1.4 Session and Context Management, including the ability to save data between steps of a process **(3, 6, 7)**

4.4.2.1.5 Error Handling (for both online and batch) **(3, 6, 7)**

4.4.2.1.6 Dynamic, context-sensitive help **(3, 6, 7)**

4.4.2.1.7 Leverage existing data driven architecture (i.e. Codes Tables) **(3, 6, 7)**

4.4.2.1.8 Dynamic validation using data driven architecture (i.e. Codes Tables) **(3, 6, 7)**

4.4.2.1.9 Integration of FTB standard User Access Security **(3, 6, 7)**

4.4.2.1.10 Suspend and Resume facilities, to allow users to leave one transaction in progress without losing data, while initiating and accessing other transactions **(3, 6, 7)**

4.4.2.1.11 Fast Path facilities, to allow experienced users to bypass menus **(3, 6, 7)**

4.4.2.1.12 Compliance with the Americans with Disabilities Act (ADA) as required by SB 105 **(3, 6, 7)**

4.4.2.2 Reports:

4.4.2.2.1 Online access to selected existing reports through a dedicated reporting server **(3, 6, 7)**

4.4.2.2.2 The ability to create ad hoc reports with little or no programming **(3, 6, 7)**

4.4.2.2.3 Continued use of existing mainframe reports written in Report Writer and Natural **(3, 6, 7)**

4.4.2.3 Codes Tables:

4.4.2.3.1 Maintenance facilities for Codes Tables **(3, 6, 7)**

4.4.2.3.2 I/O modules to access Codes Tables in both online and batch **(3, 6, 7)**

4.4.2.3.3 Moving VSAM resident Codes Tables to DB2 **(3, 6, 7)**

4.4.2.4 Testing facilities, including:

4.4.2.4.1 Replacement of the existing Test Data Management (TDM) facility with more robust technology **(3, 6, 7)**

4.4.2.4.2 Ability for many testers to share limited physical DB2 resources **(3, 6, 7)**
4.4.2.4.3 Ability for testers to save and restore their own versions of test data **(3, 6, 7)**
4.4.2.4.4 Ability for testers to extract automatically sanitized data from Production **(3, 6, 7)**
4.4.2.5 A Development Environment, including:
4.4.2.5.1 Screen painting/design **(3, 6, 7)**
4.4.2.5.2 Debugging facilities **(3, 6, 7)**
4.4.2.5.3 Administration **(3, 6, 7)**
4.4.2.5.4 Ability for many developers to share limited physical DB2 resources **(3, 6, 7)**
4.4.2.5.5 Ability for developers to save and restore their own versions of test data **(3, 6, 7)**
4.4.2.5.6 Ability to interface with the configuration management tool, Integrating Software Parts Wherever (ISPW), for source control and component management **(3, 6, 7)**
4.4.2.5.7 Ability for developers to extract automatically sanitized data from Production **(3, 6, 7)**
4.4.2.5.8 Editor to create, read, update, and delete source code and copy/include code **(3, 6, 7)**
4.4.2.6 Data Dictionary, to enforce consistency between data elements across different tables and files **(3, 6, 7)**
4.4.2.7 Diagramming/Documentation tools (ERD, design documents, use cases, etc.):
4.4.2.7.1 System Documentation **(3, 6, 7)**
4.4.2.7.2 Data Flow Diagramming **(3, 6, 7)**
4.4.2.7.3 Procedure Diagramming **(3, 6, 7)**
4.4.3 The system must maintain or improve the current level of availability provided by the BETS to its business customers **(3, 6, 7)**
4.4.4 The system must meet or improve the current BETS level of performance (from an end-to-end throughput business function perspective) **(3, 6, 7)**
4.4.5 The system must leverage (reuse) the BETS's existing DB2 database model on the mainframe **(3, 6, 7)**
4.4.6 Maintain the same batch capabilities as the existing system (i.e. Job Restart) **(3, 6, 7)**
4.4.7 The system must align with State of CA architecture and the FTB's Enterprise Architecture and Tax Systems Modernization strategy **(3, 6, 7)**
4.4.8 The system must use "Mainstream" technologies, defined by the FTB's Enterprise Technical Architecture, for the components that will be changed or replaced **(3, 6, 7)**
4.4.9 The system must comply with all the FTB security standards **(3, 6, 7)**
4.4.10 The system must be scalable to meet expected future volumes for the Business Entities Section **(3, 6, 7)**
4.4.11 The system must align with IT industry best practices for software architecture and design, including: **(3, 6, 7)**
4.4.11.1 The n-tier architectural model: separate tiers for the presentation, business-logic, and data-access **(3, 6, 7)**

4.4.11.2 IT Industry best practices design principles such as modularity and reuse **(3, 6, 7)**
4.4.11.3 Service Oriented Architecture (SOA) that is flexible for eventual participation in the FTB and State of CA eServices architecture **(3, 6, 7)**
4.4.11.4 Coexistence of COBOL and other Web Services **(3, 6, 7)**
4.4.11.5 The proposed solution must leverage FTB's existing software licenses for WebSphere Application Server running on z/OS on the FTB mainframe **(3, 6, 7)**
4.4.11.6 The proposed solution must improve integration and interoperability with internal FTB systems and external agencies **(3, 6, 7)**
4.4.11.7 The solution must replace all functionality provided by the FTB user-created Attachmate EXTRA! Macros **(3, 6, 7)**
4.4.11.8 The proposed solution must leverage the Java 2 Platform Enterprise Edition (J2EE) framework in the modernized architecture **(3, 6, 7)**
4.4.11.9 The existing batch processes must be retained where applicable **(3, 6, 7)**

4.4.12 Modify BETS, including interfaces, to accept BE adjustments from the new Return Processing systems and issue related notices to the taxpayer **(3, 6, 7, 8, 9)**
4.4.13 Maintain BETS' ability to issue notices and manage them through finalization **(3)**
4.4.14 Modify BETS to prevent posting adjustments that duplicate those received from the new Return Processing system, and prevent the issuance of duplicate notices **(3, 6, 7)**
4.4.15 Modify BETS, including interfaces, to work with ARCS and the new Underpayment Modeling Process **(2, 3)**
4.4.16 The contractor must provide technical training and knowledge transfer including documentation to support State operations **(3, 6, 7, 8, 9)**
4.4.17 Address of current Form Definition Facility (FDF) functionality and make modifications as required to improve the maintenance interface **(3, 6, 7)**
4.4.18 Modify BETS to use the new Enterprise Address Service **(3, 6, 7)**
4.4.19 Modify BETS to support future integration of the new Enterprise Notification Service **(3, 6, 7)**
4.4.20 For BE decouple, the contractor is responsible for the unit, integration, system and acceptance testing plan **(3, 6, 7)**
4.4.21 The contractor is responsible for coding, unit, integration and system testing of BE decouple **(3, 6, 7)**
4.4.22 The contractor is responsible for replacing the Test Data Management (TDM) with a modern technology **(3, 6, 7)**
4.4.22.1 The new testing system must provide sanitized data from the live environment
4.4.22.2 The new testing system must provide tools to simulate loads
4.4.22.3 The testing system must provide tools to test in a SOA/BPM environment
4.4.23 The contractor must provide training on the new testing environment **(3, 6, 7)**

See Appendix 6 for the technical details regarding BETS Decoupling.

4.5 TI **(2, 6, 8, 9)**

- 4.5.1 Modify TI, including interfaces, to support and work with the new Return Processing systems including common services **(6, 8, 9)**
- 4.5.2 Modify TI, including interfaces, to work with ARCS and the new Underpayment Modeling Process **(2, 6)** Archie
- 4.5.3 Modify the TI-to-ARCS case management interface to use the new Underpayment Modeling Process **(2, 6)**
- 4.5.4 Modify TI to remove the functions that print all current PIT notices **(6)**
- 4.5.5 Decommission the TI user online address and name update function **(6)**
- 4.5.6 Provide the ability to send address and name changes received through interfaces with other systems, including ARCS and INC, to the Enterprise Address/Name Service **(7, 10)**
- 4.5.7 Decommission e-file mainframe display and print **(6)**

4.6 ARCS **(2, 6)**

- 4.6.1 Modify ARCS, including interfaces, to support and work with the new Return Processing systems including common services **(2, 6)**
- 4.6.2 Modify ARCS case management to use the new Underpayment Modeling Process and route cases scored by the new process to the existing ARCS voluntary and involuntary noticing processes **(2)**
- 4.6.3 Modify ARCS case management to use the new Enterprise Address Service, including best address feature, with ARCS voluntary and involuntary noticing process workflows **(2)**
- 4.6.4 Maintain the Payer file address interface for involuntary notices **(2)**
- 4.6.5 Maintain the County Clerk Address for liens **(2)**
- 4.6.6 Maintain the ARCS interface with BETS and TI to receive return addresses for voluntary and involuntary notices **(2)**

4.7 INC **(4, 6, 10)**

- 4.7.1 Modify INC, including interfaces, to support and work with the new Return Processing systems including common services **(6)**
- 4.7.2 Modify INC FE modeling to use all business required EDW data **(10)**
- 4.7.3 Modify INC case management to create and assign cases selected by the modified INC modeling for the existing INC FE noticing workflow **(4, 10)**
- 4.7.4 Modify INC and develop interfaces to use the new Enterprise Address Service **(4)**
  - 4.7.4.1 Maintain the INC interface with BETS and TI to receive return addresses **(4)**
  - 4.7.4.2 Maintain the INC case management address feature **(4)**
- 4.7.5 Maintain the current interface specifications for FE data sent to INC **(4, 10)**

4.8 PASS **(4, 11)**

- 4.8.1 Modify PASS modeling to use all business required EDW data **(11)**
- 4.8.2 Modify PASS case management to create and assign cases selected by modified PASS modeling for existing audit workflows **(4, 11)**
- 4.8.3 Modify PASS Modeling to include PIT Audit modeling **(4, 11)**

4.9 Audit Systems **(6, 4, 11)**

- 4.9.1 Modify HOH, CP2000, STARS, FEDSTARII, and their interfaces to support and work with the new Return Processing systems including common services **(6, 11)**

4.9.2 Modify HOH, CP2000, STARS, and FEDSTARII to interface with the Return Processing Systems to make adjustments and send notices **(6, 11)**

4.10 Modify the Mainframe Entity Match Process, including interfaces, to work with the new Return Processing systems for matching purposes **(4, 6, 10, 11)**

In addition:

4.11 The State will decommission PIT and BE ARCS STRATA and their interfaces with the Payer file, INC, and EIDB

4.12 The State will transition ECAIR to the EDW **(2, 4, 10, 11)**

4.13 The State will transition the Business Intelligence Data System (BIDS) reporting systems (Processing Summary, Management Information System (MIS), and PIT Return Data Mart) to the EDW and will decommission these reporting systems **(4, 6, 8)**

4.14 The contractor must provide the opportunity to retire SBRD and related processes to reduce operating costs **(4)**

4.15 The State will retire SBRD and the PASS-related source databases **(4)**

4.16 The State will retire Personal Audit Workstation System (PAWS) (PIT NPAs) **(4, 5)**

4.17 Decommission e-view (PIT returns) **(4, 5)**

4.18 Decommission b-view (BE returns) **(4, 5)**

4.19 Decommission IDAX display **(4, 5)**

5. Maintain and/or establish external interfaces that:

5.1 Send refund transactions to the SCO including any RIN adjustment explanation (**6, 7, 8)**

5.2 Request current address information from external sources including DMV and SOS **(4)**

5.3 Maintain the ability to produce data files currently sent to external entities from data sources that EDR will retire **(4)**

6. For all aspects of the EDR project **(2, 4, 6, 7, 8, 9, 10, 11)**

6.1 The contractor must provide project management functions that include integration, scope, schedule, project cost, quality, human resource, communications, and risk management **(2, 4, 6, 7, 8, 9, 10, 11)**

6.2 The Project Oversight vendor will ensure project management activities including schedule management, earned value analysis, and risk management are executed consistent with industry best practices and standards and comply with all reporting requirements pertinent to the project as defined in SIMM Section 45 **(4, 6, 7)**

6.3 The Independent Verification and Validation (IV&V) vendor will oversee and perform verification and validation including quality assurance of the EDR Project contractor and State activities to ensure execution consistent with requirements **(4, 6, 7)**

6.4 The contractor must provide all necessary testing efforts, including unit, system, integration, regression, end-to-end, and performance and usability testing, and support state acceptance testing to ensure the highest quality product within the given timeline for the project, consistent with industry standards and best practices **(4, 6, 7)**

6.5 The contractor must provide a general test plan that includes test cases, business scenarios, requirements traceability, defect reports, user acceptance test scripts, and

user acceptance documents, consistent with industry standards and best practices **(4, 6, 7)**

6.6 The contractor must provide comprehensive development, training, and test environments that encompass all aspects of EDR **(4, 6, 7)**

6.7 The State will develop and execute user acceptance test scripts and once issues are resolved, approve and sign acceptance documents prior to accepting transfer of ownership **(4, 6, 7)**

6.8 The new systems must conform to FTB's service organization including support by a service desk that meets Information Technology Infrastructure Library (ITIL) standards **(4, 6, 7)**

6.8.1 The project operations must include event, incident, configuration, change, problem, transition and release, and performance management **(4, 6, 7)**

6.9 The project must adhere to FTB's Enterprise Architecture (EA) **(4, 6, 7)**

6.9.1 The project must conform to FTB's Data Management and Delivery (DMD) architecture **(4, 6, 7)**

6.9.2 The project must conform to FTB's Information Access Management (IAM) architecture **(4, 6, 7)**

6.9.3 The project must conform to FTB's SOA architecture **(4, 6, 7)**

6.9.4 The project must conform to FTB's ECM architecture **(4, 6, 7)**

6.9.5 The project must conform to FTB's BPM architecture **(4, 6, 7)**

6.9.6 The project must conform to FTB's Enterprise Data Exchange (EDE) architecture **(4, 6, 7)**

6.9.7 The new systems must provide web-based user interfaces that accept input and provide output by generating web pages, which may be transmitted via the Internet and viewed by the user using a web browser program **(4, 6, 7)**

6.9.8 All human interfaces must have a standard look and feel, and meet HIPAA and ADA requirements **(4, 6, 7)**

6.9.9 All hardware must be located at FTB's main office and operate within FTB's wide area network **(4, 6, 7)**

6.10 The project must meet or exceed FTB's security requirements as described in the Department's Information Security Policy Manual **(4, 6, 7)**

6.11 The project must adhere to FTB's policy relating to the disclosure and confidentiality of taxpayer and IRS data **(4, 6, 7)**

6.12 The project must adhere to all legal and licensing issues related to procurement and use of all hardware and software products and any other applicable areas **(4, 6, 7)**

6.13 The project must adhere to FTB's organizational policies and procedures **(4, 6, 7)**

3.5 Data Conversion

A project of this scope confronts many data conversion issues. The EDW with its EOD store will replace or consolidate many current siloed data stores. However, the relocation of data impacts the myriad of applications that use that data. Therefore, conversion of data is a decision based on the need to maintain status quo data conditions versus the opportunities and benefits from this project's enterprise goals.

3.5.1 Enterprise Return Database

Return data is gathered through two mediums – paper and electronic. The electronic data is currently stored in an e-Gateway repository. Some of this data is sent onto BETS and TI. The corrected and validated return data from TI and BETS will also be converted and made available through EDW. The imaged and captured data from paper returns is also stored in different repositories. The structured data related to return filing, which excludes the imaged data, will be converted to EDW so that it can be made available to the enterprise. The imaged data will also be made available to the enterprise through the ECM/BPM solution.

3.5.2 Enterprise Address Database

The load of addresses will be converted from data currently residing on the ECAIR data warehouse. The party and address data will be extracted, cleansed, and reformatted into the address tables. ECAIR will also provide employer/employee relationships. The goal is to populate the new address tables with as many valid addresses as possible and their relationships to customers. The conversion of this data to the address tables will not, however, change the data requirements for the accounting systems of BETS and TI. In other words, we will not be able to vacate or erase the data within BETS and TI, and a controlled redundancy approach to data migration and integration will be required. Since the many dependent systems within FTB use BETS and TI address data, the modification of all of these systems to solely use the enterprise address database is beyond the scope of this project.

BETS and TI address data will be maintained in a planned, controlled, and managed redundancy status as long as there remains one system or application that relies on either system's address data or until such time that all systems within FTB can access and use the enterprise address store. The schedule for changing these dependent systems remains open until specific solutions are determined for the enterprise address service. The effort to implement these solutions will be weighed against the benefits to decide which systems can be included to interface with the new address service within this project's timeline. A current projection of this conversion effort is outlined in the Project Scope section for Common Services.

3.5.3 Notice Data

FTB's twenty-six noticing systems do not share a common format. The creation of an enterprise Notification Service will require centralized notice data tables to achieve one of the project's goals to establish a central place to manage and view all "billable" notices. Historical legacy notices including the notices that will be continually created by legacy notice processes will use a common notice display within TP Folder. Otherwise, the costly decision to convert data and change legacy applications would remain (i.e., RIN, STD, Earnings Withholding Order for Taxes (EWOT), Order to Withhold (OTW), INC, Notice Display File (NDF)). A web service solution is anticipated to handle historical view or "notice display" of notification data and provide for view through TP Folder for systems out of scope.

The following conversion efforts are within scope:

ECAIR – The entire ECAIR data warehouse is scheduled for conversion.

PASS – PASS is an audit modeling and case management tool. Only PASS modeling data will be converted.

SBRD – All SBRD data will be converted.

TI and BETS – All demographic and financial data will be converted as business required.

WASS - All WASS data related to withholding at source will be converted.

The following are the high level conversion tasks and roles:

1. Complete design of EDW (contractor, included in EDW costs)
2. Analysis - Identify source data (fields) to be converted from each database (contractor)
3. Analysis - Validate data to be converted (State)
4. Analysis & Design - Map and match data sources to EDW (contractor)
5. Design - Develop conversion applications/procedures for each data source (contractor)
6. Mock Conversion - Transform test data in preparation for EDW (contractor)
7. Mock Conversion - Develop edits for source data (contractor)
8. Mock Conversion - Run pre-edits (edit apps in “test”) for fallout identification (contractor)
9. Mock Conversion - Resolve fallout issues (State)
10. Design - Update conversion applications/procedures for each data source (contractor)
11. Mock Conversion - Test conversion applications/procedures (contractor)
12. Prepare for Migration (contractor and State – 50% each)
13. Run Conversion (contractor and State – 50% each)
14. Acceptance Test (State, included in State Acceptance Testing)

4.0 Baseline Analysis

4.1 Current Method

The EDR project encompasses the entire FTB enterprise with specific emphasis on the case management workflow of a tax return, unavailable data, underutilized data, redundant functionality lacking common services and outdated legacy systems.

4.1.1 Return Filing and Validation

The processing of a tax return consists of four distinct stages, which include the receipt of the return, capturing return data, validation and correction of return data and the storage of the tax return. The following outlines the processing of a paper tax return:

Receiving a Return

FTB’s Receiving Section employs up to 1,000 temporary staff during the filing season each year to open mail, extract contents, sort returns, stamp document locator numbers (DLN), deliver paper documents and prepare returns for processing. For the 6 million paper returns received annually, the Machines Unit uses high-speed letter sorters to open letter and flat-sized envelopes. The Extractions Unit extracts and assembles the returns. The Sorts Unit sorts all tax returns, including Homeowners and Renters Assistance claims, by year and form type before forwarding to the Numbering Unit. The Numbering Unit stamps returns and checks with a unique DLN. The DLN information is recorded into a spreadsheet for tracking purposes and

the returns are placed into bins on a metal cart for physical transfer into another area for data capture. Different return types may skip certain manual steps; however, all returns move through the workflow via metal carts.

Capturing Return Data

The capturing of paper return data consists of two methods, dependent on the type of form submitted: manual input via a Key Data Operator (KDO) and data capture via high-speed scanners. Roughly half of all paper returns are captured via manual input from a KDO, which consists of entering specific line item data from the first two pages of each return. The remaining paper returns are data captured via high-speed scanners utilizing limited Optical Character Recognition (OCR) technology and subsequently perfected by a KDO if needed. To compliment the 60 permanent KDOs, FTB employs an additional 150 KDOs during the filing season to ensure all taxpayer data gets inputted into the system and perfected for timely refunds and billings. Upon completion of data capture or manual input, all PIT paper returns continue through the workflow via metal carts for validation. Although all BE returns are manually inputted, these returns undergo an imaging process that allows for manual validation of a BE return from an electronic image. In addition to imaging BE returns, FTB has plans to image additional workloads like PIT Returns and correspondence to eventually eliminate the movement of paper.

Validating and Correcting Return Data

Validation consists of ensuring tax return accuracy by manually reviewing and correcting returns that do not meet mathematical or logical criteria. All returns are subject to the validation process with incorrect returns requiring manual review from staff. Correction of a paper return requires staff to physically locate the return, review the paper information against the captured data and subsequently make the correction. Return corrections range from fixing a taxpayer's name to verifying and correcting withholding amounts, which require staff to send a notice to the taxpayer of the change made to their return. Validation occurs both on paper and electronically transmitted returns; however, validation is limited to the first two pages of a return and doesn’t consider any schedule information to determine accuracy of a return. PIT returns and BE returns are validated in separate areas on separate systems. Extensive backlogs result in the BE area due to the complexity of the returns and limitations of the system.

Return Storage

After validation, all PIT paper returns are moved to a warehouse for storage where they reside an average of four years before being destroyed. The warehouse consists of 190,000 square feet of storage area and houses roughly 107 million documents. As of July 2007, all new BE paper returns no longer require storage as all BE documents are imaged and available for electronic viewing.

4.1.2 Data Management

FTB’s data architecture consists of many individually architected systems, each system designed to operate independently, without regard to sharing resources or information.
Data is extracted and stored for exclusive use by extracting systems and not made available to other systems. The extracting system exclusively edits data and stores data necessary to its business function, leaving data unexposed and non-shareable.

In addition to tax return data, there are over 265 data sources currently received or provided by FTB from direct reporters, federal agencies, California departments and providers of purchased products. These data sources are used by FE, Audit, Return Filing and Validation and Underpayment SOWs.

Before it can be used, the data sources received by FTB require data cleansing and matching due to varying data formats. The cleansing and matching process associates income information with respective taxpayers. FE identifies potential non-filers by comparing California source income and income indicators to taxpayers who have filed returns. Today, data is cleansed and matched on the mainframe and loaded into staging tables.

Today, we have 57 data sources which are used by two or more SOWs. In most instances, these data sources are available only to SOWs that can extract, cleanse, match and load the data to meet its business requirements. In addition, 3rd party data is acquired and stored in silos, often at the project/business level.

With multiple systems that acquire, store and update data independently, redundant out-of-sync data results requiring multiple resources to maintain. In addition, data captured from paper returns represents a small portion of the return data needed to thoroughly validate all aspects of a tax return.

4.1.3 Noticing and Address

Noticing
FTB has twenty-six systems that produce notices independent of each other all of which have various degrees of functionality. The use of notices represents FTB's primary mode of communication; however, numerous noticing systems produce notices with varying style, language and appearance.

Address
All of FTB’s major systems utilize address information to contact taxpayers and they all manage address components differently within their respective systems. Address information can come from many sources (i.e., taxpayer phone call, tax return) and resides separately in different systems, thus resulting in all systems not having the same or the most current address information.

4.1.4 Legacy System

BETS is FTB's primary tax accounting system for business entities. This legacy system resides on the mainframe and is critical to the administration of the California Revenue and Taxation Code as it applies to corporations, partnerships and limited liability companies who do business in the State of California. BETS accepts data from returns and remittances via three methods: automated scanning, manual keying or e-file. Nightly batch processes update BE accounts on the BETS database and produces notifications, billings, refunds and correspondence. BETS also interfaces with FTB internal systems as well as external agencies such as the Employment Development Department, Board of Equalization and Secretary of State to support the administration of California tax laws.

4.2 Technical Environment

FTB has a growing enterprise network consisting of various servers, printers, mainframe systems and UNIX systems. Most of the Local Area Networks (LANs) function as office automation application servers; however, the department also has special-purpose LANs for imaging, voiced response and electronic correspondence functions.

Consistent with FTB's technology vision as expressed in the ITSP, FTB's information technology is not constrained to one specific environment.

The following table lists the technologies and a brief description of the current systems that will be impacted by the EDR Project:

System	Technologies	Description
BETS	Platform: Mainframe Operating System: ZOS Database and File Systems: DB2, MVS Languages: Cobol, Natural, Assembler	BETS was implemented in 1996 and was expected to have an operational life of 20 to 25 years. With the pending sunset of INSTALL/1, the originally projected operational life of the BETS is in jeopardy. BETS is FTB's primary tax accounting system for business entities. This system administers the California Revenue and Taxation Code as it applies to corporations, partnerships and limited liability companies that do business in the State of California. This system is responsible for determining tax liability, penalties and interest based on information on the tax return or as the result of an audit and is the FTB system of record for BE entity information such as name, address and business status. The system is a vendor-developed application using DB2 and a proprietary software package, INSTALL/1, and CICS for on-line access. Natural is used for many reports developed outside the original base product.
INC	Platforms: Mainframe, UNIX Operating System: AIX, ZOS Database and File Systems: DB2 UDB EEE Languages: Java	The INC application is used to administer FTB's Nonfiler program and a major component of FTB's California tax gap reduction efforts. The INC application identifies and gains compliance from California taxpayers and businesses that have not filed California State income tax returns. INC is a distributed n-tier client server, Internet based application using object-oriented development techniques and JAVA programming/application development tools (Rational Application Developer) in an Enterprise Java Bean (EJB) environment to a DB2 UDB EEE Database. It runs on an AIX operating system using Websphere Application Server middleware. The application software runs on two IBM P-590 servers with an EMC SAN configuration and Tivoli backup. It also uses mainframe-based batch processes to extract and match income data from a variety of sources.

TI	Platforms: Mainframe Operating System: ZOS Database and File Systems: Adabas Languages: COBOL, Natural, and Assembler	TI is designed to capture, update and store individual taxpayer information. TI has both Natural and COBOL batch and online applications. The online applications allow users to view and update taxpayer information. The batch processes include refunds, notices, interfaces, system balancing, data retention and various validation processes.
PIT ARCS	Platforms: Intel Desktops, HP Server, Mainframe Operating Systems: Windows, HP-UX, ZOS Database and File Systems: Sybase Applications: CACSG Languages: PowerBuilder, C, COBOL	PIT ARCS is an online batch system that supports the management of delinquent tax cases and collection activities for individual taxpayers in California. The PIT ARCS application communicates electronically with a mainframe host accounting system TI using a flow of mainframe transactions. The transactions are sent via interface files to a UNIX (Sybase on HP-UX) server that creates data tables for the UNIX-based ARCS system. The ARCS UNIX batch process uses business rules to move cases into designated business functional areas and generates notices. ARCS automatically sorts cases and distributes them to users and groups of users in the form of work lists.
BE ARCS	Platforms: Intel Desktops, HP Server, Mainframe Operating Systems: Windows, HP-UX, MVS Database and File Systems: Sybase Applications: CACSG Languages: PowerBuilder, C, COBOL	BE ARCS is an online batch system that supports the management of delinquent tax cases and collection activities for business entities. The BE ARCS application communicates electronically with a mainframe host accounting system BETS using a flow of mainframe transactions. The transactions are sent via interface files to a UNIX (Sybase on HP-UX) server that creates data tables for the UNIX-based ARCS system. The ARCS UNIX batch process uses business rules to move cases into designated business functional areas and generates notices. ARCS automatically sorts cases and distributes them to users and groups of users in the form of work lists.
PASS	Platforms: Intel, UNIX Operating System: Windows NT & 2000, AIX Database and File Systems: Sybase Languages: PowerBuilder, C++	PASS is a client/server application used nationwide by over 1,200 auditors, legal staff, managers and other FTB staff. The PASS system is utilized to complete approximately 30,000 audits annually. At the highest level, there are two major components to the PASS system. The first is modeling, which is used to identify audit candidates for Pass Thru Entity and BE programs. The second is case management, which is used to assign and manage audit cases through the audit and legal dispute processes for the PIT, Pass Thru Entity and BE programs as required to bring the audit case to completion. Besides audit cases, the system also manages the case support project workload for audit and legal staff.

PAWS	Platforms: Mainframe Operating System: ZOS Database and File Systems: ADABAS (VSAM) Languages: Assembler, COBOL, Natural, REXX	The Personal Audit Workstation System (PAWS) is used for the composition of proposed assessments. The system is used to manually create an NPA and to create post NPA actions, such as a Notice of Revision or Notice of Action. PAWS notices are displayed via NDF. PAWS interfaces with NDF and TI.
(Current) **NRWS**	Platforms: Commodity Operating System: Wintel, Intel Database and File Systems: SQL Server Languages: .NET, MS Visual Basic 6	The Non-Resident Withholding System (NRWS) and Withhold At Source (WAS) are the accounting systems for non-wage withholding. Withholding data and payments are entered into the system. The system provides a withholding agent and taxpayer accounting of debits and credits and allows transactions to be created against the original withholding filings. Credits are batched to TI and manually transferred to BETS. Claimed withholding amounts are transferred back to NRWS from TI (batched) and BETS (manual) to complete the accounting.
(To Be) **WASS**	Platforms: Distributed Operating System: Windows Server Database and File Systems: SQL Server 2005 Languages: .Net	The Withhold At Source System (WASS) will replace the existing NRWS and will add new functionality. WASS will integrate with TI, BETS, ARCS, INC (PIT only), e-Gateway, Imaging/IPACS and Tandem. The main sources of data for WASS will come from the Internet, SWIFT, Tandem, Imaging/IPACS and Fax.
SBRD	Mainframe Operating System: ZOS Database and File Systems: ADABASE Language: Natural	SBRD stores data from BE tax returns and K-1 schedules. SBRD data is stored in MVS flat files for use by PASS and INC.

4.3 Existing Infrastructure

FTB's current mainframe infrastructure consists of an IBM z9 Enterprise Class E-Server/ [redacted] with a capacity of 914 usable MIPS, 64 GB processor memory and 164 ESCON and 32 FICON channels. The mainframe has special processors zAAP, zIIP and IFL. The Direct Access Storage Device (DASD) has 8.3 terabytes of usable storage to support all major tax program areas including access to online databases utilizing ADABAS, DB2 and VSAM files.

FTB's full service data center hosts the mainframe environment. The data center processes approximately 17 million online transactions per month and over 237 thousand batch processes per month during peak processing periods. It also generates over 3 million print pages per month for notices, bills and letters during peak season. The mainframe printer environment utilizes simplex, duplex, simplex with color and duplex with color (highlight color optional). FTB supports electronic transmission of 1099 and related data using web technology on the e-Server (mainframe).

Data center customers and users include all of FTB's program areas, including PIT, BE, Homeowner and Renter Assistance (HRA) and various non-tax debt collections programs.

FTB's data center also provides data storage and processing service to a number of external organizations and agencies, such as BOE, EDD and the Department of Food and Agriculture.

The mainframe environment utilizes an Automated Cartridge System (ACS) that supports twenty-four 3490 and twenty 3590 devices with an ACS tape cell capacity of 35,000 internal slots. Furthermore, the mainframe shares its storage farm with Exchange, which has 3.4 terabytes for Open Systems database and online backup requirements.

Various mainframe systems are the final destination for data from all accepted tax returns and forms, regardless of media source. Primary business functions provided by these systems include return validation, accounting, taxpayer and corporation information.

A two processor HP Non-Stop S7802 with mainframe connectivity supports the department's data entry process. The system has 16 36-Gb hard drives and two gigabit Ethernet cards. The processor is connected to approximately 240 emulation workstations via TCP/IP. A portion of the batch processes and the backup and recovery processes are supported by a total of 24 cartridge drives in a silo environment. In August of 2005, the state-of-the-art S-Series S7802 (formerly Tandem) replaced the Himalaya K10000.

FTB currently employs ADABAS and DB2 on the mainframe, with both as its primary mainframe database management systems for PIT and BE data.

4.3.1 Server Infrastructure

FTB has a large distributed computing environment attached to its enterprise network consisting of approximately 350 Windows servers and an estimated 50 UNIX servers. This distributed environment consists of large client/server applications, smaller LAN-based applications and office automation including electronic mail. UNIX servers provide the primary platform for database and applications services required to support the department's large client/server applications, while Windows servers support the small LAN applications and office automation.

UNIX servers include IBM SP/2, IBM RS/6000 and HP 9000. IBM UDB2, Sybase ASE and ORACLE are the common Database Management Systems (DBMS) on these servers. Programming languages for online applications are primarily Power Builder or Java, and COBOL or C for batch applications.

Windows servers include Dell and Compaq with Windows 2000 or 2003 operating systems and uses Active Directory Services. Microsoft SQL Server is the primary DBMS on these servers. Programming languages for applications accessing these servers are primarily Microsoft-based.

The distributed systems use one of two automated tape libraries for backups. The INC System and INC Data Warehouse use the TSM backup with a capacity of 120 terabyte (TB) of tape space. Most other systems use the Legato backup system with a capacity of 143 TB on tape.

4.3.2 Network Infrastructure

The LAN at FTB's campus is the heart of the enterprise network providing reliability and scalability throughout FTB. There are approximately 6,000 clients supported on the network. Network users have access to the various system applications via infrastructure devices such

as routers, switches and the mainframe. The current enterprise network topology incorporates over 100 gigabit Ethernet data switches that primarily use the TCP/IP protocol suite.

The campus topology follows a three-tier enterprise model. This model consists of three distinct functional layers: core, distribution and access. The core layer is a ten gigabit Ethernet switched backbone network, which redundantly interconnects the distribution layer switches to all campus buildings. The distribution layer switches connect to over 70 access layer switches, which terminate to workstations and other network end devices. Additionally, there are multiple server farm switch environments located in the four campus buildings. These server farm switch environments provide fault tolerance to the enterprise servers.

FTB's Metropolitan Area Network (MAN) backbone link incorporates fiber-based technology. The Wide Area Network incorporates redundant and encrypted frame relay communication links to all field offices. The remote environments incorporate a mixture of over 40 Ethernet-based switches for their local data network communications.

The current Internet infrastructure supports an interface with multiple firewalls protecting FTB's e-Commerce and internal enterprise network. The Internet DMZ is secured by multiple border routers and firewalls protecting several DMZ segments. Internal firewalls and intrusion detection sensors protect FTB's internal network.

The external firewalls are high-performance stateful packet-filtering firewalls. The firewalls provide protected gateways into the DMZ segments housing FTB's web servers and an e-commerce segment hosting external web applications. Multiple sets of appliance-based stateful firewalls provide an extra layer of protection for FTB's internal network. These firewalls act as gateways to provide protection to FTB's internal network from Internet, e-commerce and web development server segments.

The primary internal firewalls also serve as a Virtual Private Network (VPN) gateway for remote users. Remote users' personal computers are configured with secure clients integrated with personal firewalls.

The Intrusion Detection and Response System (IDRS) provides an extra layer of security in FTB's Internet architecture. The IDRS acts as an alarm that reports potential attacks or misuse at FTB's perimeter.

The existing Internet access point is provided through an Internet Service Provider (ISP) and consists of a point-to-point high speed OC-3 Circuit.

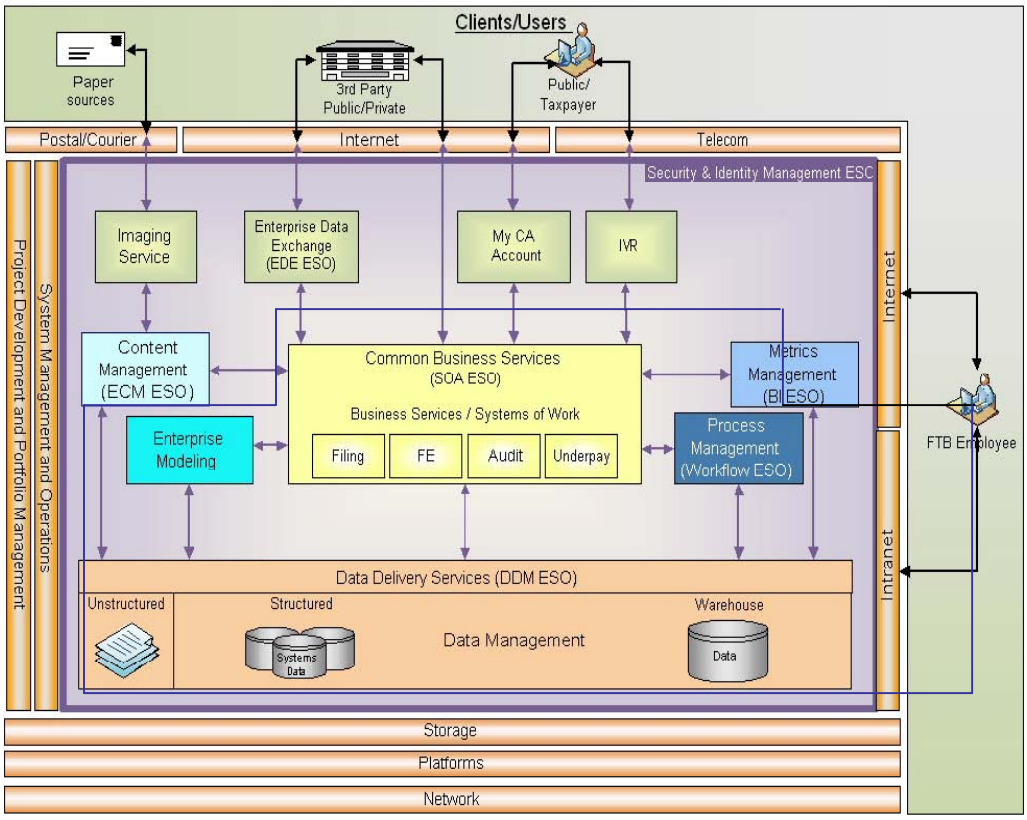
4.3.3 Printer Infrastructure

The Computing Resources Bureau provides high speed printing services from both a mainframe batch process environment and a distributed platform environment. The printing system is staffed and in production on a "365 x 24" basis, printing bills, notices, letters and in–house documents for programs throughout the department. FTB has multiple high-speed printers that support simplex, duplex and triplex highlights color output. The printer services include high-speed line printing for multiple part forms. For desktop printer support, FTB has distributed printers with both mainframe and desktop printing.

5.0 Proposed Solution

The EDR proposed solution will introduce a BPM system for the filing of tax returns in conjunction with expanded data capture of tax documents and enhanced validation for improved return quality, thus reducing processing costs and increasing revenue. In addition, enterprise data will be stored via an EDW with the decoupling of the BETS accounting system to access enterprise data, while developing common services such as an address and notification service along with a single view of data both internally and externally via the Taxpayer Folder. FTB will undertake a solution based procurement where the vendor will provide the appropriate solution based on the requirements. The proposed solution for the EDR Project represents a major step towards realizing FTB's Target Architecture Model (shown below).

FTB Target Architecture Model, Figure 5.0.1



The target model reflects the high-level relationships between services and customers as a blend of business and technical architecture. Additionally, the model depicts the detachment of commonly used services from core systems of work. The orange bars around the perimeter represent technologies or processes outside and independent of the architecture containing business functionality. The model identifies the people and organizations that interact with the solutions and services at FTB along with the independent Enterprise Service Opportunities (ESO) or common functions that can be used by multiple systems of work. With data separated from services and applications, siloed applications can be identified for replacement with enterprise SOA compliant services.

The proposed EDR solution is defined through a composition of ESOs, which share attributes such as reliability, interoperability and sustainability. Each ESO contains detailed definitions for

components of the FTB enterprise architecture framework and focuses on a different technology offering. Solutions proposed by prospective business partners will be required to provide the functions, capabilities and/or architecture to support the ESOs.

The ESOs applicable to the EDR proposed solution are: (see Appendix 4 for FTB Goals)

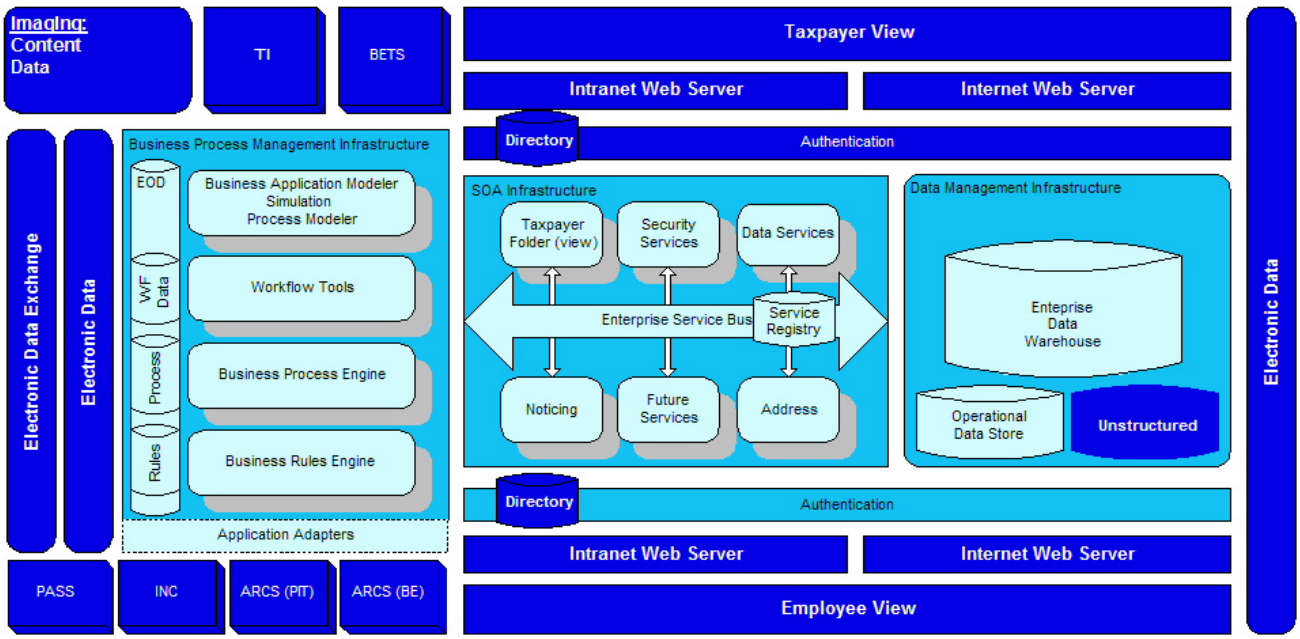
1. Service Oriented Architecture (SOA) – FTB Goals 3, 4, 5, and 6
2. Business Process Management (BPM) – FTB Goal 5
3. Enterprise Content Management (ECM) – FTB Goals 3 and 5
4. Data Management & Delivery (DMD) – FTB Goal 3
5. Business Intelligence (BI) – FTB Goals 2, 3, and 5
6. Electronic Data Exchange (EDE) – FTB Goal 1, 2, 5, and 6
7. Security and Identity Management (IAM) – FTB Goals 1, 2, 3, 4, 5, and 6

Where these ESOs will be used to meet the EDR Business Requirements and provide the solution is as follows:

1. The Workflow Solution will include SOA, BPM and ECM.
2. The Enterprise Data Solution will include SOA, ECM, DMD, BI and EDE.
3. The Common Services will include SOA, DMD, EDE and IAM.
4. The Legacy Systems modifications will include SOA.

The proposed architecture solution (Figure 5.0.2) diagrams the key solution components for the previously outlined ESOs and further delineates existing infrastructure from the proposed architecture solution. The shaded dark blue represents existing FTB systems and infrastructure while the light blue represents the EDR solution, thus showing the interaction between existing infrastructure, platforms, tools, applications and the proposed EDR solution.

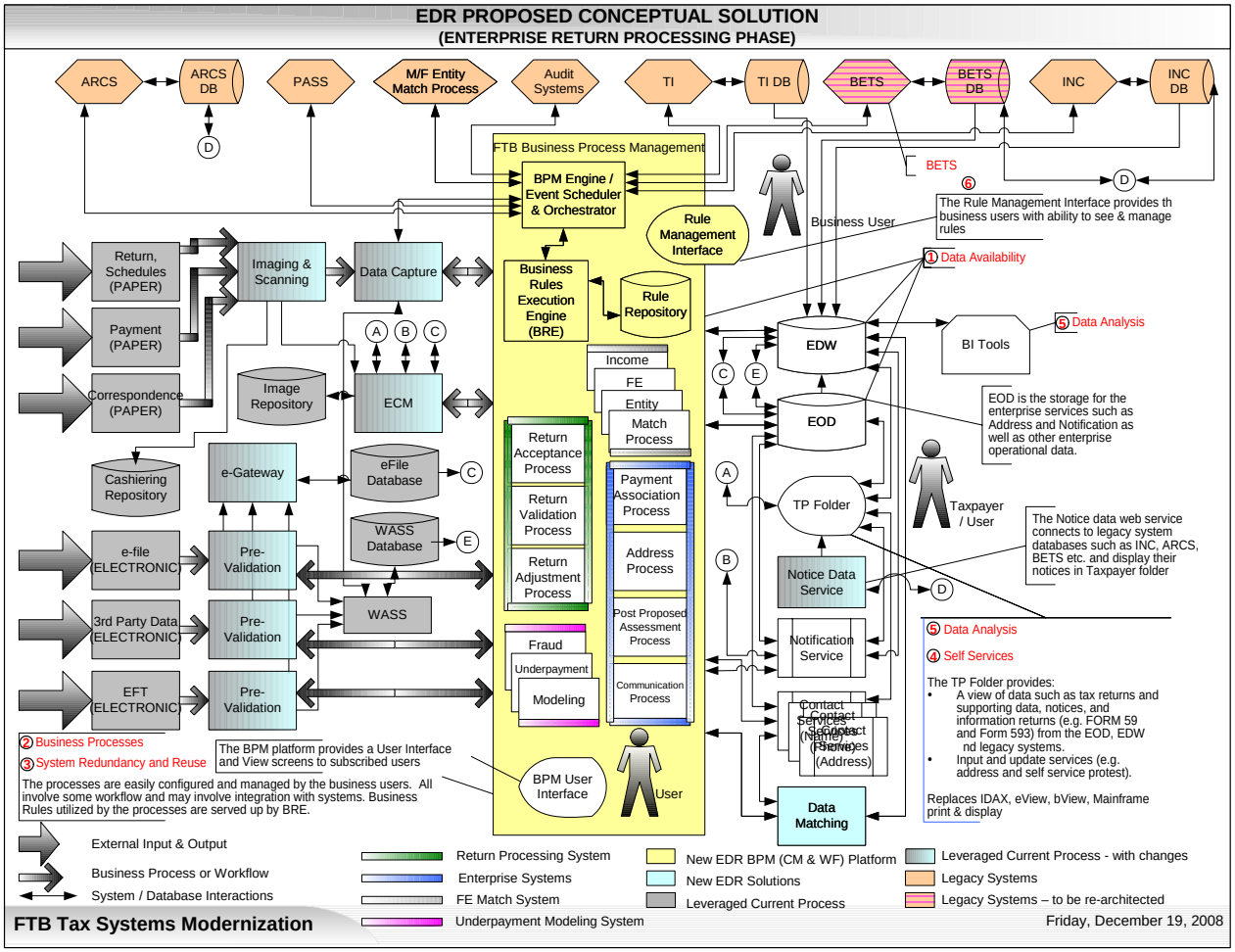
Proposed EDR Architecture Solution, Figure 5.0.2



The infrastructure needed to deliver the required functionality draws upon industry standards and technologies. Some examples include BPM solution space, which now leverages or includes ECM and IAM solutions along with SOA solution space, which remains foundational to many BPM solutions. The proposed EDR solution provides a highly automated workflow and case management solution for the processing of tax returns.

Figure 5.0.3 below shows how the proposed architecture solution might be implemented to solve the six Strategic Business Problems. The figure depicts a new return processing workflow integrated with existing ECM applications (gray boxes) and new reusable and manageable functionality (e.g., Entity Match Process) (yellow boxes) interfacing with existing legacy systems (orange boxes at top of diagram). Most interestingly, the figure depicts functionality (e.g., Underpayment Modeling Process) not currently available and ordinarily not associated with return processing and demonstrates a technology platform solution (BPM on SOA) that is leveraged to serve multiple business purposes. The figure is not intended to be comprehensive in terms of required business processes and services, but rather convey a vision of how these technologies might be used to address the Strategic Business Problems. The vision is to implement two workflow systems: one for PIT Return Processing and another for BE.

Proposed EDR Conceptual Solution, Figure 5.0.3



The inputs to the new Return Processing workflow systems will be both paper and electronic tax documents including tax returns, payments, forms and correspondence. The paper documents will channel through the "Imaging and Scanning" and "Data Capture" processes with all paper documents to be imaged. The current data capture will be expanded to include new data that has been identified to be of significant value to the business areas. Electronic documents will go through pre-validation processes to ensure integrity and format correctness of the incoming data followed by the same processes used to process the paper returns. The conceptual solution is to have the “Data Capture” and the electronic “Pre-Validation” processes interact with a new BPM suite. The Business Rule Engine (BRE), a component of the BPM suite will allow for better control and management of the data capture and pre-validation processes to maximize benefits and reduce unnecessary costs. The electronic data, captured data and associated images will also be stored in a EDW with the corresponding information provided to the BPM suite which will house all the business processes and rules.

The new workflows on the BPM suite provide mechanisms for business to design, configure, execute and store several reusable business processes (yellow boxes) based on business rules that are served up by the BRE. The business rules are stored separately so the rules can be seen and managed by business users directly, instead of being embedded in silo IT systems. The heart of the BPM suite is the BPM engine which will execute the various business processes while integrating them with the business rules. The BPM suite also provides internal and external user interfaces that are used to access and view the new workflow processes and data through securely managed security profiles. The BPM suite provides mechanisms for interfacing with legacy systems (e.g., BETS, TI) based on their platform using standard communication methods and any other mechanisms to make the interface easily adaptable to the legacy systems. The interface is capable of handling both synchronous interfaces as well as asynchronous and event based interfaces as business required. The event handling capability provides for changing the status of a case or data because of a triggering event such as the arrival of new data. The BPM suite also incorporates use of common business services such as Contact (Address, Phone, and Email) and Notification, which will interface with both the EDW and EOD to provide data as required by the processes. The BPM suite will also integrate and orchestrate all the services, processes, rules and data to provide the maximum benefit for the business.

The EDW and EOD will become the central repositories of all data that will be shared with the users and systems across the enterprise through interfaces such as Taxpayer Folder, BPM suite User Interface, Data Services and Data Mining tools. The value of the data is maximized through the use of enhanced match processes provided by the enterprise Data Match service. The Taxpayer Folder becomes the central integrated portal for all enterprise data and services. It becomes the default user interface for the Common Business Services, the data services, the return and correspondence data. In addition, the Taxpayer Folder replaces several multiple view applications and eliminates or reduces the necessity for users and customers to log into several systems.

1. Data Availability	ECM and BPM with DMD including EDW/EOD with SOA captures and stores business required data and makes it

	available to streamline return processing and correct return filing errors BPM on SOA with DMD provides legacy systems with access to the business required data and services to increase taxpayer compliance EDE supports common services such as Address with locate functionality to deliver business required data to increase taxpayer contacts and compliance
2. Business Processes	ECM with DMD and BPM on SOA images the returns and documents needed to support customer service and captures the data needed by the enterprise for taxpayer compliance BPM facilitates reengineering and integration of return processing workflows to make return filing and validation more efficient and effective BPM on SOA provides business users with ability to manage, maintain and improve business processes and rules BPM and BI provides business users with the ability to monitor and manage workflow performance
3. System Redundancy and Reuse	BPM on SOA provides modular and reusable business processes that are integrated in a common workflow, leveraged by multiple workflows and available for future workflows to reduce total cost of ownership SOA provides services that are used by multiple enterprise legacy systems and available for future systems to reduce total cost of ownership
4. Self-Services	BPM, SOA, ECM, DMD and IAM together enable a Taxpayer Folder with expanded taxpayer self-services, a window to taxpayer enterprise information, data to improve return filing and increase taxpayer compliance
5. Data Analysis	DMD with BI provides users with data and ability to analyze taxpayer behavior and detect patterns of noncompliance and fraud
6. BETS	SOA provides decoupling of accounting system architecture from proprietary software to improve maintainability and support the EDR solution

The EDR Project focuses on Return Processing workflows because they are the window to key process steps that provide mission critical business information to all SOWs and the associated legacy systems. These workflows include standardized steps such as entity matching, address standardization and validation that legacy systems depend on. These process steps are controlled by various levels of workflows that call services and work with both the EOD and the EDW. It is through the combination of SOA, BPM, ECM, DMD, BI, EDE and IAM that the EDR Project will meet its business objectives.

5.0.1 Service Oriented Architecture (SOA)

SOA, as a discipline, supports business processes through the implementation of repeatable and reusable tasks. An SOA infrastructure provides the foundation to the EDR proposed solution and is required to attain the desired level of reusability and agility proposed for EDR. FTB will expand its use of services to meet the business needs of the enterprise within EDR and will implement a mature SOA infrastructure to provide FTB with an environment conducive to decoupling legacy tasks as well as implementing new repeatable and shareable services. These shareable services provide increased agility so that business can make changes more easily and timely and thereby reduce costs and increase revenue.

Mature SOA Infrastructure
A mature SOA environment will provide the context that will allow FTB to build decoupled enterprise systems and steer away from the use of costly redundant siloed systems. These enterprise capabilities will be composed of reusable business processes and services that cross application and organizational boundaries.

Services Registry and Repository
A Service Registry and Repository will function as the master metadata repository for service descriptions, registration and governance for all types of services, which includes infrastructure services, data services and business services. As the integration point for service metadata, a Service Registry and Repository will establish a central point for managing service metadata acquired from many sources. It will focus on a set of metadata that describes capabilities, requirements and the semantics of deployed services along with the capability to interact and federate with other metadata stores that play a role in managing the overall life cycle of a service.

Service Level Agreements (SLA)
FTB will specify and enforce SLAs between consumers and producers of services in the services registry. Service discovery by all potential users will be accomplished by centrally publishing service information to the registry. During the establishment of SLAs, service consumers and producers (service providers) will negotiate a utilization contract. This process involves the following steps:

- The service consumer applies for permission to use a service.
- The service consumer and service provider negotiate acceptable levels of service and other issues.
- Agreements that impact the runtime infrastructure are circulated to the appropriate service mediation system for runtime enforcement.
- The service consumer is provisioned to use the service.

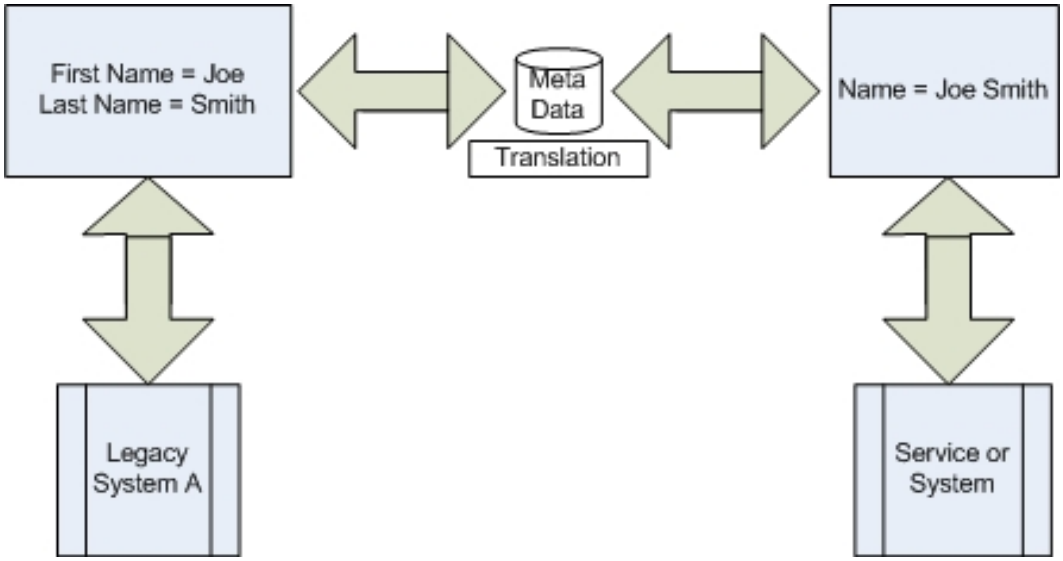
Monitoring, Logging and Tracking Services
Governmental regulations dictate monitoring, logging and tracking standards. FTB will provide an effective monitoring, logging and service tracking system to track which services are being used, how often and by whom. Tracking of information is crucial for future reference and audit events.

Enterprise Service Bus (ESB)
The ESB will become "the backbone" used to deliver services at FTB. In order for FTB's SOA infrastructure to be dependable, compatible, robust and secure it will be necessary to connect any IT resource, regardless of technology or location to an ESB.

The ESB will utilize synchronous calls and/or asynchronous Message Oriented Middleware (MOM). The middleware used for EDR must be independent of the BPM engine and able to be replaced with minimal effort as business required.

Message Transformation
Applications requiring integration rarely agree on a common data format. Current systems may have data in a relational model, while other applications use flat files or XML documents. The EDR project will leverage and integrate existing legacy systems. Rather than resolve the differences between varying systems, EDR will transform data to work with all systems. For non-open standard-based messages, the ESB will have the ability to use XSLT transformation on messages flowing through it. Plug-ins will be available to provide support for very complex transformations and will offer an Application Programming Interface (API) that can be invoked during the ESB transformation. Not all messages in the ESB will require transformation.

Figure 5.0.4



Protocol Support
The proposed ESB will allow a variety of protocols (WS-SOAP, JMS, JCA, etc.) to interact with the ESB without employing a separate adapter. Requestors using one adapter can invoke

services that are exposed using a different adapter. The ESB will also support different security protocols.

Identity and Access Management (IAM)
With the implementation of an ESB, FTB will have the capability to incrementally provide an authentication and authorization service. The ESB will map security to existing security mechanisms and utilize the service as necessary without disruption to the end customers of the services. See IAM section 5.0.7 for details.

SOA Service Types
The SOA infrastructure allows services to be created within the FTB enterprise for the EDR Project. SOA will provide a loose coupling of functions with operating systems, programming languages and other technologies within FTB. SOA separates functions into distinct units or services, which will be made accessible, combinable and reusable. These services will communicate with each other by passing data or by accomplishing an activity. These services can be encapsulated business functions, data oriented and large core infrastructure solutions. Below is a description of each.

Service	Description
Business Service	A logical encapsulation of business functions. The following business services will be developed and used within this project: • Notification • Address • Taxpayer Folder
Data Service	Delivers data from an information store regardless of the business area or format of the database or location.
Core Service or Infrastructure Service	"Plumbing" services, which will be created or leveraged to increase the sophistication of the ESB's ability to carry out messaging, routing and SOA-related functions. EDR core services include: • Information Access Management • Business Process Management • Electronic Content Management • Monitoring, logging, error handling and tracking services

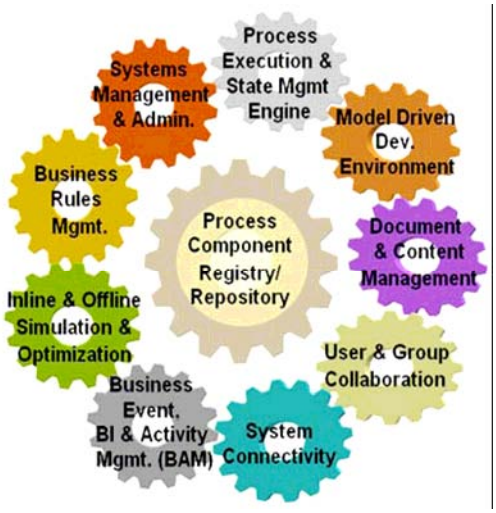
A BPM platform will incorporate the use of a Data Service, Address Service and Notification Service, which will all interact with both the EDW and EDO. Another SOA service includes the Taxpayer Folder, which provides a user interface and view/update screens for both taxpayers and their tax professionals (including self-service protest), and internal users. The Taxpayer Folder will enable the necessary viewing, inputting, updating and other processing capabilities for taxpayer data including return data, 3rd party data, notices and addresses.

5.0.2 Business Process Management (BPM)
The EDR Business Process Management System (BPMS) provides a set of integrated tools for business process modeling and management.

FTB requires 10-key functional components to provide an integrated and reusable workflow and case management solution for the EDR project:

- Process Execution and State Management Engine
- Model Driven Development Environment
- Document and Content Management
- User and Group Collaboration
- System Connectivity
- Business Event, BI and Activity Management
- Inline and Offline Simulation and Optimization
- Business Rules Management
- Systems Management and Administration
- Process Component Registry and Repository

Figure 5.05



BPMS Components (Gartner 2008)

These components will allow FTB to model, build, automate, simulate and execute business processes in a secure, collaborative and integrated environment. These components will also assist the EDR project to reengineer the return filing processes. The BPM components and processes will be leveraged and reused for all EDR business processes along with future FTB business processes. The following describes each functional component:

- **Process Execution and State Management Engine** provides users and systems resource interactions and case management. It activates and executes workflow processes defined in the system.

- **Model Driven Development Environment** provides flow, organizational and business rules modeling. This environment provides drag and drop functionality, pre-built process templates and process wizards to facilitate the business customers' participation in the modeling functions. A model driven development environment provides a set of graphical tools allowing business and IT staff to design, develop, test, manage and deploy workflows based on departmental business rules and services. Configured workflows will determine which rule sets are leveraged and when to process data, thus assisting in making appropriate decisions.

- **Document and Content Management**
  See section 5.0.3.

- **User and Group Collaboration** will provide shared work areas and project portals.

- **System Connectivity** will be provided through an ESB, which will provide technical adapters, data transformation and application adapters.

- **Business Event, Business Intelligence and Activity Management (BAM)** provides real-time visibility and immediate response capabilities. Operational business events will be monitored for changes or trends indicating opportunities or problems and enabling business users to take corrective action. BAM provides a real-time view of "what is happening" instead of "what has happened". BAM tightly integrates with operational sources and optimizes event processing to minimize latency for correlated event information with historical or other contextual information. In addition, BAM compliments the data warehouse by placing the data warehouse's historical knowledge into an event-based business intelligence framework.

- **Inline and Offline Simulation and Optimization** provides a predictive analysis process, rules simulation and optimization based upon mathematical and historical execution data model characteristics.

- **Business Rules Management (BRM)** serves as the management tool and repository for FTB's enterprise business rules. The BRM utilizes an independently managed BRE that delivers business rules through services. The management of business rules includes verifying consistency of rules definitions, defining the relationships between rules and identifying the business rules for legacy IT applications, services or workflows. A BRM solution also includes the following:

  - **A Business Rules Interface** to provide a web interface through which business managers can manage and maintain rules independent of workflows.
  - **A Rules Repository** to not only store decision logic, but to store the source, user and owner of the rules, which makes the management of business rules consistent, efficient and effective across the enterprise. Rules stored and managed in one place allows for changes to take effect immediately without changes to other process that rely on the decision logic. In addition, non-technical process owners can implement rule changes immediately and safely without the use of IT resources.

- **Process Component Registry and Repository** provides version control capabilities including search capabilities, version management, publish, subscribe and check in/check out activities.

5.0.3 Enterprise Content Management (ECM)

ECM provides unstructured and structured document imaging, indexing and archiving. By leveraging current ECM capabilities within the enterprise, the EDR project will expand return imaging, data capture and retention. ECM will provide the following:

- **Capture**: Both electronic and paper content will funnel through a centralized common process for validation, storage, delivery, retention, etc. Routing through a common process allows for the utilization of "enterprise" services. Electronic content will continue to be collected in its current methods but now funneled through a centralized process and paper content will be collected using centralized scanning. Centralized scanning will be done by a common departmental system that processes FTB's large volume workloads.

- **Manage**: Specialized ECM systems will use archives to process tax workloads and store the contents outside of databases. "Pointers" will locate data which saves on overall database size, recoverability and back-up times.

- **Store and Retrieve**: Storing all content into a centralized archive will provide a single point for management, storage, retrieval, delivery, collaboration and security. The archives will also contain documents from FTB's out-going processes (for example, notices and correspondence).

- **Preserve**: Storing all content into a centralized archive will allow for consolidation of retention timelines. Data retention will be automated and based on case management processes.

- **Deliver**: Establishment of an enterprise document viewing service. A single enterprise document viewing service will provide greater efficiency and reduce costs incurred by maintaining separate applications/processes. Any system or application can use the service.

- **Collaborate**: ECM collaboration will be identified and provided through business process management.

- **Security:** ECM security falls into three main areas - authorization, authentication and electronic data interchange.

- **Centralized Document Archive:** Store all post processing data and images from the imaging processing and e-gateway systems into a central document archive. A single point of data retention for both input systems will allow for a single "enterprise document viewer" application replacing the current viewing applications. This repository is currently being established by the Scan and Shred Project with the procurement of additional storage space needed for the EDR Project. A centralized document archive will allow pre-build and storage of "virtual" PDF images along with minimizing requestor access times, possibly eliminating the mainframe file and print services. The archives will contain documents from FTB's out-going processes (for example, notices and correspondence).

- **"Enterprise Document Viewer" Service:** Establish an enterprise document viewer

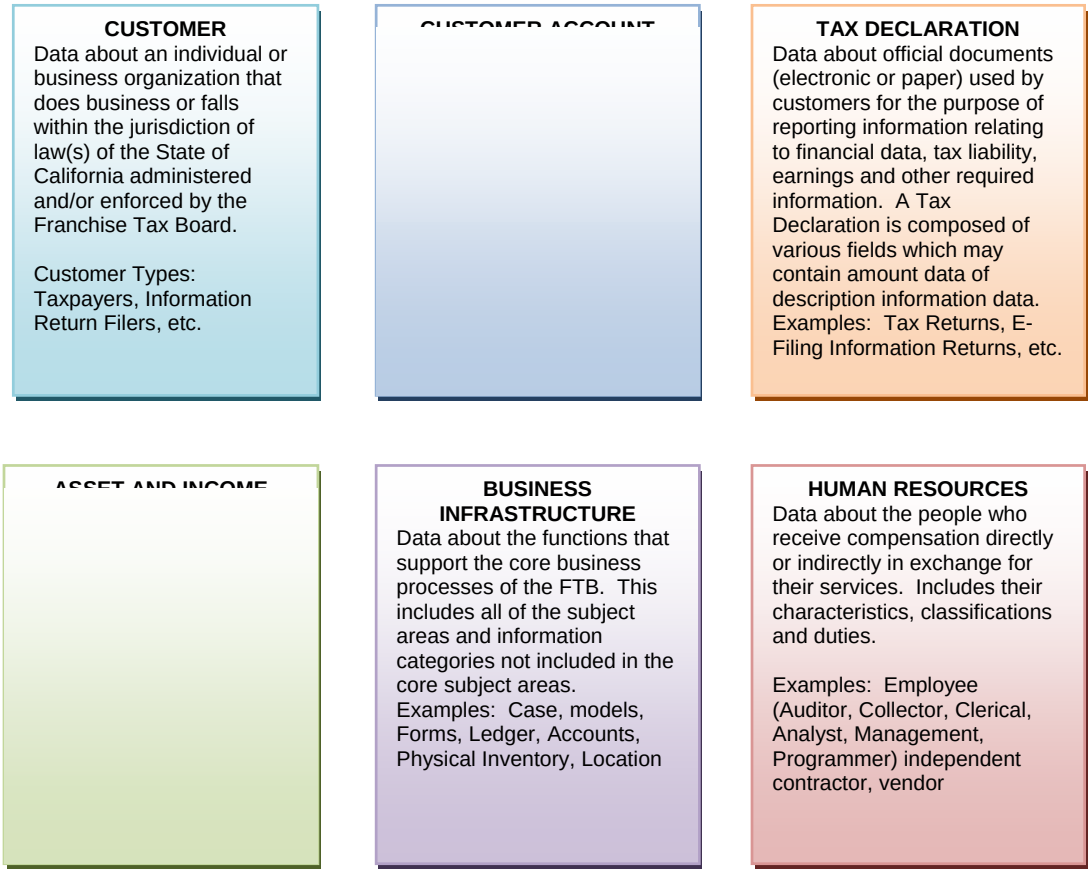
service provides greater efficiency and reduce costs incurred maintaining two separate applications. It will provide a view of the data and minimize requestor access times.

- **Scalable Imaging System:** To meet both current and future demands, FTB will implement a scalable system that can accommodate new workloads by adding additional hardware/software resources.

5.0.4 Data Management and Delivery (DMD)

DMD is a business capability that involves data governance, data ownership and an ongoing program to maintain a single version of critical departmental data.
The data architecture will follow the industry preferred subject-oriented approach as opposed to the project-oriented approach typically found in BI data stores. The data delivery and data services will also be organized by subject areas. The subject-oriented approach prevents siloed data and gives credence to integrated data. The following figure illustrates FTB's primary common data architecture subject areas.

FTB's Primary Data Subject Areas, Figure 5.0.6

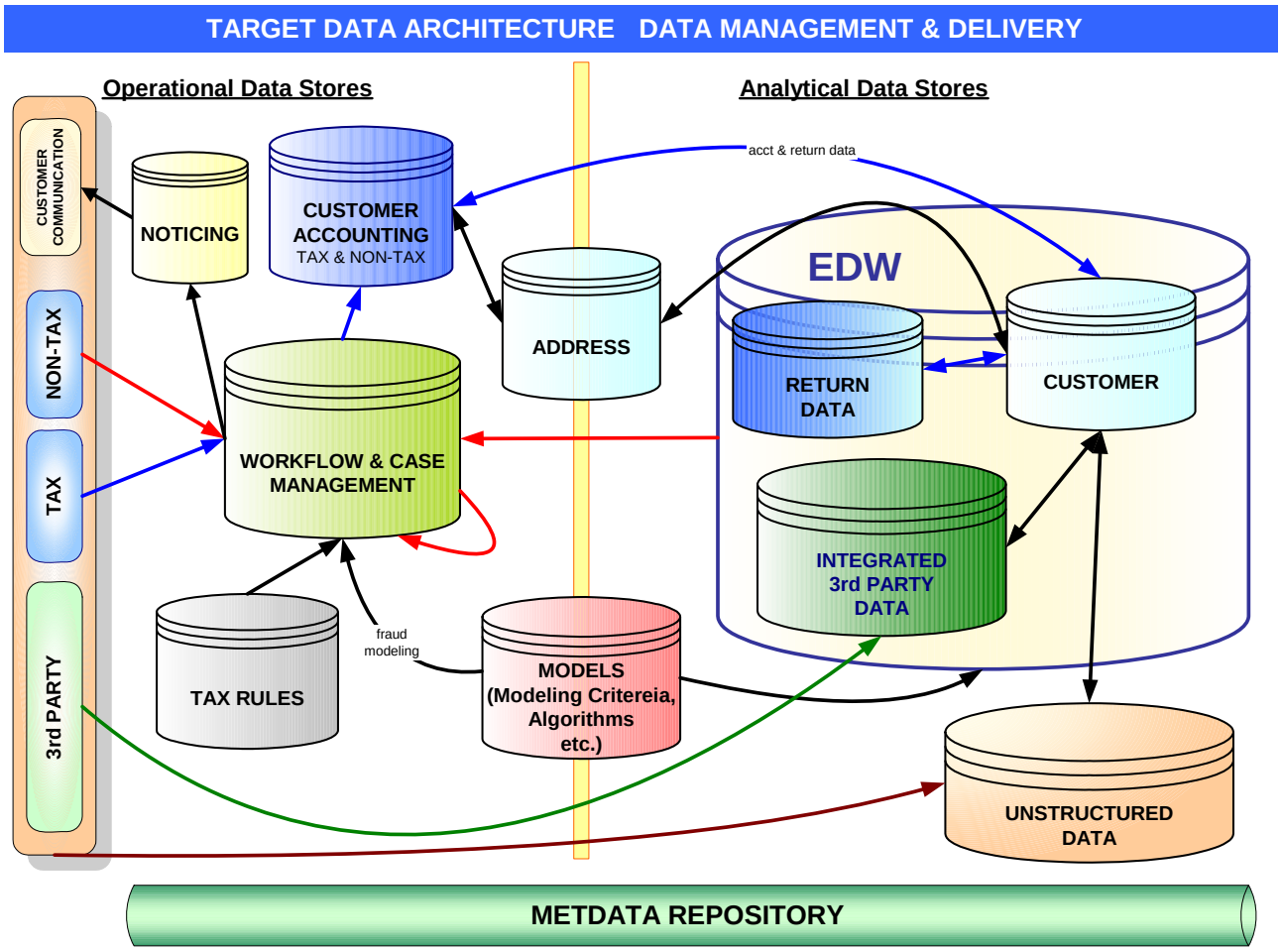


The enterprise data architecture contains concepts, principles and techniques for developing and maintaining formal data names, comprehensive data definitions, proper data structures, precise data integrity rules and robust data documentation. In order to support data documentation, the EDR project will employ a metadata repository to thoroughly document

primary data resources and 3rd party data resources along with providing staff the tools to understand, manage and use data resources to support the business demand. DMD will provide the right data at the right time to the right source to maximize revenue generation.

The figure below illustrates the target physical data architecture. The diagram represents the information flow into the FTB operational and data warehouse data stores.

FTB's Target Physical Data Architecture, Figure 5.0.7



The green bar represents the metadata repository where all data objects coming into FTB will be cataloged and defined. Unstructured data must be defined and identified with a purpose and author. Data mapping and lineage, tagging for security and disclosure, impact analysis, data characteristics, data business rules, retention and domain integrity information will be a part of the metadata repository to improve data quality and the measurement of the data quality.

Within the data management architecture, the data is extracted, transformed and loaded (ETL) into the FTB's data stores. The metadata repository and ETL of data will not be circumvented by manual adhoc approaches, coding or any other means as this will result in the degradation of data quality and possibly make the data unusable. The customer account subject area data store represents the PIT and BE financial accounting system stores. The EDW contains the 3rd party data, customer/customer demographic data and return data. The models and tax rules

data stores are for recording and storing the criteria/ranges for models and the tax year rules, respectively. The models and rules are decoupled from the operational systems so they can be more agile for frequent business needs.

5.0.5 Business Intelligence (BI)

BI refers to applications and technologies used to gather, provide access to and analyze data about an organization's performance. The desire for improved metrics on efficiencies and outcomes for modeling requires data services that will provide access to enterprise-wide BI information. Access to critical information will provide a wider array of modeling information leading to improved modeling results (i.e., more revenue). BI will also provide the following:

- Less data redundancy
- Improved data accuracy
- Increased access to FTB data
- More efficient use of taxpayer and 3rd party information
- More consistent treatment across debt types

Target BI Technical Architecture

Target Traditional BI

Traditional BI will incorporate real-time or near real-time operational BI. FTB has started the move toward the future in transitioning the ECAIR data warehouse to an enterprise level data warehouse. FTB will create standardized data inputs to the warehouse and create a staging area for stable and useable data (trusted data).

Target Operational BI

Operational BI will incorporate data sensors, data sensor networks and knowledge discovery persistence. Advanced analytics will allow for decision-making in real time. Operational BI will focus on providing real-time monitoring of business processes and activities as they are executed within computer systems. Data captured at a point in time using logic and queries will be saved by persistent data logging for future identity matching of situations and patterns.

- Data Sensors –a data sensor is a software instrument (logic and/or query) that records specific parameters of a data stream and/or events. The sensors are constructed to record, measure and then analyze the data stream against its history or other conditions as set by business rules. An advanced data sensor allows threshold detection, alerts and provides feedback to the process execution systems.

- Data Sensor Networks - data sensor networks consist of a set of distributed data sensors to cooperatively monitor operational conditions, such as return counts vs. amounts. In addition, data sensor networks identify which returns impede operations, which business functions have faster turnaround times and what patterns identify fraud or other threats. Data sensor networks can be business function specific.

The target data warehousing/BI environment will greatly reduce or eliminate the snapshot concept, batch extract, transform and load (ETL) that has dominated FTB legacy systems, thus significantly reducing the developmental dollars and processing time used to retrieve data from operational databases.

In Figure 5.0.8 below, the architecture data delivery, content management and data management depicted as vertical functions where business intelligence traverses these functions. The data sensors test selected values of interest to the enterprise throughout the entire life cycle of a tax declaration.

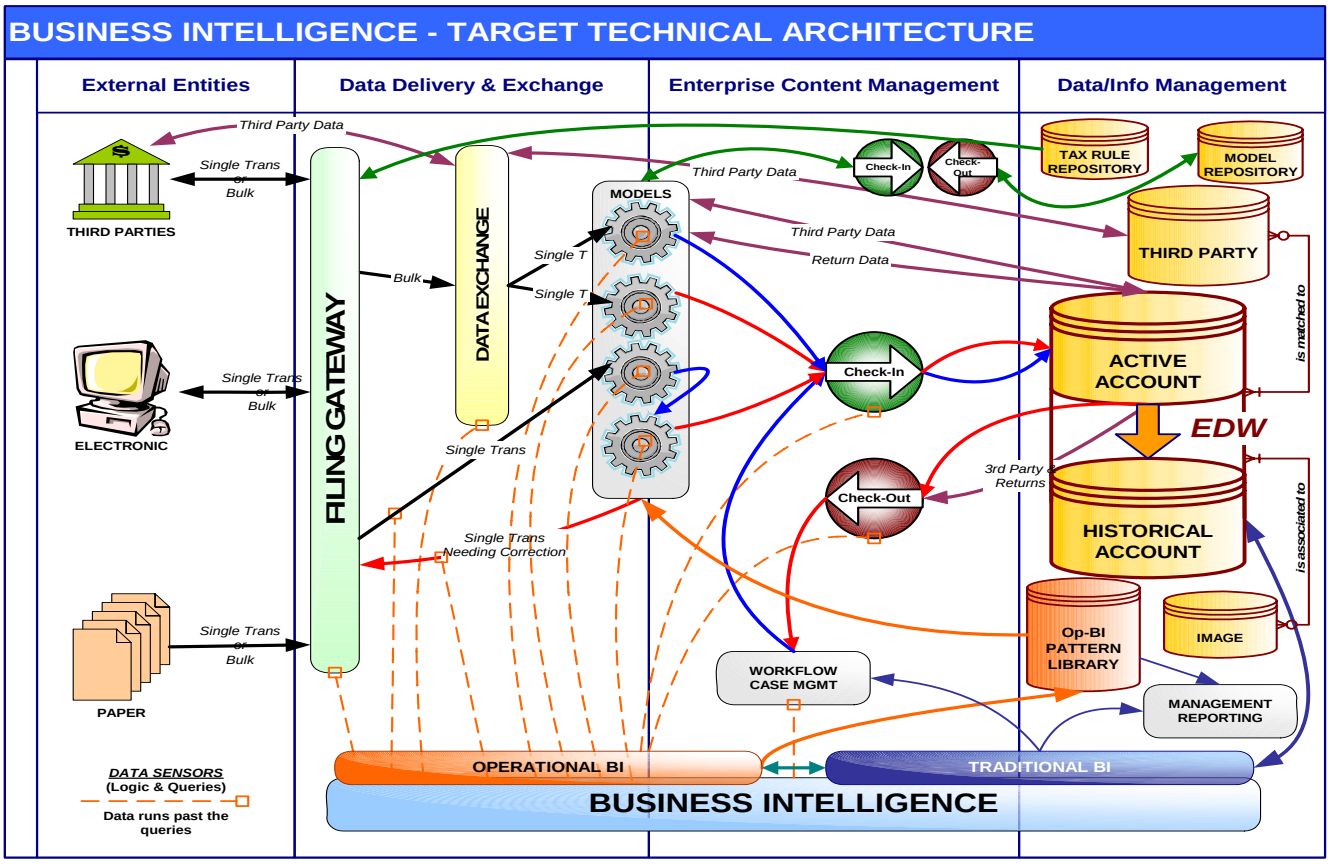


Figure 5.08

5.0.6 Electronic Data Exchange (EDE)

EDE provides a set of standards for structuring information electronically exchanged between FTB businesses, organizations, government entities and other groups. EDE focuses on the internal infrastructure required to manage electronic data exchanges. The management of electronic data exchanges includes:

- Scheduling and tracking of data sends and receipts
- Data formats and supported standards
- Infrastructure used to map interface data to internal data, components and services that facilitate transition
- Confirmation of receipt
- Identification and notification of internal data owners
- Movement of data to internal repositories including systems or applications, services or interfaces, message queues, databases or other data repositories

The EDE infrastructure for batch will utilize existing infrastructure and be adaptable to various mediums of transfer including electronic file transfers and data sent through tapes or other media. For synchronous data exchange, a data exchange web service will be created.

FTB's current batch EDE facility is a centralized secure data exchange method, which provides built-in quality checks, supports standard file formats and a common user-friendly approach to exchanging data without communication barriers. It provides a common set of data exchange formats and methods the sender and receiver can select to meet their technical capabilities. EDE crosses multiple lines of business and combines a robust framework that functions with cross-divisional applications.

Like FTB's current batch EDE for asynchronous data exchange, a synchronous data exchange service for single transfers will be created using quality checks, support standards and a common user-friendly approach. The proposed Address Service will have a Locate Address feature that will call a web service to obtain addresses from 3rd party entities (e.g., DMV license and vehicle registration, employers, Super Pages website, Experian, TRW and Choice Point).

5.0.7 Identity and Access Management (IAM)

IAM will provide the EDR project with security as a core service and a method to ensure all users are properly authenticated, authorized and audited when accessing the service. The IAM solution will provide a centralized and consistent security policy with "security as a service" strategy, subsequently removing the responsibility of writing security code from FTB developers. To be effective, the security service will be integrated with the ESB allowing these services to be discoverable and usable throughout the department regardless of the system or business unit. Identity management and access control provides an integrated standards-based solution that delivers authentication, single sign-on, access policy creation, enforcement, user self-service, delegated administration, reporting and auditing. The EDR project will provide capabilities to the enterprise to simplify the user experience by reducing the number of times users log into protected resources. The service delivers a set of capabilities to provide a centralized data store for users' identity data and for supporting data that can be leveraged for the service architecture.

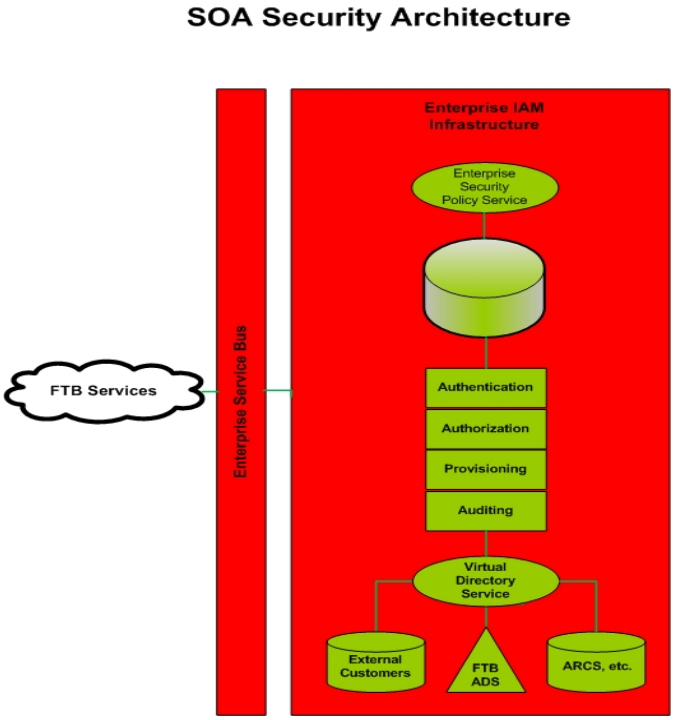


Figure 5.0.9

This enterprise solution will make it possible to detect and remediate existing policy violations using automated processes. Without an enterprise solution, detecting policy violations can take weeks. Identity management provisioning and identity auditing capabilities assists FTB in achieving regulatory compliance at a reasonable cost. Requests to applications or services will be intercepted to determine whether the user has been properly authenticated. Once authenticated, the user's credentials are verified using a central user profile repository (meta-directory) and policy store that determines whether the user will be permitted to access the resource. If the user has not previously been authenticated, they are prompted with a login challenge to supply a username and password or other type of credential. Administrators will have a clear view of users and which resources are being utilized, thus providing centralized control over security.

Security Data Directory

A data service will be the core component of the IAM solution, providing a central repository that contains profile information and passwords. This directory will be compliant with the Lightweight Directory Access Protocol (LDAP) and continue to use more than one directory until it's feasible to consolidate to one data store. IAM will simplify how users gain access to applications, providing single sign on capabilities using a centralized set of authentication mechanisms and secure-access policies. This meta-directory will create a global view of isolated identity information stored in multiple locations.

Provisioning Service

Provisioning will allow centralized and automated management of user accounts and entitlements across multiple applications and directories. This will be related to FTB's operational procedures for account creation modification, retirement and deletion. Provisioning

has the capability to manage identities across disparate systems and can verify identity to fulfill approval.

Security in the SOA Environment
The SOA environment can be thought of as a “composite application” that is made up of underlying reusable services that should contain no hard-coded security controls (see SOA section 5.0.1). In order to ensure the security of the “composite application”, the application will have a set of real-time security services externalized from and consumable by all the underlying entities configured via policy and enforced for compliance. The IAM will be an integral part of the SOA infrastructure. As new or changed business services are designed, developed and deployed, accesses to them are controlled and audited. This architecture will allow the business or policy needs to change, while the security services infrastructure can adapt dynamically.

The EDR Project will leverage a Commercial Off The Shelf (COTS) solution from the External Authentication for Secure e-Services (EASE) Project. The EASE Project will bring in the necessary core components for external IAM and the EDR Project will expand upon this solution to provide an internal solution.

5.1 Solution Description

5.1.1 Hardware
Specific hardware procured will depend on the vendor chosen for the EDR Project.

Service Oriented Architecture
The solution will require 1 IFL on z/OS or equivalent.

Business Process Management
The solution will require 3 IFL’S on Z/OS or equivalent.

Content Management
This solution will leverage existing and planned Enterprise Content Management solution.

Data Management
To process and maintain the data management of the EDR effort, a processor may be required of at least a capacity of 476 usable MIPS, 14 GB processor memory and 188 channels (164 ESCON channels, 16 Bus/Tag, 8 OSA), Direct Access Storage Device (DASD) of 24 terabytes or more of RAID-5 storage including access to online databases. Open systems DASD will have 6 terabytes or more for online backup requirements. EDR may require the ACS. Web servers are to be deployed to support web applications. Additionally, secure high-speed connections are accomplished using the cryptographic coprocessors.

Business Intelligence
See Section 5.0.4 Data Management and Delivery

Electronic Data Exchange
This solution will leverage and may enhance existing hardware.

Identity and Access Management
This solution will leverage and enhance the planned hardware solution of the EASE project.

5.1.2 Software
The EDR project will procure a system documentation tool.

In addition, specific software for the solution will vary and depend on the vendor chosen for the EDR project. The following represents specific areas of software functionality for the EDR solution:

Service Oriented Architecture
- Services Registry and Repository
- Monitoring, logging and tracking service
- Enterprise Service Bus

Business Process Management
- Process Execution and State Management Engine
- Model Driven Development Environment
- User and Group Collaboration
- System Connectivity
- Business Event, Business Intelligence and Activity Management
- Inline and Offline Simulation and Optimization
- Business Rules Management
- Process Component Registry and Repository

Content Management
EDR will be leveraging existing or planned software.

Data Management
- Enterprise Metadata Repository
- Enterprise Data Warehouse
- Enterprise Metadata Repository for enterprise access and capabilities
- Seats for FTB's current data management tools and BI tools.

Business Intelligence
See Section 5.0.2 Business Process Management,

Electronic Data Exchange
The solution will use existing software and will create a service. See section 5.0.6.

Identity and Access Management
EDR will leverage and expand upon the EASE project solution software, which includes:
- Security data directory
- Provisioning service
- Identity service

- Accessibility service

5.1.3 Technical Platform
See Sections 5.0.1 - 5.0.7

5.1.4 Development Approach
FTB has adopted ITIL V3 service management model as a set of best practices, functions and processes. The EDR solution must be developed in a manner consistent with FTB Service Lifecycle, especially Service Transition and Operation requirements. The vendor may select a Systems Development Life Cycle (SDLC) that best suits the solution; given approval from the EDR project team.

5.1.5 Integration Issues
The EDR Project integrates existing infrastructure, applications and data with the EDR project solution without disruption to current services or functionality. Additionally, the EDR solution will integrate with existing ECM components and other legacy systems across multiple platforms. At a minimum, the solution will integrate with, enhance or modify the following systems:

- Taxpayer Information System (TI)
- Business Entities Tax System (BETS)
- Accounts Receivable Collections System (ARCS)
- Professional Audit Support System (PASS)
- Head of Household (HOH)
- IRS Underreporting Program Computer Paragraph 2000 (CP2000)
- Selected Tax Returns for Automated Audit Review System (STARS)
- Federal State Automated Report System (FEDSTARII)
- Integrated Non-filer Compliance (INC)
- Enterprise Customer, Asset, Income and Return Data Warehouse (ECAIR)
- Withholding at Source System (WASS)
- Mainframe Entity Match Process

5.1.6 Procurement Approach
The EDR Project will require six procurements including:

1. Project Oversight
2. Independent Verification and Validation (IV&V)
3. System documentation consultant services
4. Legacy system documentation tool
5. Cost Reasonableness consultant services
6. Prime Solution Provider (PSP) to develop, implement and initially maintain the proposed solution described in section 5.0.

Each of the procurements identified above will use a competitive solicitation method except for the Cost Reasonableness consultant services.

The PSP services will be acquired using a Solution Based (SB) benefits-funded procurement model funded by increased revenue from implementation of the EDR solution. The EDR PSP will be required to provide initial funding for hardware, software and custom development; and be paid from a percentage of revenue the EDR solution generates.

The SB procurement model is based on the following principles:

- Business Driven Solutions – obtaining innovative and best of breed solutions to Strategic Business Problems that make programmatic improvements as opposed to only specifying solutions through State developed requirements
- Best Value – Selection based on best value solutions including quality, costs, benefits and risks rather than only lowest cost
- Performance Based Payments – vendor compensation payments based on achievement of measurable performance objectives

The SB procurement model provides for vendor contract terms that:

- Specify and emphasize business outcomes to be achieved (i.e., business objectives) and not the solution to be provided
    - State provides outcomes
    - Bidders provide the solution
- Maintain the maximum commitment to project success with both the State and the selected bidder sharing risk and common objectives
- Base payments solely on meeting State defined and measurable business objectives

The SB procurement model is appropriate for EDR due to the project's large scope, high costs, resources and estimated revenue benefits. Additionally, the project involves new technologies in which the department does not have fully developed knowledge and expertise. The combination of scale and complexity compels a procurement approach that shares risk with the selected bidder and maximizes mutual benefit and success.

The SB procurement experience has shown a reduction in the time it takes from project start to benefits, which remains especially appealing given the State's current revenue shortfall. SB procurement provides for extensive knowledge transfer to maximize the State's on-going maintenance and operational success of the acquired EDR solution. Finally, the SB procurement model provides performance based compensation payments for the selected bidder contingent upon actual revenue benefits generated by the EDR solution.

FTB's prior success and revenue benefits using the SB procurement model includes the Child Support Enforcement (CSE), State Disbursement Unit (SDU), PASS, INC and Collections Account Processing System (CAPS) Projects; thus making it a logical procurement approach with the EDR Project.

FTB will prepare an Information Technology Procurement Plan (ITPP) that will describe the overall strategy necessary to accomplish and manage the acquisitions required for the EDR Project and formally document that the proposed approach satisfies State requirements. The ITPP will serve as a reference document and become a permanent record of acquisition decisions. The ITPP will be submitted to the Department of General Services for review and approval prior to conducting the procurements.

FTB will make a formal Request for One-Time Procurement-Information Technology to the Department of General Services to obtain approval to create Request for Proposals that exceed the department's existing purchasing authority for the Project Oversight, IV&V, and the Prime Solution with delegation to use the SB approach.

The table below summarizes the six required procurements.

	Procurement	Type	Estimated Costs	Vehicle
1.	Project Oversight	Competitive Bid	$7,956,000	Request for Proposals
2.	IV&V	Competitive Bid	$5,508,000	Request for Proposals
3.	System Documentation Consultant Services	Competitive Bid	$780,000	Request for Quotations
4.	Legacy System Documentation Tool	Competitive Bid	$431,000	Request for Quotations
5.	Cost Reasonableness Consultant Services	Non-Competitive Bid	$50,000	Non-Competitive Bid Justification
6.	Prime Solution Provider	Competitive Bid	$212,895,030	Request for Proposals

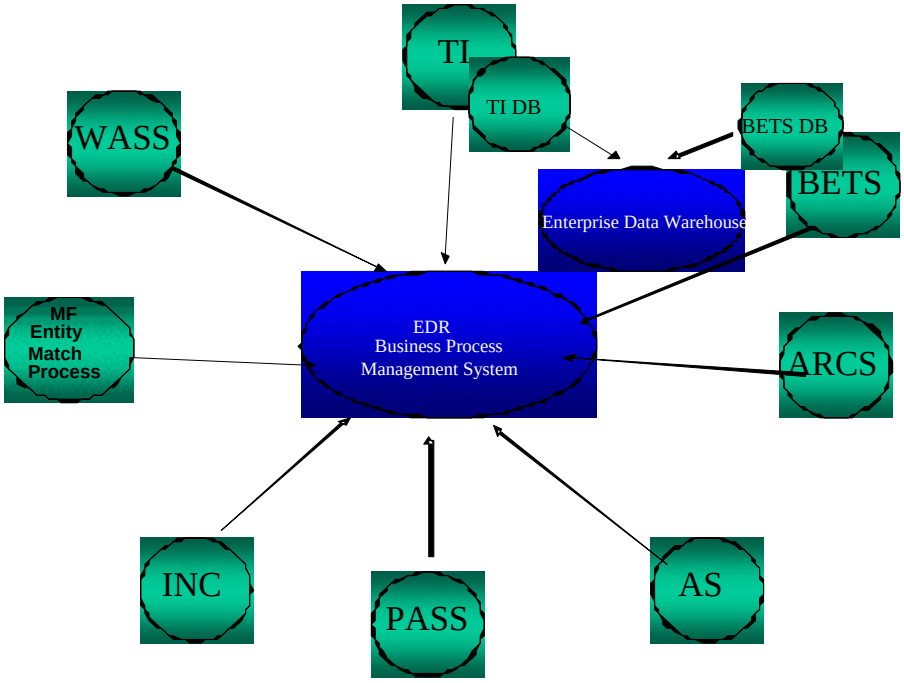
5.1.7 Technical Interfaces

The following systems will be interfaced by the BPM system:

- Taxpayer Information System (TI)
- Business Entities Tax System (BETS)
- Accounts Receivable Collections System (ARCS)
- Professional Audit Support System (PASS)
- Federal State Automated Report System (FEDSTARII)
- Selected Tax Returns for Automated Audits (STARS)
- IRS Underreporting Program, Computer Paragraph 2000 (CP2000)
- Head of Household (HOH)
- Integrated Non-filer Compliance (INC)
- Withholding at Source System (WASS)
- Mainframe Entity Match Process

BETS and TI database systems will have a direct interface to the EDW.

Figure 5.1.1



5.1.8 Testing Plan

The testing process verifies the adherence to the application design in accordance with the business and technical requirements. The objectives of the test strategy are to validate business functionality, usability, architectural integrity, performance and internal interface processes. The project testing plan will provide a detailed description and outline of activities, standards, tools and metrics required for preparing and executing the system changes across multiple systems. Comprehensive subproject testing plans will provide a detailed description and requirements (or test conditions) for all test phases within each subproject.

Testing will not be a single stage of the SDLC. Testing will be conducted within the entire project and within each subproject for:

- Requirements (inspection, validation and verification)
- Unit ("white box" testing)
- Interface
- System (end-to-end testing)
- Integration
- Acceptance (final or "black box" testing)

Beyond the standard protocols for testing, this project presents a testing rigor that has not been deployed since the implementation of TI or BETS. Any changes to these primary accounting systems can affect other or "dependent" systems, i.e., ARCS, INC, etc. Enterprise changes of this magnitude require not only functional testing of the project's requirements but also independent 3rd party regression testing from the business areas to assure dependent systems retain functionality and do not suffer degradation. The existing testing sections within the business areas will be included in the testing plan to perform this regression testing in order to

validate status quo performance. Also, the complexity of this testing will require more extensive planning due to the deployment of new technology and the inclusion of new testing tools, i.e., capture-playback and defect control software. The testing plans will be developed and executed by the project manager (or designee), business analysts, vendor and technical team. Any test planning, test or use cases, test execution or results acceptance done by the vendor must be approved by the State.

5.1.9 Resource Requirements

The table below identifies the human resources required to develop, train and perform ongoing maintenance and operations for the proposed alternative; the funding source vehicle (BCP or redirected), and the organizations that will furnish the resources where redirection is involved. EDR will require resources with specific knowledge, skills and abilities including systems, system functionality, programming languages and technical products to perform specific project and technical management roles. The EDR Project will develop a workforce plan to acquire and develop the staff needed to fill these roles, identify the FTB organizations impacted by the EDR Project and provide the resources where redirection is the funding source vehicle. The strategy is to acquire the resources to develop and implement the solution then retain these resources to maintain and operate the solution. In estimating these costs it is assumed the cost to maintain and operate the EDR solution is equal to the cost to maintain and operate the current systems and functions targeted for EDR decommission, retirement and transition plus the additional human resources required to support the estimated volume increase of notices, users and high-end users. See Project Scope for the complete list of systems targeted for EDR retirement and transition.

One time IT resources:			
FY	PYs/ Hours	Description (If consultant services, identify consultant and services needed)	Source
08/09	15.5 PYs	Development	Redirected within TSD & FESD
09/10	25.6 PYs	Development, System Documentation, Procurement	Redirected within TSD & FESD
	3.8 PYs	System Documentation	BCP
10/11	25.85 PYs	Development, Procurement	Redirected within TSD & FESD
	3.8 PYs	Development	BCP
	3.5 PYs	Consultant Services for Oversight *	BCP
11/12	37.1 PYs	Development, Procurement	Redirected within TSD
	64.6 PYs	Development	BCP
	77.4 PYs	Consultant Services for Oversight, IV&V, Governance, Development	BCP
12/13	48.1 PYs	Development	Redirected within TSD & FESD
	64.6 PYs	Development	BCP

	105.9 PYs	Consultant Services for Oversight, IV&V, Governance, Development, BETS Decoupling	BCP
13/14	24.0 PYs	Development	Redirected within TSD & FESD
	34.6 PYs	Development	BCP
	136 PYs	Consultant Services for Oversight , IV&V, Development, Warranty	BCP
14/15	9.6 PYs	Project Management	Redirected within TSD & FESD
	5.7 PYs	Development	BCP
	61.1PYs	Consultant Services for Oversight , IV&V, Warranty	BCP
15/16	2.6 PYs	Project Management	Redirected within TSD & FESD
	5.25 PYs	Consultant Services for Oversight	BCP
16/17	1.75 PYs	Consultant Services for Oversight	BCP

*State PYs are based on 1749 hours and Contractor PYs are based on 1920 hours

On-going resources:			
FY	PYs/ Hours	Description (If consultant services, identify consultant and services needed)	Source
13/14	30.4 PYS	Ongoing maintenance and operations	BCP
	14.4 PYs	Consultant Services for Transition	BCP
14/15	58.9 PYs	Ongoing maintenance and operations	BCP
	20.84 PYs	Consultant Services for Transition	BCP
15/16	4.0 PYs	Ongoing maintenance and operations	Redirected within TSD
	64.6 PYS	Ongoing maintenance and operations	BCP
	6.44 PYs	Consultant Services for Transition	BCP
16/17	4 PYs	Ongoing maintenance and operations	Redirected within TSD
	64.6 PYS	Ongoing maintenance and operations	BCP
17/18	4 PYs	Ongoing maintenance and operations	Redirected within TSD
	64.6 PYS	Ongoing maintenance and operations	BCP

Program resources:			
FY	PYs/ Hours	Description (If consultant services, identify consultant and services needed)	Source
08/09	2807 PYs	FTB Program Staff	Redirected from FTB
09/10	2807 PYs	FTB Program Staff	Redirected from FTB
	25.7 PYs	FTB Program Staff	BCP
10/11	2846 PYs	FTB Program Staff	Redirected from FTB
	74.4 PYs	FTB Program Staff	BCP
11/12	2885 PYs	FTB Program Staff	Redirected from FTB
	95.95 PYs	FTB Program Staff	BCP
12/13	2924 PYs	FTB Program Staff	Redirected from FTB
	107.9 PYs	FTB Program Staff	BCP
13/14	2963 PYs	FTB Program Staff	Redirected from FTB
	353.5 PYs	FTB Program Staff	BCP
14/15	2963 PYs	FTB Program Staff	Redirected from FTB
	532.0 PYs	FTB Program Staff	BCP
15/16	2963 PYs	FTB Program Staff	Redirected from FTB
	614.2 PYs	FTB Program Staff	BCP
16/17	2963 PYs	FTB Program Staff	Redirected from FTB
	625.3 PYs	FTB Program Staff	BCP
17/18	2963 PYs	FTB Program Staff	Redirected from FTB
	625.3 PYs	FTB Program Staff	BCP

5.1.9 Training Plan

EDR Project training requires a collaborative effort between the vendor and FTB. The goal is for FTB staff to work side-by-side with the vendor training professionals to analyze, design, develop, test and deliver training and training curriculum materials and products. The plan is to capitalize on FTB staff's unique understanding of end users and business objectives to make system training highly successful.

The scope of training will consist of:

- Case Management/Workflow Training for users
    a. Application Training including BETS and TI
    b. Procedure Training
    c. Workflow Processes
    d. Underpayment Modeling Training including ARCS

- Common Services Training for users
    a. Address Service including BETS, TI, PASS, INC and ARCS
        i. Internal users
        ii. External users
    b. Notification Service including BETS, TI, PASS, INC and ARCS

c. Taxpayer Folder
d. Single Sign-on

- Data Management Training including data mining tools for users
  a. EDW/EOD maintenance and operations
  b. PASS
  c. INC
  d. ARCS

- Legacy Systems Training for users
  a. TI
  b. BETS
  c. ARCS
  d. PASS
  e. INC
  f. Audit Systems

- Technical Training for IT development team
  a. Case Management and Workflow (BPM platform)
  b. Common Services
  c. Data Management and EDW/EOD including data mining tools
  d. Legacy

- Governance for users
  a. Case Management/Workflow
  b. Data Management
  c. Common Services

- External Training for taxpayers and tax professionals
  a. Marketing
  b. Self Services
  c. Taxpayer Folder

EDR training will include four types of training: Change Management, Application, Technical and Customer Training. It will use the train-the-trainers approach and include instructor led classes, Computer Based Training (CBT), on-demand training tools (24x7 accessibility), online tutorials and handouts. The vendor will train FTB trainer's onsite at FTB Headquarters. The FTB trainers will then train the remaining FTB staff as required. Training will be provided on-site at remote FTB locations. The target audience will be management, supervisors, leads, business staff, IT staff, taxpayers and tax professionals.

The following is a brief summary:

1. Change management training will consist of an overview of all system changes, new systems, services, and the new way of doing business. The training will include an overview of legacy system changes, data services and workflow governance. The vendor will train approximately 12 trainers who in turn will work side-by-side and train FTB staff. It is estimated that each class will be 6 hours long. These 12 trainers and vendors will

train the Filing Division staff (approximately 1,200 which would consist of 24 classes at 50 per class. They will also train 72 more from the Accounts Receivable Management, Audit and Legal Divisions. These 12 trainers will also train the remaining FTB staff that requires training.

2. Application training will teach staff to perform their jobs with the new Return Processing systems and related services along with all aspects of data management (e.g. data mining) using a dedicated training environment with business scenarios. It will include "how to" information on navigating FTB's internal and external website. The vendor will train approximately 12 FTB trainers who in turn will work side-by-side and train FTB staff. It is estimated that each class will be a minimum of 3 days. These 12 trainers and vendors will train approximately 96 FTB staff which would consist of 4 classes at 24 people to a class. These 12 trainers will also train the remaining FTB staff that requires application training.

3. Legacy System training will tech users of TI, BETS, ARCS, PASS, INC and Audit Systems how to complete impacted tasks in the modified or new systems.

4. Technical training will consist of Case Management/Workflow, Common Services and EDW/EOD including their impacts on legacy systems. FTB staff will learn how to maintain systems and services. The vendor will identify the type of training needed to the extent known (e.g., Java) and follow a "teach me, show me, evaluate me" approach to the extent that allows all knowledge to be transferred from the vendor to FTB. The number receiving technical training will depend on the number of resources on the State Development Team.

5. Customer training will be online through FTB's external website. Marketing tools will be created to teach taxpayers and tax professionals on how to use self-services through the Taxpayer Folder. It will include "how to" information on navigating FTB's external website. The vendor will train approximately 12 FTB trainers and work with FTB to develop a marketing plan and create a CBT and other products and solutions for FTB's external website. Internal users will learn the "how to" within the Change Management Training.

The length of training will depend on the audience type as shown in the example below:

Trainers

- FTB Trainers – 12 months

Change Management

- Management – 2 hours
- Business Staff – 6 hours
- Supervisors and Leads – 7 hours

Application

- Management – 4 hours
- Business Staff – 24 hours
- Supervisors and Leads – 30 hours

Technical
- Management - Ongoing
- IT Staff – Ongoing

Customer
- Taxpayers – External website
- Tax Professionals – External website

5.1.11 On-going Maintenance
The proposed solution requires maintenance in the initial year by the vendor and ongoing maintenance by FTB staff in subsequent years.

5.1.12 Information Security
The proposed solution must:
- Comply with Federal and State laws regarding information security, privacy and disclosure.
- Implement applicable information security controls outlined in Federal Information Processing Standards (FIPS) and National Institute of Standards and Technology (NIST) special publications. These security controls will be based on FTB's risk assessment of the system and the information being processed, stored or transmitted by the system.
- Comply with IRS Publication 1075 if processing, storing or transmitting federal tax information (FTI).
- Comply with applicable State Policy found in SAM, chapter 5300.
- Meet or exceed FTB's security requirements as described in the Department's Information Security Policy File (ISP), section 9500.
- Meet FTB audit logging requirements.

The FTB information security consultant assigned to the project is highly qualified with 14 years of security, disclosure and confidentially experience. The consultant will address all matters related to information security to ensure proper controls are in place to meet the necessary requirements.

5.1.13 Confidentiality
The project team will work with the Privacy, Security, and Disclosure Bureau to ensure departmental security guidelines are followed with regard to the confidentiality of information. Users will only have access to data for which they have an approved business need and right to know. Their access level to the data will be controlled by their role within the system.

5.1.14 Impact on End Users
The EDR Project will significantly change the way the FTB does tax business. The EDR Project, while modernizing infrastructure, architecture, data and services to all users. EDR will also expand the return validation process and provide a more responsive system. As a result, the EDR Project will change and create new ways of doing business that will increase the effectiveness and efficiency of workload processing, which will reduce cost and increase revenue. Major impacts will include new and improved skill sets for working in an electronic environment, managing new and changing workloads, reduction of temporary help staff, the

reassignment and/or realignment of staff, new communication methods and channels, enterprise governance and change management of an enterprise model.

We must ensure change is communicated clearly to all affected parties and that the change is managed adequately. The EDR Project will address many of these impacts through training of FTB business users in processes, procedures and systems, and facilitating a change acceptance process, along with the development of a communication plan for external stakeholders and customers. Extensive efforts are planned and will continue throughout the project lifecycle to effectively communicate and manage organizational change. The following provides specific impacts and mitigation strategies developed for each of the major system changes.

5.1.14.1 Case Management and Workflow

The implementation of expanded data capture, increased customer services, newly automated workloads and modifications to existing manual workflows will have a significant impact on FTB resources. Paper dependent tasks and workflows will be eliminated and the ability to plan and manage business processes and rules without technical support will be implemented. This will require re-evaluation of required skill sets or performance expectations, reclassification or redirection of staff, and increased need for retraining qualified staff. More specialized training will be required for those business users within Return Filing and Validation that will include Business Process Management and Business Rules Management. Planning efforts will be a priority throughout the project as will communication with Department of Personnel Administration and the union, as appropriate.

5.1.14.2 Data Management

By making greater amounts of data available to staff, training, security and disclosure issues must be managed and addressed. Staff will require training on new data sources available to them, how and when to use the data and FTB policies on usage of data. This training will include change management in order to mitigate staff from becoming overwhelmed by the availability of significantly more data and negatively impacting productivity.

An increase in data for modeling purposes will require specialized training for the users responsible for these activities to ensure an understanding of all of the data available and managing the potential increase in models.

Most business areas (FE, Fraud, Audit, Underpayment) do not currently utilize Data Mining tools. The implementation of these tools will require end user training and supporting procedure documentation.

5.1.14.3 Common Services

Common Services are a major change to FTB operational principles and practices. The current paradigm manages functions by applications. As functions are deployed and made available as common services to the enterprise there will be a need to manage these functions in consideration of all client applications. If this scope is not adequately understood and managed across the enterprise then the timeliness and quality of decision making will suffer and will negatively impact productivity including revenue. Pilot programs to test impacts will be developed and implemented to maximize development of effective Governance processes

before common services are deployed. Strong leadership and Governance of this new effort will be addressed through a separate organizational function responsible for development and oversight of all Common Services.

Our culture will change as will the way we conduct our customer service. This is actually seen as a very positive improvement, and although specialized processes and training will be developed, the bigger change may be to our external customers. We anticipate the launch of a taxpayer and stakeholder educational effort aimed at the availability and the use of the new self-services.

The implementation of Common Services will also create demand for new technical knowledge, abilities and skills. There will be the need to strategically plan to attract and retain the necessary resources.

5.1.14.4 Legacy Systems

Any modifications made to the existing user interface look and feel or operational dynamics will change the user's experience and interaction with the new or modified system. Appropriate planning and training will be developed and deployed to all impacted users.

Decommissioning certain existing functionality from FTB's core systems like BETS or TI will impact current processes and workload production. Staff will need to be trained on any modifications to existing workflows and provided updated processing procedures. There will be a continued need to maintain legacy systems knowledge, skills and abilities.

5.1.14.5 Additional Impacts Considered

The following impacts are more global and enterprise in nature and not specific to a system of work or system change. Additional detailed analysis may be needed during the project design phase.

- The current business organizational structure may require realignment of some functions as new validation-centric capabilities are demonstrated in the processing environment.

- Modified business leadership skill sets may be needed to successfully implement and maintain the opportunities, which will require major culture change, increased communication needs, increased collaboration skills and an intensified need for enterprise perspective.

- The way business is conducted from an operational perspective will change. New levels of governance will be introduced and existing processes will impact employee behavior, morale, and work activities. An extensive change management, communications and training plan will be developed and communicated throughout the enterprise as well as to external stakeholders.

5.1.15 Impact on Existing System

INC will receive its case data selection from the new EDW. The INC modeling process will incorporate prior year information for income and asset information. INC will continue to use TI to receive address information and use the new Address Service to obtain new address when

the current address is undeliverable. The INC address data will be converted to the new EDW. EDR will create a web service that can be called from the Taxpayer Folder for INC NPA notice displays.

ECAIR will transition to the new EDW. All modeling processes supported by ECAIR will be transitioned to use the new EDW and data matching service. The ECAIR, MIS, PIT Return Data Mart and Processing Summary reports will transition to the EDW and be retired.

ARCS collection notices will be delivered via a web service to the Taxpayer Folder. ARCS will continue to use TI to receive address information and use the new Address Service to obtain addresses when the current address is undeliverable. ARCS modeling will use the new Underpayment Modeling Process. STRATA will be replaced with the new Underpayment Modeling Process. The Payer File and EIDB will be maintained redundantly. TI and BETS will be modified to interface with the new Underpayment Modeling Process.

PAWS will be retired. Its functions will be replaced with EDR's new Notification and Address Services combined with the new PIT Return Processing processes.

PASS modeling databases, including SBRD, IRS Individual Return (IRSIR), IRS Business Return (IRSBR), Ownership Hierarchy (OH) and Owner Interests (OI) will be transitioned to the EDW. NPAs for PASS PIT cases will be composed, issued and managed via the new Return Processing processes working in conjunction with the Notification and Address Services and displayed in the Taxpayer Folder. NPAs for PASS BE cases will continue to be issued via BETS. PASS users may use the new Taxpayer Folder to view the modeling data detail in addition to using the current PASS TIA view. PASS will continue to use TI to receive address information. PASS will add metadata to use the additional EDW data for modeling. PASS will maintain the OH and OI processes, but the input data will be from the EDW. The PASS source databases will be decommissioned and replaced with the EDW while the PASS modeling engine will be modified to use the new modeling data from the EDW.

HOH, CP2000, STARS and FEDSTARII will be modified to use the new Return Processing system and Notification and Address Services to issue and manage NPAs.

PIT and BE return filing and validation systems will be replaced by new PIT and BE Return Processing workflows. PIT RV will be retired and BETS RV rules will be bypassed. The Tandem system will be retained as business required.

Return processing workflow will leverage the Image Processing and Cashiering System (IPACS) OCR and SCAN enhancements planned between now and EDR implementation. In the event that enhancements are not completed timely, EDR project will bridge the gap between data captured and data needed for EDR.

PIT and BE return e-file data will be converted to the EDW. Third party data loading, matching, cleansing and validation processes will be converted or enhanced to load the new into the EDW real time. Current data from the post-NPA process and inventory data will be converted to the EDW.

The BETS proprietary INSTALL/1 and DESIGN/1 products will be removed. The presentation layer will be converted to a web-based interface. The new system will use BPM to document all business rules. A new Test Data Management system will replace the current test system. All current applications will be reengineered and architected for reusability, maintainability and separation of the presentation layer. BE noticing subsystems will be isolated for future interface with the new Return Processing processes and Notification and Address services. SBRD will be retired and the EDW will take its place as the database repository. The front-end BE workflow solutions will be implemented on the new BPM platform that will design, manage and execute business processes and business rules. The BPM platform will also interact with BETS as business required.

Unlike the above mentioned systems, the Withhold At Source Systems (WASS) is currently in development with completion scheduled for August 2010. The WASS project will incorporate the existing withholding systems into one comprehensive payment clearinghouse using SOA and .Net framework. WASS data will be initially converted to the EDW with the development of a subsequent interface to receive ongoing withholding information updates

5.1.16 Consistency with Overall Strategies

The EDR Project is consistent with many State, Agency and Department initiatives, strategies and direction, as well as industry best practices and trends. The EDR Project seeks to achieve FTB's primary function, strategies and goals, which revolves around collecting the proper amount of tax revenue due at the least cost.

The EDR Project will provide the opportunity to reduce the tax gap by improving taxpayer confidence in the system, taking a proactive approach in identifying fraudulent tax behavior, encouraging Blue Path behavior and using more data to reconcile all aspects of a return, such as using 3rd party data and schedule information.

In addition to addressing tax gap issues, the EDR Project is aligned with FTB's Strategic Plan and IT Strategic Plan including goals, objectives and vision. All of the objectives and strategies of the EDR Project are direct derivatives from either or both of these documents. FTB's IT Strategic Plan takes into consideration the State of California CIO and the State and Consumer Services Agency goals and strategies as well. The scope section of this FSR maps to all of these goals (see Section 6.5.1).

For strategies on legacy impact, reference FTB's ITSP: "EDR Legacy Systems" and "TSM Legacy System Transition Guidelines and Strategies" sections.

5.1.17 Impact on Current Infrastructure

The solution should be designed to leverage as much of the current infrastructure as necessary to achieve the EDR Project objectives. New infrastructure products, not limited to BPM, ECM, workflow, testing management, knowledge mining and abstraction (KMA) tool, development suites and rules engine will be compatible and integrate with FTB's software and hardware infrastructure.

Depending on the solution proposed, FTB's hardware infrastructure will be enhanced to handle the new workloads. Any additional hardware servers must be compatible with FTB's hardware and network infrastructure. The solution should add capacity to existing hardware when

appropriate. Backup systems will be enhanced to handle the new capacity for data and programs. Much of the impact on current infrastructure will be determined by the solution chosen.

5.1.18 Impact on Data Centers

EDR will not impact external data centers.

5.1.19 Data Center Consolidation

FTB is a single-agency with a dedicated use data processing center. Data Center consolidation does not apply to FTB.

5.1.20 Back-up and Operational Recovery Plan (ORP)

FTB has a Comprehensive Continuity of Operations/Continuity of Government (COOP/COG) plan that includes business recovery and operational recovery plans for critical business functions as defined in the FTB Business Impact Assessment. These plans define an overall recovery strategy for business and the IT infrastructure that address the worst case scenario of a temporary or permanent loss of the FTB Central Campus. FTB's overall plan addresses strategies as to how to continue and restore business at alternate locations.

Requirements addressed in this section focus only on changes to existing Business Resumption Plans and/or ORPs or the development of new plans and recovery capabilities, as necessary, which are a direct result of this project. The EDR proposed solution may impact several critical functions that are in tiers 1-3 of the department's 2008 Business Impact Assessment, which defines these business functions and recovery times. Below are the functions and corresponding tiers that may be impacted based on a vendor proposed solution. The earliest Recovery Time Objective (RTO) for these critical functions is 1-2 days.

Tier 1 (1-2 days)

- Cashiering
- Involuntary collection action calls
- Electronic return/payment processing

Tier 2 (3-7 days)

- Return/payment data capture
- Validation
- Electronic web services
- Withhold at source

Tier 3 (8+ days)

- Audits
- Disputes
- Customer service
- Collections
- Filing enforcement
- Forms development and distribution

Data backups will be created on a daily basis for all application and user data and will be kept in a storage vault located near FTB's data center. Once a week, a full set of backups will be sent

off-site utilizing an off-site storage vendor managed by the Computing Resources Bureau. The offsite backups will be rotated weekly and a minimum of two generations of backups will be off-site at any time.

This project takes a "solution based" procurement approach which means vendors will propose appropriate solutions based upon the business problems and requirements. The project will include business process reengineering and significant modifications to a multitude of business applications and the infrastructure supporting those applications. Once the solution is known, the specific ORPs and BRPs impacted by the project will be identified and modified to ensure appropriate recovery strategies are defined and documented at the time the system moves into production.

5.1.21 Public Access

One component of the proposed solution will give provide public access. FTB will provide:

- A centralized security policy to ensure only authorized users access protected resources for all entities to include:
    1. External users (taxpayers accessing My FTB Account)
    2. Internal users
    3. Business partners
    4. System services that are used to access resources within the system.
- Single sign-on to all authorized services using mechanisms that can be leveraged across Web applications, federated partners, Web Services partners and Web Services.
- Open standards based on identity management using protocols such as SAML and ID-FF to create and share security for federation and compliance with California statewide initiatives.
- Access Auditing and Event Logging for auditing access violations.

5.1.22 Costs and Benefits

See Section 8.0, EAWs, for cost detail.

Total One-time Cost: $232,438,569	
$ Amount	Description
$37,438,160	365.2 PYs FTB Staff for Development, Project Management, and Procurement Activities
$195,000,409	Hardware, Software & Consultant Services, Training

Annual Ongoing Cost: $13,514,098	
$ Amount	Description
$6,913,432	68.6 PYs FTB Staff for Ongoing Maintenance
$6,600,666	Hardware & Software Ongoing Maintenance

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	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	Totals
ARM Total	$ -	$ 1,331,402	$ 2,662,803	$ 62,866,661	$ 182,417,768	$ 467,335,425	$ 763,156,883	$ 780,372,902	$ 780,372,902	**$ 3,040,516,746**
Audit Total	$ 1,250,582	$ 8,741,250	$ 7,490,669	$ 5,827,500	$ 36,139	$ 18,926,863	$ 23,194,052	$ 49,739,540	$ 53,617,182	**$ 168,823,777**
Filing Total	$ 2,558,534	$ 3,665,370	$ 12,249,048	$ 12,249,048	$ 67,400,000	$ 96,020,000	$ 102,420,000	$ 104,320,000	$ 106,120,000	**$ 507,002,000**
Total EDR Benefits	**$ 3,809,116**	**$ 13,738,022**	**$ 22,402,520**	**$ 80,943,209**	**$ 249,853,907**	**$ 582,282,288**	**$ 888,770,935**	**$ 934,432,442**	**$ 940,110,084**	**$ 3,716,342,523**

5.1.23 Sources of Funding

One time IT resources:			
FY	$ Amount	Description	Source
08/09	$1,631,731	15.5 PYs FTB Staff	Redirected within TSD
09/10	$2,688,933	25.6 PYs FTB Staff	Redirected within TSD
	$418,626	3.8 PYs	BCP
	$459,132	Hardware, Software	BCP
	$830,000	Consultant Services	BCP
10/11	$2,712,950	25.9 FTB Staff	Redirected within TSD
	$401,902	3.8 PYs	BCP
	$1,239,125	Hardware, Software	BCP
	$1,345,410	Consultant Services	BCP
11/12	$3,702,445	37.1 FTB Staff	Redirected within TSD
	$6,806,562	64.6 PYs	BCP
	$2,448,000	Consultant Services	BCP
	$686,400	Training	BCP
12/13	$4,749,920	48.1 PYs FTB Staff	Redirected within TSD
	$6,512,072	64.6 PYs	BCP
	$46,410,336	Consultant Services	BCP
	$686,400	Training	BCP
13/14	$2,435,664	24.0 FTB Staff	Redirected within TSD
	$3,504,081	34.6 PYs	BCP
	$31,549,746	Hardware, Software	BCP
	$33,383433	Consultant Services	BCP
	$343,200	Training	BCP
14/15	$1,014,768	9.6 FTB Staff	Redirected within TSD
	$574,358	5.7 PYs	BCP
	$72,761,971	Consultant Services	BCP
15/16	$284,150	2.6 FTB Staff	Redirected within TSD
	$2,245,256	Consultant Services	BCP
16/17	$612,000	Consultant Services	BCP

Ongoing resources:			
FY	$ Amount	Description	Source
09/10	$100,000	Hardware Maintenance	BCP
10/11	$187,476	Hardware & Software Maintenance	BCP
11/12	$399,491	Hardware and Software Maintenance	BCP
12/13	$414,095	Hardware and Software Maintenance	BCP
13/14	$3,063,135	30.4 PYs	BCP

	$418,065	Hardware and Software Maintenance	BCP
14/15	$5,935,036	58.9 PYs	BCP
	$18,803.369	Hardware and Software Maintenance	BCP
	$12,477,125	Contract Services Maintenance	BCP
15/16	$404,038	4.0 FTB Staff	Redirected within TSD
	$6,509,395	64.6 PYs	BCP
	$6,600,666	Hardware and Software Maintenance	BCP
	$ 2,280,156	Contract Services Maintenance	BCP
16/17	$404,038	4.0 FTB Staff	Redirected within TSD
	$6,509,395	64.6 PYs	BCP
	$6,600,666	Hardware and Software Maintenance	BCP
17/18	$404,038	4.0 FTB Staff	Redirected within TSD
	$6,509,395	64.6 PYs	BCP
	$6,600,666	Hardware and Software Maintenance	BCP

Program resources:			
FY	*$ Amount*	*Description*	*Source*
08/09	$191,253,520	FTB Program Staff	Redirected
09/10	$191,253,520	FTB Program Staff	Redirected
	$1,719,777	FTB Program Staff	BCP
	$274,631	OEE, Printing, Postage	BCP
10/11	$194,850,531	FTB Program Staff	redirected
	$4,615,189	FTB Program Staff	BCP
	$21,842	OEE, Printing, Postage	BCP
11/12	$198,298,718	FTB Program Staff	redirected
	$5,788,067	FTB Program Staff	BCP
	$32,407	OEE, Printing, Postage	BCP
12/13	$202,044,553	FTB Program Staff	redirected
	$6,694,354	FTB Program Staff	BCP
	$588,461	OEE, Printing, Postage	BCP
13/14	$205,641,564	FTB Program Staff	redirected
	$21,081,108	FTB Program Staff	BCP
	$1,070,139	OEE, Printing, Postage	BCP
14/15	$205,641,564	FTB Program Staff	redirected
	$33,979,014	FTB Program Staff	BCP
	$267,454	OEE, Printing, Postage	BCP
15/16	$205,641,564	FTB Program Staff	redirected
	$36,781,920	FTB Program Staff	BCP
	$672,258	OEE, Printing, Postage	BCP

16/17	$205,641,564	FTB Program Staff	redirected
	$39,863,759	FTB Program Staff	BCP
	$672,258	OEE, Printing, Postage	BCP
17/18	$205,641,564	FTB Program Staff	redirected
	$39,794,294	FTB Program Staff	BCP
	$672,258	OEE, Printing, Postage	BCP

5.2 Rationale for Selection

The proposed alternative is Alternative B which phases in new PIT and BE Return Processing workflows for the PIT and BE Return Filing and Return Validation SOW and integrates and expands PIT and BE return imaging and data capture beginning January 2014. These new workflows are implemented for PIT first and then BE one year later. Alternative B also establishes an EDW with EOD; modifies FE, Audit and Underpayment legacy systems to use enterprise data; implements common services including Taxpayer Folder with self-services; and modifies BETS to make the architecture non-proprietary and more open. The rationale for selecting the proposed Alternative B was based on the four selection criteria in the table below.

EDR Alternative Solution Selection Criteria	
Criterion	**Description**
1. Schedule	Time to implement
2. Scope	Degree to which Alternative meets requirements Degree to which Alternative solves the Strategic Business Problems Degree to which Alternative meets the EDR Project Business Objectives Degree to which Alternative enables the “Blue Path” vision Must meet mandatory requirements
3. Net Value	Net benefits including revenue and costs savings compared to cost of Alternative overall and annually Must show net positive benefits each year
4. Risk	Degree to which Alternative maximizes success in terms of risk to revenue, costs, scope, quality, architecture, schedule and enterprise support

Alternative B scored the most points when evaluated comparatively against the other alternatives using the selection criteria above. Points were awarded from 1 to 3, with 3 representing the most desirable alternative and 1 representing the least desirable alternative. Alternatives that did not meet mandatory requirements concerning criteria 2 and 3 received 0 points._If the evaluation of two or more alternatives identified the same advantages and disadvantages, both alternatives were awarded the same number of points. The advantages and disadvantages of the Proposed Alternative B are shown in the table below in terms of the equally weighted selection criteria.

Proposed Alternative B – Advantages and Disadvantages

Selection Criteria	Advantages	Disadvantages

Selection Criteria	Advantages	Disadvantages
1. Schedule	-Offers more opportunities to phase in functionality	-Longer phased in implementation schedule, 30 and 42 months compared to Alternative A -Meets Business Objectives later compared to other alternatives
2. Scope	-Meets all EDR mandatory requirements -Solves all of the EDR Strategic Business Problems -Meets all 11 of the Business Objectives -Fully meets scope -Implements Blue Path business priority vision	
3. Net Value	-Annual net benefits are consistently positive as total costs are spread out over longer schedule (alternative can be funded over the life of the project from benefits)	-Achieves lowest overall net benefits due to increased costs and deferred BE revenue
4. Risk	-Lowest risk given the same scope as A and longer phased in schedule compared to A -Fully engages enterprise -Solution most likely to align with desired architecture given longer schedule -May actually result in lower total cost of ownership due to longer schedule and less pressure to compromise quality and architecture	-Longer schedule may risk staff turnover

5.3 Other Alternatives Considered

5.3.1 Alternative A Description

Of the two EDR Project alternatives, Alternative A received the next highest points. Alternative A is exactly the same as Alternative B except implementation of new Return Processing workflow for PIT and BE are implemented at the same time for the 2014 tax filing season. This alternative has the effect of accelerating the BE benefits and reducing the costs for overhead in exchange for added schedule and quality risks. The advantages and disadvantages of

Alternative A compared to Alternative B and the points awarded to each alternative when compared to all three of the alternatives evaluated based on the 4 selection criteria are shown in the table below.

5.3.1.1 Alternative A Compared to Alternative B

Selection Criteria	Alternative A Advantages/Disadvantages and Score	Alternative B Advantages/Disadvantages and Score
1. Schedule	-Shorter implementation schedule, 30 months +3 Points	-Longer phased in implementation schedule, 30 and 42 months +2 Points
2. Scope	-Meets all EDR mandatory requirements -Solves all of the EDR Strategic Business Problems -Meets all 11 of the Business Objectives -Fully meets scope -Implements Blue Path business priority vision +3 Points	-Meets all EDR mandatory requirements -Solves all of the EDR Strategic Business Problems -Meets all 11 of the Business Objectives, but one year later than A -Fully meets scope -Implements Blue Path business priority vision – +3 Points
3. Net Value	-Annual net benefits for year 2 are negative due to same scope as B, but shorter schedule (higher peak costs) -Achieves next best overall net benefits +0 Points	-Annual net benefits are consistently positive as total costs are spread out over longer schedule -Achieves lowest overall net benefits due to increased costs and deferred BE revenue +3 Points
4. Risk	-Greater risk given the same scope as B, but shorter schedule -Implements PIT and BE Return Processing at the same time -Fully engages enterprise -Solution least likely to align with desired architecture given same scope as B and shorter schedule (pressure to cut corners) +1 Point	-Lower risk given the same scope as A but longer phased in schedule compared to A -Fully engages enterprise -Solution most likely to align with desired architecture given longer schedule -May actually result in lower total cost of ownership due to longer schedule and less pressure to compromise quality and architecture +3 Points

Selection Criteria	Alternative A Advantages/Disadvantages and Score	Alternative B Advantages/Disadvantages and Score
Total Score	**7**	**11**

6.0 Project Management Plan

6.1 Project Manager Qualifications

The Project Manager (PM) is a CEA II and director of the FTB TSM Bureau responsible for developing the strategies and plans to enable the FTB Enterprise Strategic Business Vision. The EDR Project is the first major step in achieving the Business Vision. The PM has nearly 15 years experience at the highest levels of IT project management responsibility. This experience includes more than seven years of experience as Deputy Director of the FTB CA Child Support Automation System (CCSAS) Project including the CSE and SDU Projects; and more than seven years experience as Project Sponsor and Project Director of the PASS Project. The PM was directly responsible for directing all FTB, contractor and service provider project life cycle activities including planning, procurement, requirements engineering, system development and implementation for both the CSE System and the SDU operations and managing communications with all stakeholders. The PM participated in and was directly responsible for negotiating portions of each of the CCSAS contracts. These project contracts had a combined cost in excess of $1.1 billion. The CCSAS projects achieved the milestone, “Submit Request for Federal Certification,” under the PM’s direction. The CCSAS projects have since received certification for the project’s highest priority business problem. The PM was also responsible for directing all life cycle phases of the PASS Project including planning, procurement, development and implementation and was the chief negotiator on the PASS contract, which was for $23 million. The PASS project was implemented within budget and on schedule. Each of these projects used the Performance Based Procurement (PBP) approach and the PM was responsible for constructing the compensation model and negotiating the agreement to base vendor payments on achievement of project objectives.

The EDR Project will use the Solution Based Procurement model based on the same principles of the PBP. The PM has a consistent track record of successfully managing large and high risk IT projects.

6.2 Project Management Methodology

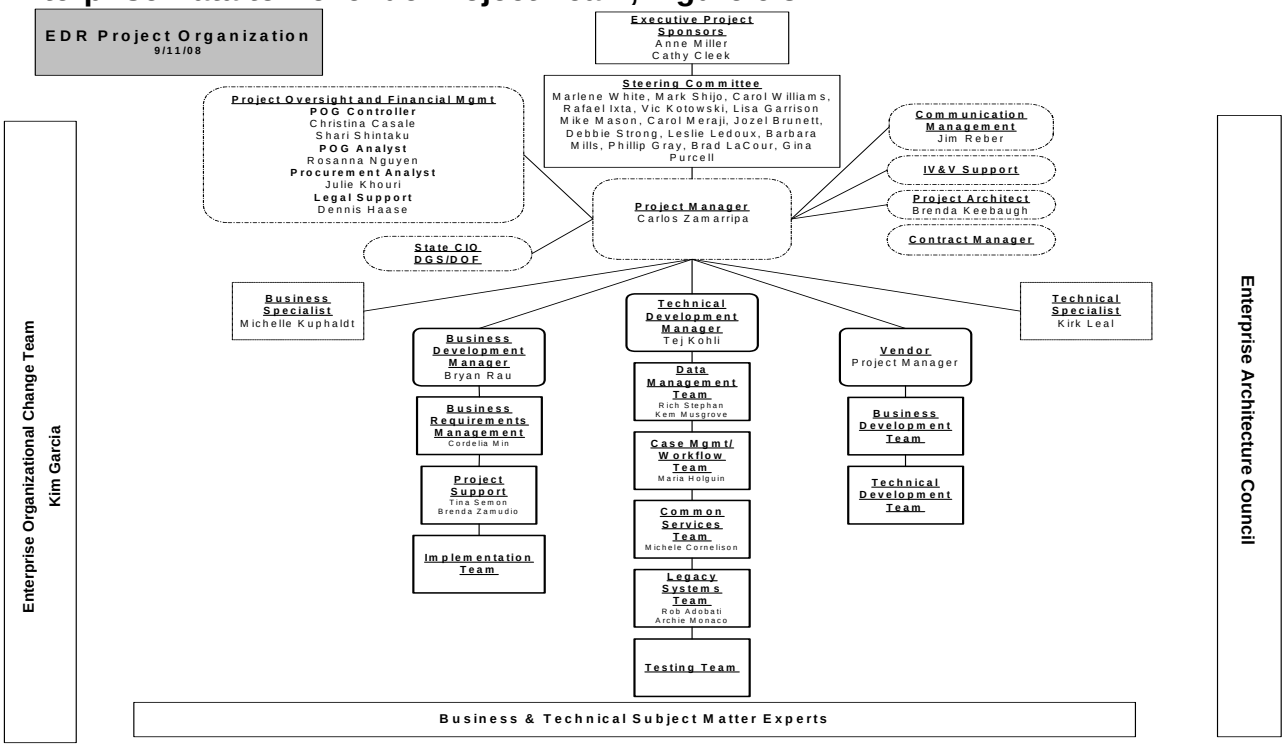
Due to the magnitude and associated risks of the EDR project, rigorous application of Project Management processes consistent with industry standards and best practices will be required. The FTB project management methodology is based on *A Guide to the Project Management Body of Knowledge* (PMBOK), Third Edition; Statewide Information Management Manual (SIMM) Section 45, Appendix A; and SIMM Section 200, *Project Management Methodology Guidelines*. The Project Manager will, at a minimum, implement the required project management practices specified in SIMM 45 as well as follow generally accepted project management best practices and methodologies, appropriate to the project’s level of complexity.

6.3 Project Organization

A successful project involves input, review and involvement from many business areas, as well as from a number of technical areas of expertise. The key project team members are:

Project Sponsors: Anne Miller and Cathy Cleek
Project Manager: Carlos Zamarripa
Project Stakeholders: Accounts Receivable Management Division
Audit Division
Filing Division
Technology Services Division
FTB Customers and Tax Practitioners

Enterprise Data to Revenue Project Team, Figure 6.3.1



6.4 Project Priorities

Schedule	Scope	Resources
Constrained	Accepted	Improved

6.5 Project Plan

The project manager will follow FTB's project management standards and guidelines based on PMBOK to develop the project plan. Microsoft Project will be used to develop the timeline, identify the tasks involved, assign resources and monitor task completion within the schedule and resources allocated.

6.5.1 Project Scope

The EDR Project will:

1. Reengineer PIT and BE Return Filing, Validation processing and Fraud detection. Implement a new integrated PIT/BE Return Processing Case Management/Workflow with

manageable and reusable processes including Return Validation, Return Adjustment, Post Proposed Assessment and Underpayment Modeling integrated with Common Services to make the processing of California income tax returns, payments and refunds more agile, efficient and effective; Strategic Business Goals 1, 2, 5; Tax Gap Goals 1, 2, 3, 4, 6

2. Expand return and supporting document imaging, return data capture and retention to increase the utilization of data including taxpayer relationships to improve the efficiency and effectiveness of Return Filing, Validation, Fraud detection, FE, Audit and Underpayment activities; Strategic Business Goals 1, 2, 5; Tax Gap Goals 1, 2, 3, 5, 6
3. Implement a new EDW including EOD, centralized data processing, matching and delivery services and data mining tools to improve the efficiency and effectiveness of data management and analysis and make data available for Return Filing, Validation, FE, Audit and Underpayment activities; Strategic Business Goals 1, 2, 3, 5, 6;Tax Gap Goals 1,2,3,6
4. Expand Return Validation to take advantage of the expanded data capture and correct more taxpayer return errors; Strategic Business Goals 2, 5; Tax Gap Goals 1, 3, 6
5. Expand use of data matching especially with regards to Return Processing, Filing Enforcement, Audit selection and Collections assignment ; Strategic Business Goals 1, 2, 5; Tax Gap Goals 1, 3, 6
6. Implement Common Services including PIT and BE Address, Notification, Internal Authentication with Single Sign-on, and services oriented infrastructure to reduce redundancy, leverage, improve and reuse system functionality and to improve Return Filing, Validation, FE, Audit and Underpayment efficiency and effectiveness; Strategic Business Goals 1, 2, 4, 5, 6; Tax Gap Goals 1, 2, 4, 6
7. Establish a Filing Taxpayer Folder with consolidated taxpayer and withhold agent information and expanded taxpayer Self-Services including Return and Notice view, Address update and Self-Protest Common Services to improve the efficiency and effectiveness of Return Filing and Validation; Strategic Business Goals 1, 3, 4, 5; Tax Gap Goals 2, 4, 5
8. Provide Return Processing Case Management/Workflow and Common services user training to maximize productivity; Strategic Business Goals 4, 5
9. Implement Enterprise Common Service, Data and Business Process Governance to maximize enterprise decision making and EDR Project success; Strategic Business Goal 5
10. Make modifications to Legacy Systems including TI, BETS, ARCS, PASS, HOH, CP2000, STARS, FEDSTARII, and INC and provide training to meet EDR Project requirements and support realization of benefits; Strategic Business Goals 2, 5; Tax Gap Goals 1, 3
11. Modify BETS to decouple proprietary INSTALL/1 and DESIGN/1 products, increase modularity and align system with service oriented architecture consistent with requirements and provide training to reduce the cost of EDR Project required changes and the risk of maintainability and increase user productivity; Strategic Business Goal 5; Tax Gap Goals 1,4
12. Convert ECAIR, PASS modeling, SBRD, TI and BETS data; Strategic Business Goal 5
13. Transition ECAIR and My FTB account; retire PAWS, POA Database SBRD, e-View, b-View, Mainframe File and Print; and BIDS Process Summary System, Management Information System, and PIT Return Data Mart System; and decommission ARCS STRATA, Strategic Business Goal 5

6.5.2 Project Assumptions

1. The State of California's existing tax structure and tax policy will remain relatively constant.
2. Taxpayer choice to file tax returns electronically or on paper will remain.

3. All EDR Project tasks will be completed as planned.
4. Management will maintain the project as high priority throughout the SDLC.
5. The EASE Project will continue as planned and meets the planned implementation schedule.
6. The WASS Project continues as planned and meets the planned implementation schedule.
7. The Workload Growth Project is approved and implemented.
8. BE and PIT Scan and Shred Projects are completed and continue expansion of imaging including supporting documentation (correspondence).
9. The department is committed to developing staff with the requisite skills to develop and deploy the EDR solution.
10. Substantial benefits will be derived from the EDR project solution to fund the procurement and implementation.
11. The department will be authorized to use the Solution Based Procurement model and will receive delegation to execute it accordingly.
12. There will be no legislative mandates that significantly impact the EDR Project or FTB technology.
13. There will be sufficient interest from qualified vendors so that they will bid on the EDR Project.
14. Required Interagency Exchange Agreements can be negotiated and agreed to in a reasonable timeframe.

6.5.3 Project Phasing

The EDR scope is the first phase of the implementation of the TSM Enterprise Integration Opportunities. The phasing in of deliverables will be encouraged as one way to manage risk and impact on production.

This effort consists of 4 subprojects:

1. Case Management and Workflow
2. Data Management
3. Common Services
4. Legacy Systems

The subprojects will run concurrently providing for prerequisites and milestones needed for timely completion of all subprojects. The following represents the stages of the System Development Lifecycle (SDLC) that have been completed:

- Initiation
- Concept

The following represents the stages of the SDLC that will be conducted post-FSR:

- Planning
- Requirements
- Design
- Development
- Integration
- Implementation

- Operation and Maintenance
- Disposition or Retirement

6.5.4 Roles and Responsibilities

Role	Responsibilities
Executive Project Sponsors	Assumes overall authority for the project, including: • Providing vision and direction for the project • Providing policy leadership • Providing necessary funding and resources • Serving as project champion to provide exposure and buy-in • Supporting change management initiatives • Providing support to the Steering Committee as needed • Communicating their views on project progress and success factors to the project team and other stakeholders • Prioritizing project related issues with other enterprise efforts • Provide Governance Council updates
Steering Committee	Acts as the project stakeholders group to ensure that the deliverables and functionality of the project are achieved, including: • Providing high-level project direction and approval • Addressing and resolving escalated issues, risks or change requests as necessary and appropriate • Ensuring necessary resources are available • Validating Project Manager decisions

Role	Responsibilities
Project Manager	Plans, directs and oversees the project and ensures the integration of project deliverables and functionality as defined in the Project Charter and subsequent project plans, including: • Conducting overall project planning and monitoring • Managing all resources assigned to the project • Serving as the primary liaison between the Executive Project Sponsors and Steering Committee and escalating decisions and issues as needed • Coordinating project-related issues with other enterprise efforts • Reviewing and resolving project issues not resolved at lower levels • Directing the Project Management functions • Acting as the principal interface to the vendors/contractors • Providing oversight and planning for IV&V and vendor procurement • Conducting detailed cost and benefits analysis and working closely with project oversight to effectively manage project costs and derived benefits • Facilitating project communication reporting and fiscal status to all levels of oversight • Coordinating with quality management staff to ensure quality processes and continuous quality improvement are applied to all project activities • Developing, documenting, implementing and monitoring of policies, methodologies, tools and processes that support: ▪ Project Integration Management ▪ Project Scope Management ▪ Project Communication Management ▪ Project Human Resource Management ▪ Project Procurement Management ▪ Project Risk Management ▪ Project Cost Management ▪ Project Time Management ▪ Project Quality Management
Communication Management	Provides support for all communication deliverables, including: • Development, research, writing, layout and design, review and finalization of key project deliverables • Performing external customer impact analysis
IV&V Support	• Provides independent, technical review and verification of project deliverables • Provides independent testing and auditing of project deliverables against requirements with a special emphasis placed on deliverable quality assurance and information security control reviews
Project Architect	Provides Project Architecture Support, including: • Ensuring design, development and project changes are EA compliant • Facilitating the review of variances discovered during the Project Life Cycle (PLC) • Assisting projects to obtain EA compliance certifications and/or waivers for authorized exceptions
Enterprise Architecture Council	Provides oversight and guidance for the principles, guidelines and rules for an overall framework to guide the organization through the acquiring, building, modifying and interfacing of information resources and data
Enterprise Organizational Change Team	Supports department-wide project communication and change management initiatives

Role	Responsibilities
Project Oversight and Financial Management	
POG Project Controller	Monitors the project's financial progress by tracking and reporting expenditures to ensure the project stays within budget
POG Project Analyst	Monitors the project's progress and assists in the development, review and approval of required project documentation
Procurement Analyst	Oversees and supports the procurement process and contract administrative functions by: • Serving as a liaison with the FTB Procurement Unit, DGS and the vendor community • Planning procurement activities • Conducting the development of statements of work, solicitations for business partner selection, solicitations for conceptual proposals, contract agreement for acquisition of technology services and equipment • Participating in the vendor evaluation, vendor selection and contract negotiation processes, serving as the procurement process expert • Coordinating and tracking invoices and payments along with resolving billing disputes • Initiating contract amendments and renewal notices • Coordinating with FTB legal staff to ensure resolution of contract and procurement issues
Legal Support	Provides legal opinions upon request in areas of the Request for Procurement (RFP) or Request for Quotations (RFQ) and service request content, contract amendments, work authorizations, contracting questions, conflict of interests, discovery issues, communication documents, industry trends and general contracting issues
Business Specialist	Provides subject matter expertise from all business programs and provides input and approval of functional and non-functional requirements
Business Development	
Business Development Manager	Leads the effort to identify functional and non-functional requirements and implements a solution to meet the business needs, including: • Identifying and leading all business analysts that will work with the technical team to complete the FSR and project business requirements deliverables • Facilitating communication with business stakeholders on all aspects of the project • Approving general system design and detailed system design documents • Approving all business requirements
Business Requirements Management (Business Analysts)	Develops, maintains and ensures traceability of all project business requirements for the functional business areas, including: • Conducting analyses to identify existing processes and identify needed processes • Creating, developing, implementing and maintaining new or refresh existing processes • Developing a business requirements document that details each functional business process, operating and technical business requirements, conceptual data models and user types that are dictated by business rules, organized by events, data flow diagrams, business requirement specifications, data definitions, data dictionary and technology/organizational constraints

Role	Responsibilities
	• Identifying the need for new or modified requirements based on best practices and operating policy changes, legislative changes, business requirements, user requests or system enhancements • Developing and maintaining the Requirements Definition and Management Plan that defines the requirements engineering approach and process, issue management process and change control process • Developing and maintaining the Functional Requirements Plan that defines the scope of requirements, functional business analysis strategy, requirements engineering methodology and task plan schedule • Conducting requirements traceability analyses to ensure that vendor solutions clearly respond to requirements • Coordinating the identification and resolution of issues affecting requirements definition and managing through the use of an issue tracking database • Assisting in developing and providing customer training and support
Project Support	Provides a variety of analytical duties and general support to the project, including: • Coordinating and supporting the daily business functions for the project • Maintaining project schedule • Maintaining project tools • Maintaining organizational and project processes, procedures and guidelines • Maintaining a project library to ensure that project information is accessible to team members, stakeholders and oversight agencies • Developing policies and procedures for obtaining, maintaining and using the project information in the library • Maintaining and overseeing the project charter and governance model • Maintaining all personnel requests and organization charts, etc. • Coordinating facilities needs (office supplies, minor equipment requests, etc.). • Time reporting, position tracking and travel coordination • Coordinating and processing staff development/training requests • Providing support in the areas of document creation, maintenance, research, analysis, typing, photocopying, proofreading, scheduling and supply inventory and management • Performing all other project administrative functions as necessary and appropriate
Implementation Team	Plans, organizes, coordinates and monitors implementation activities, including: • Developing a comprehensive integration plan • Ensuring the development of technical and end-user documentation • Overseeing and conducting user acceptance testing • Developing and providing customer training and support • Conducting regular customer satisfaction surveys • Overseeing the development and implementation of production support and defect/problem tracking • Ensuring completion of IT training/knowledge transfer to departmental staff
Technical Specialist	Provides subject matter expertise in technical development and provides input and approval of functional and non-functional requirements
Technical Development	
Technical Development	Provides oversight and direction of activities of technical staff who are engaged in the systems development aspects of the project, including: • Partnering with other IT managers to identify and acquire appropriate technical

Role	Responsibilities
Manager	staff for areas such as enterprise architecture, database, software development, security, testing, configuration management, change management, release management and other technical areas of a new system • Developing approach/recommendation to meet the business requirements, which includes the development of the new system and on-going maintenance thereafter • Providing leadership and support to technical staff throughout the project life cycle • Providing technical support to the Project Director, Project Manager and other management staff to establish and execute technical policies, processes and procedures
Data Management Team	Provides database administration and support for the development and implementation of the data requirements, including: • Assessing vendor proposed solution for viability • Participating in detailed requirements analysis and development of use cases • Engineering and evaluating database designs, evaluating database prototype and developing conversion approach, strategy and plan • Establishing data warehouse architecture and assisting with data modeling finalization • Developing a strategy and approach to identify how data will be migrated to the new system • Defining data purification, conversion requirements and processes to ensure that data is valid and meets system requirements • Conducting requirements traceability analysis to ensure that vendor solutions clearly respond to conversion requirements • Developing and executing test plans to ensure that the system meets the requirements • Working with vendors to resolve issues and clarify technical requirements and finalize integration requirements
Case Management and Workflow Team	Provides support for all service development tasks, including: • Assessing vendor proposed solution for viability • Participating in detailed requirements analysis and development of use cases • Providing subject matter expert support for software detailed design and application development • Supporting the development of new services and integration with existing applications
Common Services Team	Provides support for all service development tasks, including: • Assessing vendor proposed solution for viability • Participating in detailed requirements analysis and development of use cases • Providing subject matter expert support for software detailed design and application development • Supporting the development of new services and integration with existing applications
Legacy Systems Team	Provides development support for modifications required of existing legacy systems, including: • Assessing vendor proposed solution for viability • Participating in detailed requirements analysis and development of use cases • Supporting the development of new interfaces to the data warehouse and services implemented within the project scope

Role	Responsibilities
Testing Team	Coordinates and conducts testing of all business and technical requirements, including: • Planning, monitoring and coordinating test plans, problem reporting and resolution processes • Designing and creating test cases and data that will represent "real-life" scenarios for the system • Developing and executing unit, integration, and system test plans to ensure system quality assurance and that the system meets the business requirements • Coordinating interface test with other organizations, as needed

6.5.5 Project Schedule

Task	Start	Finish	Deliverable	Milestone
Obtain FSR Approval	01/12/09	01/12/09	FSR	Project Approval
Start Project	**01/12/09**	**01/12/09**		
Release RFP	08/03/09	08/03/09	Published RFP	RFP is made public
Conduct Bidders' Conference	08/17/09	08/17/09	Procurement Requirements	Bidders are informed
Conduct Non-Confidential Discussions	08/18/09	08/20/09	Non-Confidential Discussions	Non-Confidential Discussions with bidders on requirements
Receive Conceptual Proposals	09/03/09	09/03/09	Conceptual Proposals	Bidders respond to Requirements
Conduct Confidential Discussions	10/19/09	10/30/09	State feedback on Conceptual Proposals	Bidders understand State's confidential issues and risks concerning Conceptual Proposals
Receive Draft Proposals	12/09/09	12/09/09	Draft Proposal Submissions	Bidders respond to Requirements and Bid Instructions
Conduct Confidential Discussions	02/22/10	03/05/10	State findings on Draft Proposals	Bidders understand State's confidential findings concerning Draft Proposals
Receive Final Proposals	04/09/10	04/09/10	Final Proposal Submissions	Bidders submit Final Proposals
Evaluate Final Proposals	04/12/10	06/07/10	Bidders' Business and Technical Proposal evaluation scores	Bidders' Proposals are scored for Business and Technical merit
Conduct Cost Opening	06/23/10	06/23/10	Business and Technical scores and Proposal costs	Business and Technical scores and Proposal costs are made public
Evaluate Costs	06/23/10	07/21/10	Bidders' Cost Proposal evaluation scores	Evaluation of Bidders' Proposals completed
Select Bidder	08/06/10	08/06/10	Highest Bidder Proposal score	Winning Bidder determined
Submit Evaluation and	08/13/10	09/10/10	Evaluation and	Oversight agencies

EDR Project FSR

Task	Start	Finish	Deliverable	Milestone
Selection Report to Agency, OCIO, and DGS for Approval			Selection Report	provide final approval of bidder selection and report
Issue Notice of Intent to Enter into Contract Negotiations	09/14/10	09/21/10	Procurement Notice	Bidders and public are informed about negotiation with the selected bidder
Negotiate Contract	09/22/10	01/12/11	Negotiated Contract	Contract Terms and Conditions are agreed to
Develop and Submit Special Project Report for Approval	01/03/11	01/28/11	SPR	FSR Updated
Issue Notice of Intent to Award Contract and Protest Period	04/05/11	04/12/11	Contract Award Notice	Bidders and public are informed about contract
Sign Contract	06/02/11	06/08/11	Contract	Contract Awarded
Start Development	07/01/11	07/01/11		BP Reports to work
Project Oversight				
Release Project Oversight (PO) Request for Proposals	02/09/10	02/09/10	Published RFP	RFP is made public
Conduct Bidders' Conference	02/17/10	02/17/10	Procurement Requirements	Bidders are informed
Receive PO Draft Proposals	03/10/10	03/10/10	Draft Proposal Submissions	Bidders respond to Requirements and Bid Instructions
Provide Feedback on Draft Proposals	04/09/10	04/09/10	State findings on Draft Proposals	Bidders understand State's confidential findings concerning Draft Proposals
Receive Final Proposals	04/21/10	04/21/10	Final Proposal Submissions	Bidders submit Final Proposals
Evaluate Final Proposals	04/21/10	05/13/10	Business and Technical Proposal evaluation scores	Bidder's Proposals are scored for Business and Technical merit
Conduct Cost Opening	05/25/10	05/25/10	Business and Technical scores and Proposal costs	Business and Technical scores and Proposal costs are made public
Evaluate Costs	05/26/10	05/27/10	Cost Proposal evaluation scores	Evaluation of Final Proposals completed
Submit Evaluation and Selection Report to Agency, OCIO, and DGS for Approval	06/08/10	06/21/10	Evaluation and Selection Report	Oversight agencies provide final approval of bidder selection and report
Issue Notice of Intent to Award Contract and Protest Period	06/23/10	06/23/10	Contract Award Notice	Bidders and public are informed about contract
Sign Contract	07/06/10	07/06/10	Contract	Contract Awarded
Start Project Oversight	07/07/10	07/07/10		PO reports to work
Independent Verification and Validation (IV&V)				
Release IV&V Request	07/19/10	07/19/10	Published RFP	RFP is made public

Task	Start	Finish	Deliverable	Milestone
for Proposals				
Conduct Bidders' Conference	08/10/10	08/11/10	Procurement Requirements	Bidders are informed
Receive IV&V Draft Proposals	08/24/10	08/24/10	Draft Proposal Submissions	Bidders respond to Requirements and Bid Instructions
Provide Feedback on Draft Proposals	11/16/10	11/16/10	State findings on Draft Proposals	Bidders understand State's confidential findings concerning Draft Proposals
Receive Final Proposals	12/01/10	12/01/10	Final Proposal Submissions	Bidders submit Final Proposals
Evaluate Final Proposals	12/06/10	01/14/11	Business and Technical Proposal evaluation scores	Bidder's Proposals are scored for Business and Technical merit
Conduct Public Cost Opening	02/07/11	02/07/11	Business and Technical scores and Proposal costs	Business and Technical scores and Proposal costs are made public
Select IV&V Vendor	03/07/11	03/07/11	Highest Proposal score	Winning bidder determined
Submit Evaluation and Selection Report to Agency, OCIO, and DGS for Approval	04/13/11	04/29/11	Evaluation and Selection Report	Oversight agencies provide final approval of bidder selection and report
Issue Notice of Intent to Award Contract and Protest Period	05/13/11	05/20/11	Contract Award Notice	Bidders and public are informed about contract
Sign Contract	07/01/11	07/01/11	Contract	Contract Awarded
Start IV&V	07/01/11	07/01/11		IV&V reports to work
System Documentation Tool				
Release SDT Request for Quotations (RFQ)	03/20/09	03/20/09	Published RFQ	RFQ is made public
Receive SDT Vendor Quotations	04/29/09	04/29/09	Quotation Responses	Bidders submit Quotation Responses
Evaluate SDT Quotations	04/30/09	05/15/09	Business, Technical, and Cost Quotation evaluation scores	Bidder's RFQ responses are scored for Business and Technical merit and cost
Select SDT	05/18/09	05/18/09	Highest Bid Score	Winning Bid determined
Issue Notice of Intent to Award Contract and Protest Period	05/18/09	05/26/09	Contract Award Notice	Bidders and public are informed about contract
Issue Purchase Order	07/01/09	07/01/09	Purchase Order	Purchase Order Awarded
Install SDT	07/06/09	07/06/09	Configuration	Tool Installed
System Documentation Consultant Services				
Release System Documentation Request	03/13/09	03/13/09	Published RFQ	RFQ is made public

Task	Start	Finish	Deliverable	Milestone
for Quotations (RFQ)				
Receive System Documentation Vendor Quotations	04/20/09	04/20/09	Quotation Responses	Bidders submit Quotation Responses
Evaluate System Documentation Quotations	04/29/09	05/18/09	Business and Technical Quotation evaluation scores	Bidder's RFQ responses are scored for Business and Technical merit
Select Bidder	06/01/09	06/01/09	Highest RFQ score	Winning RFQ vendor determined
Complete Evaluation and Selection Report and Obtain Approvals	05/06/09	06/05/09	Evaluation and Selection Report	Obtain final approval of bidder selection and report
Issue Letter of Intent to Award and Protest Period	06/08/09	06/15/09	Contract Award Notice	Bidders and public are informed about contract
Sign Contract	07/01/09	07/01/09	Contract	Contract Awarded
Start System Documentation	07/06/09	07/06/09	Tool	Consultant reports
EDR Reengineering Planning				
Develop Return Processing Reengineering Plan	1/12/09	02/27/09	Return Processing Reengineering Plan	Reengineering effort is planned
Develop System Documentation Plan	1/12/09	02/27/09	System Documentation Plan	System Documentation effort is planned
Develop Backlog Cleanup Plan	1/12/09	02/27/09	Backlog Cleanup Plan	Backlog cleanup effort is planned
Document Return Processing Business Processes	3/2/09	06/30/09	As Is business processes and rules	As Is business processes are documented
Document TI and BETS Systems	7/1/09	12/31/09	As Is business processes and rules	As Is TI and BETS system processes and rules are documented
Execute Backlog Plan	7/1/09	12/31/15	Project Schedule	Implementation of Backlog Cleanup Plan
Integrate Business and Systems Processes and Rules	10/1/09	01/29/10	Integrated As Is business processes and rules	Manual and system business processes and rules are documented
EDR Project Implementation				
Analyze and Validate Requirements	7/1/11	08/31/11	Specifications	Requirements are baselined
Define Business Rules and Processes	8/1/11	09/28/12	To Be Business Processes and Rules	To Be processes and rules are defined
Design Solutions	09/01/11	09/28/12	System Design	System design is defined
Develop Solutions	10/1/11	06/28/13	Code	Coding and unit testing is completed
Test Solutions	7/2/12	09/30/13	Test Results	System and Integration testing is completed

Task	Start	Finish	Deliverable	Milestone
Acceptance Test Solutions	9/3/12	12/31/13	Validation Results	Code is accepted
Train Users	11/1/13	12/31/13	Training Materials	Users are trained
Deploy PIT Solutions	12/3/12	01/12/14	System	System is installed and ready for use
Modify Business Resumption Plan (BRP)	06/02/14	06/30/14	Business Resumption Plan	Business Resumption Plan
Modify Operational Recovery Plan (ORP)	06/02/14	06/3014	Operational Recovery Plan	Operational Recovery Plan
Maintain and Operate Solutions	12/3/12	12/31/14	Processes and procedures	System is operating
Deploy BE Solutions	01/13/14	01/12/15	System	System in installed and ready for use
Modify Business Resumption Plan	06/01/15	06/30/15	Business Resumption Plan	Business Resumption Plan
Modify Operational Recovery Plan	06/01/15	06/30/15	Operational Recovery Plan	Operational Recovery Plan
Conduct Project Retrospective	6/2/16	06/30/16	Lessons Learned	Lessons learned are documented
Prepare Post Implementation Evaluation Report (PIER)	6/1/16	08/31/16	PIER	Project is completed and documented

6.6 Project Monitoring

The independent project monitoring and oversight requirements specified in SIMM 45 will be followed as required based on the project criticality rating established by the Office of the Chief Information Officer (CIO). Due to the size and complexity of the EDR Project, oversight will include an independent review and analysis of specific project activities. The independent review will determine if the project is on schedule, within budget and provides required functionality. Project oversight will identify issues, quantify issues and evaluate risks affecting key project components.

Once the FSR is approved, the project will pursue the procurement of both Project Oversight and IV&V consultants (contractors) to conduct the review and assessment of project activities and provide formal oversight reports to the required reporting agencies. The members of the oversight team must have experience as participants in and reviewers of similar projects. The team must possess subject matter expertise in project management, procurement, risk management, communications and systems engineering.

In addition to the independent oversight and monitoring, monthly (or as otherwise determined by the EDR Project Steering Committee) project status reports will be compiled by the project team and submitted to the Project Steering Committee and Project Oversight and Guidance for review and assessment.

- Each project lead will submit project status reports to the Project Manager.
- The Project Manager will schedule recurring status meetings to communicate:
    - Tasks accomplished last month
    - Tasks that missed scheduled completion dates and the related impacts
    - Upcoming tasks planned for current month

- Identification, progress or outcomes of problems/issues
- Identification of new risks
- Occurrence of risks
- Risk mitigation

Project team and technical staff meetings will be held on a weekly basis or as otherwise determined by the Project Manager. Team meetings will address any issues and areas of concern identified in the status reports given at the meetings. The team will review the project schedule, identify and determine a course of action or mitigation for any items that are off schedule and address resource concerns or any other issues.

6.7 Project Quality

The Project Manager is responsible for the project's system quality assurance. These responsibilities will include clarification of requirements, including technical architecture policies, guidelines and principles; and verification that requirements are being met through unit, system, integration and acceptance test results.

The Project Manager is also responsible for assuring the quality of the project. These responsibilities include assurance that risks are adequately identified and mitigated with necessary and appropriate plans. Moreover, it is the Project Manager's role to monitor schedules, implementation plans, prerequisites and confirm that all project expectations are met, including execution of activities consistent with approved project plans.

In addition, IV&V activities will be performed by the consultant to assess the project's quality.

6.8 Change Management

Because of the EDR Project scope and impact, effective workforce planning, communication and organizational change management will be essential. Successful organizational change management must take into account the implementation of: expanded electronic workflow, data capture and images; data analysis tools; common services enabling increased customer services including taxpayer self-services; integrated business processes and management tools; automated functions and workloads; impacts of new procedures on business resources, organizational units and customers including taxpayers.

The EDR Project will address many of these impacts through training of FTB business users (including customers) in processes, procedures and systems and facilitating a change acceptance process along with the development of a detailed change management and communication plan for external stakeholders and customers.

The EDR Project will require configuration management to control changes during the development process to manage quality and scope and will also utilize the standard FTB Change Control Process to effectively manage any changes in the project deliverables and ensure the project stays within its original scope.

6.9 Authorization Required

This project requires approval by the Governance Council, the State and Consumer Services Agency, the Office of the Chief Information Officer and the Department of Finance. The BCP initiated on behalf of the project will require approval by the Legislature.

7.0 Risk Management Plan

7.1 Risk Management Approach

The Risk Management Plan that FTB has developed to identify, analyze, respond to, monitor, and control project risk is based on PMBOK, Third Edition, Chapter 11, issued by the Project Management Institute, and SIMM Section 45.

7.2 Risk Assessment Worksheet

High-level project risks are identified in the Risk Assessment Worksheet–see Appendix 2.

7.3 Assessment

The high-level risk assessment is an initial broad view of the risk associated with the project. The identification of all potential risks uses the project work breakdown structure, project plan and the PMBOK knowledge areas as input to the process.

7.3.1. Risk Identification

During the planning stage of the project, risk information is gathered in an initial meeting of the project manager and the project team members. Each project team member will identify and provide a detailed list of potential risk items for the meeting, which will lead to a complete list of potential risks.

7.3.2 Risk Analysis and Quantification

After identifying the potential risks, the project team reviews each risk to determine if it is tangible and measurable. Based on the analysis of each risk, the set of risks that will be formally managed are those deemed most likely to have a negative impact to the project.

7.3.3 Risk Prioritization (Severity)

The severity of a risk determines the priority, based upon 1) potential impact of the risk on the project, 2) the probability of occurrence, 3) the risk mitigation timeframe and 4) risk exposure. The determination of risk severity is a qualitative assessment that takes into account both internal and external risk factors. At a minimum, the highest severity risks will be tracked in the project Risk Assessment Worksheet.

7.4 Risk Response

The project team has identified the risk mitigation response to each of the risks listed in the project Risk Assessment Worksheet. For each response that is accepted, a contingency plan has been developed and is summarized in the *Risk Mitigation and Contingency Plan* template for that risk.

7.5 Risk Tracking and Control

The objective of the Tracking and Control phase is to ensure that all steps of the risk management process are being followed and results in the mitigation of all risks. Risk tracking and control involves the oversight and tracking of risk mitigation action plan execution,

contingency plan execution, reassessment of risks, reporting risk status and recording risk information changes in the project Risk Worksheet.

7.5.1 Risk Tracking

The Project Manager is responsible for the high-level oversight of the execution of mitigation and contingency plans for all risks identified in the project Risk Assessment Worksheet. The Project Manager is also responsible for ensuring that the Project Sponsor is updated and approves of all changes in status for high-severity risks.

7.5.2 Risk Control

The Project Manager will reassess the risk information in the project Risk Assessment Worksheet to determine if any changes are needed. For example, the risk severity or timeframe could change based upon project events or other information. Reassessment of risk information will be performed on a monthly basis; it may be performed more frequently if needed.

Risk status is included as part of the project status meetings. Risk status reporting will focus on high severity risks. Information presented will include the status of risk mitigation plans, changes in risk severity for known risks, and any new risks identified.

8.0 Economic Analysis Worksheets (EAWs)

List of Attachments

1. Executive Project Approval Transmittal
2. Project Summary Package
3. EAWs
4. Appendix 1. Project Criticality Evaluation Factor
5. Appendix 2. Risk Assessment Worksheet
6. Appendix 3. Detailed Data Requirements Summary
7. Appendix 4. FTB Goals
8. Appendix 5. Acronyms
9. Appendix 6. BETS Decoupling – Technical Requirements
10. Appendix 7. EDR Questionnaire – Information Security and Privacy

Appendix 1. Project Criticality Evaluation Factors – Reportable Projects

Factor	Rating	Substantiation of Rating
Size	High	• One-time costs are >$10 Million
Project Manager	Low	**Project Manager Name and Experience:** Carlos Zamarripa has nearly 15 years experience at the highest levels of IT project management. This experience includes more than seven years of experience as Deputy Director of the FTB CA Child Support Automation System (CCSAS) Project including the Child Support Enforcement (CSE) and the State Disbursement Unit (SDU) Projects, and more than seven years experience as Project Sponsor and Project Director of the FTB Professional Audit Support System (PASS) Project. As Project Manager, Carlos was directly responsible for negotiating portions of each of the CCSAS contracts. These project contracts had a combined cost in excess of $1.1 billion. Carlos was also responsible for directing all life cycle phases of the PASS Project including planning, procurement, development and implementation and was the chief negotiator on the $23 million PASS contract.
Project Team	Medium	**Project Team Experience** • One *(Rating = Medium)*

Factor	Rating	Substantiation of Rating
Project Type Elements	High	• **Component: Hardware** o Activity - New Install ▪ Element - Distributed / Enterprise Server ▪ Rating - Medium o Activity - Update/Upgrade ▪ Element - Distributed/Enterprise Server ▪ Rating - Low o Activity- Infrastructure ▪ Element - Distributed Network ▪ Rating – Medium ▪ Element - Data Center/Network Operations Center ▪ Rating - High • **Component: Software** o Activity- Custom Development ▪ Element - Local Desktop ▪ Rating - Low ▪ Element - Distributed/Enterprise Server ▪ Rating - High o Activity - COTS Installation (New) ▪ Element - Local Desktop/Server ▪ Rating - Low ▪ Element - Distributed/Enterprise Server ▪ Rating - High o Activity- Custom Update/ Upgrade ▪ Element - Local Desktop/Server ▪ Rating - Low ▪ Element - Distributed/Enterprise Server ▪ Rating - High o Activity - COTS Update/Upgrade ▪ Element - Local Desktop/Server ▪ Rating - Low ▪ Element - Distributed/Enterprise Server ▪ Rating - Medium o Activity - Infrastructure ▪ Element - Middleware ▪ Rating - Medium ▪ Element - Layered Product ▪ Rating - Medium ▪ Element - DBMS ▪ Rating - Medium

Project Score Table

(a) Factor		(b) Rating
1	Size	3
2	Project Manager	1
3	Project Team	2
4	Type	3
	Total	9
	Average	2.25
	Project Rating	Medium

Appendix 2. Risk Assessment Worksheet

Risk ID#	Risk Category	Risk Statement	Impact	Probability	Exposure	Time Frame	Severity	Mitigation Response
1	Procurement	If procurement is not competitive, selected solution may not be best value for state and may not be approved and funded	High	High	High	Short	High	-Develop and publish ITSP -Make approved EDR FSR available to the public -Contract terms and conditions for room to negotiate -Procure PMO services -Dedicate State resources for PMO -Use Solution Based Procurement model (emphasize problems, objectives and partnering)
2	Legislation	If legislation is mandated requiring significant resources and systems changes, such as Amnesty, the EDR Project objectives including requirements and benefits may not be met and realized, implementation may be delayed and costs may be higher than planned	Med	Med	Med	Short	High	-Track legislation -Require legislative impact analyses on EDR Project for any new pending legislation
3	Business Processes and Rules	If the EDR Business Rules are not adequately scoped, defined, documented and leveraged, project activities may not be adequately scoped and planned, requirements may not be adequately met, and costs may be higher than planned	High	High	High	Short	High	-Prior to acquisition of PSP, acquire system documentation tool with consultant services to document existing legacy system Business Rules including TI and BETS -Partner with consultant to define Business Rules, transfer knowledge and maintain data -Prior to acquisition of PSP, define end to end Business Processes and Rules for PIT and BE Return Validation and Fraud manual Business Processes -Prioritize Business Rules for EDR Business Process Reengineering and BETS Decoupling -Require PSP to define Business Processes and Rules using standard language (i.e., BPEL) -Document As Is and To Be 3rd Party data records matching Business Process and Rules -Use Solution Based Procurement model and compensate based on benefits

Risk ID#	Risk Category	Risk Statement	Impact	Probability	Exposure	Time Frame	Severity	Mitigation Response
4	Requirements	If requirements are not adequately and appropriately defined and complete, innovation may not be realized, business needs may not be met and project objectives including increased revenue may not be realized	High	Med	High	Short	High	-Define Functional Requirements with enterprise users and including use cases-Define Strategic Business Problems and Objectives -Use Solution Based Procurement model (mutual Business Objectives) -Meet with EDD to identify solution based procurement lessons learned -Jointly (State and vendor) validate and specify requirements post contract award -Require vendor technical reviews at key system development milestones -Use Solution Based Procurement model and compensate based on benefits
5	Revenue	If revenue does not meet projections because of the economy, project funding may be impacted and payments to the contractor may be delayed	High	Med	High	Med	High	-Develop conservative revenue estimates against costs -Make certain EDR Steering Committee and GC understand basis for revenue estimate and commitment
6	Enterprise Governance	If the department is not adequately prepared to define requirements, resolve project issues and mitigate risks in consideration of enterprise needs, the EDR Project objectives including requirements and benefits may not be met and realized, implementation may be delayed and costs may be higher than planned	High	High	High	Short	High	-Evaluate current FTB governance process -Develop SOA Governance model -Require PSP to establish and provide consulting services for Business Process, Data and Common Services governance processes -Evaluate bidder's approach to governance -Establish EDR Project organization team with representatives from all three business areas including Filing, Audit and Underpayment -Develop change management strategy to prepare FTB management for Enterprise Governance -Incorporate Enterprise Governance into PSP Balanced Scorecard -Use Solution Based Procurement model and compensate based on benefits

Risk ID#	Risk Category	Risk Statement	Impact	Probability	Exposure	Time Frame	Severity	Mitigation Response
7	Project Schedule	If EDR project development activities are not adequately planned in consideration of the annual tax season implementation window (December through January) the implementation schedule and benefits may be delayed for another year	High	High	High	Short	High	-Require Prime Solution Provider (PSP) to meet rigorous project management requirements including milestones and readiness reviews consistent with industry standards and best practices -Centralize, co-locate and partner with PSP PM team to maximize communication, coordination and integration of all EDR project activities -Emphasize project management oversight especially schedule management in Independent Project Oversight Contract (IPOC) -Evaluate bidder's approach to project management especially Schedule Management -Incorporate Schedule Management into PSP Balanced Scorecard -Use Solution Based Procurement model (emphasize problems, objectives and partnering) and compensate based on benefits
8	System Integration	If EDR system development including the Return Processing Business Process Management, Data Management, and Common Services solutions as well as the BETS Decoupling and legacy system modifications are not adequately planned, integrated, coordinated and executed, the EDR Project objectives including requirements and benefits may not be met and realized, implementation may be delayed and costs may be higher than planned	High	High	High	Med	High	-Require PSP to meet rigorous project and technical management requirements including deliverables including an Integration Management Plan, and technical review control gates consistent with industry standards and best practices, -Make Management Requirements mandatory -Require all PSP development within reason to be on-site and incorporate into Contract Terms and Conditions -Centralize, co-locate and partner with PSP development team to maximize communication, coordination and integration of all EDR development and implementation activities and incorporate into Contract Terms and Conditions -Emphasize integration oversight and quality assurance in IV&V contract -Evaluate bidder's approach to Technical Management including integration management -Incorporate Integration Management into PSP Balanced Scorecard -Require PSP to meet comprehensive testing requirements including legacy systems -Use Solution Based Procurement model and compensate based on benefits

Risk ID#	Risk Category	Risk Statement	Impact	Probability	Exposure	Time Frame	Severity	Mitigation Response
9	Legacy Systems	If EDR Project impact on legacy systems is not adequately identified, scope and costs may be understated resulting in unplanned change requests and implementation delays	High	High	High	Med	High	-Define and validate legacy system As Is and To Be changes and validate with application managers -Document BIDs systems reports targeted for transition to EDW -Develop legacy systems project plan and integrate with EDR project plan -Assess and prioritize legacy systems changes -Obtain cost estimate of legacy system changes from legacy system application managers -Use Solution Based Procurement model and compensate based on benefits
10	Change Management	If FTB employees and users impacted by EDR are not adequately prepared to transition to new and appropriate roles, responsibilities and capabilities, resources may be underutilized, and productivity and benefits may suffer	High	High	High	Med	High	-Identify system functionality and systems targeted for decommission, retirement and transition and include in Project Scope -Identify organizations and users impacted by decommissions, retirements and transitions and identify their knowledge, skills and abilities -Develop strategic workforce plan to transition resources to new roles and responsibilities consistent with enterprise priorities -Identify impact of EDR system changes on users of current systems -Require PSP to provide change management services including a Change Management Plan to facilitate decommission, retirement and transition of identified functionality and systems via system development and implementation including orientation, training and change management for technical support staff and system users -Evaluate bidder's approach to Change Management -Use Solution Based Procurement model and compensate based on benefits

Risk ID#	Risk Category	Risk Statement	Impact	Probability	Exposure	Time Frame	Severity	Mitigation Response
11	State Staff Knowledge, Skills and Abilities	If the EDR solution is comprised of technologies that are not adequately familiar to FTB, FTB may not be able to effectively partner, manage the project, and implement, maintain and operate the system as planned	Med	Med	Med	Med	Med	-Conduct State staff skills assessment -Prior to acquisition of PSP, define TSM Target Architecture including enabling technologies and publish in IT Strategic Plan -Prior to acquisition of PSP, establish Centers of Excellence to flesh out policies, standards and implementation strategies of enabling technologies -Identify EDR Project required knowledge, skills and abilities including needed systems, functions, languages and products -Develop workforce plan to acquire and develop staff with necessary knowledge, skills and abilities -Require PSP to meet knowledge management requirements including staff development, training, OJT assignments, coaching and evaluation -Evaluate bidder's approach to Knowledge Management -Require PSP to provide a Knowledge Management Plan -Use Solution Based Procurement model and compensate based on benefits
12	Operations Transition Management	If the State is not adequately prepared to take responsibility to maintain and operate the EDR solution, maintenance and operations costs may be higher than planned and cost prohibitive for the State to assume	High	Med	High	Long	High	-Require PSP to meet rigorous Operations Transition Management (OTM) requirements including deliverables including an OTM Plan, and technical review control gates consistent with industry standards and best practices -Prior to acquisition of PSP, phase-in ITIL to flesh out OTM policies, standards and implementation strategies of enabling technologies -Evaluate bidder's approach to OTM and incorporate into Contract Terms and Conditions -Incorporate OTM into PSP Compensation Model -Incorporate OTM into PSP Balanced Scorecard Require IV&V to verify PSP execution of transition consistent with OTM Plan -Use Solution Based Procurement model and compensate based on benefits

Risk ID#	Risk Category	Risk Statement	Impact	Probability	Exposure	Time Frame	Severity	Mitigation Response
13	Business Process Management	If Business Processes and Rules cannot be adequately business managed, the EDR Project objectives including business requirements and benefits may not be met and realized	Med	Med	Med	Long	High	-Document Business Process objectives and examples of “business configurable” Business Process Change scenarios to set expectations about the types and degree of change agility needed -Incorporate objectives and scenarios into EDR Architecture -Require PSP to demonstrate viability of agility in a business user POC control gate technical management requirement -Incorporate Architecture into PSP Compensation Model -Use Solution Based Procurement model and compensate based on benefits
14	Architecture	If EDR solution is comprised of technologies that are different and inconsistent with FTB target architecture, EDR total cost of ownership and future project costs may be higher than planned and possibly even cost prohibitive	High	Med	High	Med	High	-Prior to acquisition of PSP, define TSM Target Architecture including enabling technologies and publish in IT Strategic Plan -Prior to acquisition of PSP, establish Centers of Excellence to flesh out policies, standards and implementation strategies of enabling technologies -Develop EDR Architecture and incorporate into Proposed Solution Section of FSR and RFP -Incorporate selected proposed solution Architecture into Technical Requirements and incorporate into Contract Terms and Conditions -Require PSP to meet updated Technical Requirements at specific control gate milestones consistent with industry standards and best practices -Perform Architecture Assurance Audits consistent with State accepted Architecture Management Plan -Incorporate Architecture into PSP Balanced Scorecard -Incorporate Architecture into PSP Compensation Model -Use Solution Based Procurement model and compensate based on benefits Post contract award, require PSP to provide an EDR System Architecture Definition and Management Plan
15	System Performance	If data use and system performance needs are not adequately understood, planned and defined, data and system availability and response times may not meet business needs	High	Med	High	Long	High	-Require comprehensive system performance testing -Develop business performance objectives with business users -Define system performance Technical Requirements -Use Solution Based Procurement model and compensate based on benefits

Appendix 3. Detailed Data Requirements Summary

FTB performed an analysis with the business area experts in Audit, Underpayment, Return Validation, and FE. They identified the data need for business improvements that is currently segregated within forms, schedules, and other systems. The additional data needed is summarized below along with the data needed for this project's services. The development of these data requirements is at a high level during the FSR process.

The following represent a total summary and a unique summary of the data needs of Underpayment, Audit, FE, and Return Validation.

	Forms	**Data Elements Forms**	**3rd Party Sources (new)**
Total Summary	107	5066	26
Total Unique	56	2089	22

Data Requirements for Underpayment SOW
The requirements for Underpayment processes include both new data capture elements and 3rd party data for Underpayment case modeling opportunities. The table below summarizes the number of additional forms that need to be data captured in order to provide these modeling benefits. The importance of the data is prioritized into three categories. Also, the number of data elements within these forms (or quantity of data) in each of the three categories is listed.

	Forms	Data Elements Forms	**3rd Party Sources (new)**
Priority 1	13	569	3
Priority 2	3	576	0
Priority 3	0	62	0
Total	**16**	**1207**	**3**

Also, the Underpayment SOW has identified **145** *existing* 3rd party data sources needed for modeling opportunities: Priority 1 – **123**, Priority 2 – **5**, and Priority 3 - **14**.

Data Requirements for Audit SOW
The requirements for audit processes include both new data capture elements and 3rd party data. The need for the data is to satisfy the audit candidate modeling opportunities. The summary below illustrates the number of additional forms that need to be data captured in order to provide these modeling benefits. The importance of the data is prioritized into three categories. Also, the number of data elements (or quantity of data) in each of the three categories is listed.

	Forms	**Data Elements - Forms**	**3rd Party Sources (new)**
Priority 1	35	685	10
Priority 2	3	782	0
Priority 3	4	875	0
Total	**42**	**2342**	**10**

Data Requirements for Filing Enforcement (FE) SOW
The requirements for FE processes include both new data capture elements and 3rd party data. The need for the data is to improve FE case creation, improve matching capabilities, and reduce erroneous contacts. The summary below illustrates the number additional forms that need to be data captured in order to provide these FE benefits. The importance of the data is prioritized into three categories. Also, the number of data elements (or quantity of data) for each category is listed.

	Forms	**Data Elements - Forms**	**3rd Party Sources (new)**
Priority 1	4	169	0
Priority 2	4	0	0
Priority 3	4	0	0
Total	**12**	**169**	**0**

Data Requirements for Return Processing SOW
The requirements for Return Processing include both new data capture elements and 3rd party data. The need for the data is to enhance return validation, improve fraud detection and to fulfill downstream SOW data opportunities. The summary below illustrates the number of additional forms that need to be data captured in order to provide these benefits. The importance of the data is prioritized into three categories. Also, the number of data elements (or quantity of data) for each category is listed.

	Forms	**Data Elements - Forms**	**3rd Party Sources (new)**
Priority 1	35	1348	3
Priority 2	2	0	5
Priority 3	0	0	5
Total	**37**	**1348**	**13**

Appendix 4. FTB Goals

Strategic Business Goals

FTB's six strategic business goals reflect our vision of how we see ourselves creating public value in the coming years:

GOAL 1 Improve Customer Service

GOAL 2 Increase Fairness and Compliance with Tax Law

GOAL 3 Increase Transparency

GOAL 4 Create a Great Place to Work, Contribute, and Learn

GOAL 5 Demonstrate Operational Excellence

GOAL 6 Protect Taxpayer Information and Privacy

Tax Gap Goals

FTB's goals to narrow the tax gap are as follows:

GOAL 1 Improve taxpayer confidence in the tax system

GOAL 2 Make taxes less taxing

GOAL 3 Make it harder to cheat

GOAL 4 Level the playing field for businesses

GOAL 5 Support high standards in the tax professions

GOAL 6 Become more innovative in attacking the tax gap

Appendix 5: Acronyms

Acronym	Description
ACS	Automated Cartridge System
ARCS	Accounts Receivable Collections System
BAM	Business Event, Business Intelligence and Activity Management
BCP	Budget Change Proposal
BE	Business Entity
BETS	Business Entities Tax System
BI	Business Intelligence
BP	Business Partner
BPA	Business Problem Analysis
BPM	Business Process Management
BPMN	Business Process Modeling Notation
BPMS	Business Process Management System
BRE	Business Rules Engine
BRM	Business Rules Management
BRP	Business Resumption Plan
CCSAS	CA Child Support Automation System
COD	Court Ordered Debt
COTS	Commercial Off The Shelf
CP2000	IRS Underreporting Program, Computer Paragraph 2000
CSE	Child Support Enforcement
DBMS	Database Management Systems
DLN	Document Locator Number
DMD	Data Management and Delivery
DMV	Department of Motor Vehicles
EA	Enterprise Architecture
EASE	External Authentication for Secure e-Services
EAW	Economic Analysis Worksheet
ECAIR	Enterprise Customer, Asset, Income and Return Data Warehouse
ECM	Electronic Content Management
EDE	Enterprise Data Exchange
EDR	Enterprise Data to Revenue
EDW	Enterprise Data Warehouse
EOD	Enterprise Operational Data
ESB	Enterprise Service Bus
ESO	Enterprise Service Opportunity
ETL	Extracted, Transformed and Loaded
FE	Filing Enforcement
FEDSTARII	Federal State Automated Report System
FSR	Feasibility Study Report

Acronym	Description
FTB	Franchise Tax Board
HOH	Head of Household
IAM	Information Access Management
INC	Integrated Nonfiler Compliance
IRS	Internal Revenue Service
IRSBR	IRS Business Return
IRSIR	IRS Individual Return
IT	Information Technology
ITIL	Information Technology Infrastructure Library
ITP	Invitation to Partner
ITSP	Information Technology Strategic Plan
ITPP	Information Technology Procurement Plan
IV&V	Independent Verification and Validation
KDO	Key Data Operator
LAN	Local Area Network
MIS	Management Information System
MOM	Message Oriented Middleware
NDF	Notice Display File
NPA	Notice of Proposed Additional Tax
NRWS	Non-Residence Withholding System
OH	Ownership Hierarchy
OI	Owner Interests
ORP	Operational Recovery Plan
PASS	Professional Audit Support System
PAWS	Personal Audit Workstation System
PBP	Performance Based Procurement
PIER	Post Implementation Evaluation Report
PIT	Personal Income Tax
PM	Project Manager
PMBOK	Guide to the Project Management Body of Knowledge
PO	Project Oversight
POA	Power of Attorney
QBP	Qualified Business Partner
RFP	Request for Procurement
RFQ	Request for Quotations
RIN	Return Information Notice
SB	Solution Based
SBG	Strategic Business Goals
SBP	Strategic Business Problems
SBRD	State Business Return Database
SDLC	Systems Development Life Cycle
SDU	State Disbursement Unit
SIMM	Statewide Information Management Manual

Acronym	Description
SOA	Service Oriented Architecture
SOW	System of Work
STARS	Selection of Tax Returns for Automated Audit Review System
STD	Statement of Tax Due
TI	Taxpayer Information System
TSM	Tax Systems Modernization
VRC	Vehicle Registration Collections
WASS	Withhold At Source System

Appendix 6: BETS Decoupling

FTB has recognized the risk of potentially losing product support from Accenture pertaining and is proactively seeking an alternative to its continued use of INSTALL/1. This Appendix describes additional detailed information needed to decouple the BETS from the INSTALL/1 and DESIGN/1 products, allowing FTB the opportunity to modernize the BETS technical architecture making the system more flexible and responsive to change in alignment with EDR project goals and objectives.

Modernization Strategy

The modernization strategy updates the user interface and removes any dependency on the Accenture INSTALL/1 infrastructure. This will be accomplished by replacing the green screen interface that is primarily managed by the INSTALL/1 infrastructure with a web interface, and by removing all references to any INSTALL/1 proprietary components from within any of the COBOL application modules. The online COBOL modules will be restructured and made available as Web Services or where there is a demonstrated advantage, the COBOL modules will be translated or re-developed in a contemporary component-based language that complies with FTB enterprise architectural standards. The solution will also discontinue the use of DESIGN/1.

Modernization would allow the FTB to take advantage of the potential benefits associated with contemporary technologies and IT industry best practices. The proposed solution takes advantage of the FTB's investment and experience in the current technical infrastructure in the z/OS mainframe platform.

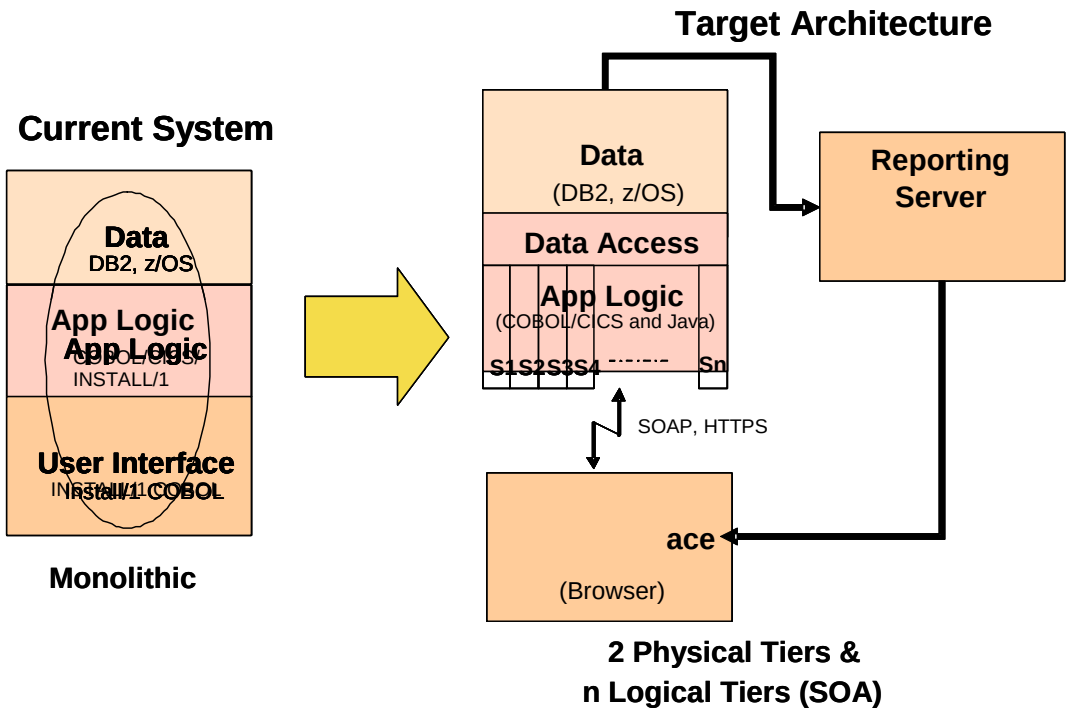
Specific aspects of the proposed solution should include:

- Event driven web user interface
- Technical architecture of two physical tiers
- Application architecture of "n" logical tiers or modular services
- WebSphere Application Server running on z/OS on the FTB mainframe, leveraging existing software licenses
- SOA with flexibility for eventual participation in the FTB and State of California eServices architecture
- Transformation/translation of application and business logic into a component based programming language that complies with FTB architectural standards
- Moving VSAM resident Codes Tables to DB2
- IT Industry best practices and design principles such as modularity and reuse
- Improved integration and interoperability with internal FTB systems and external agencies
- Conformance with California Americans with Disabilities Act (ADA) accessibility rules

- Replacement of functionality provided by the user-created Attachmate EXTRA! Macros
- Replacement of current Test Data Management (TDM) facility with more robust COTS technology
- Online access to selected existing reports
- Leveraging appropriate component based architecture framework in the modernized architecture
- Retention of the existing DB2 database
- Modification of existing batch processes to incorporate EDR modifications

The following presents a high level conceptual diagram that highlights how the environment would change due to the modernization effort:

nTier Conceptual Diagram



The modernization approach moves the BETS towards the target application architecture (i.e., Service Oriented Architecture) and desired model of software development (i.e., component based development and SODA (Service Oriented Development of Applications)). It also considers leveraging years of effort and knowledge developing the business rules and the required application functionality necessary to meet the needs of State of California.

Production Environment

The BETS production environment will continue to leverage the existing mainframe platform housed at the FTB data center. Even though the proposed solution environment is moving the BETS towards SOA, the FTB can take advantage of the platform middleware infrastructure already available at the FTB. Modernizing the BETS architecture will allow the solution to deploy onto the same hardware and operating system platform.

The user desktops will not require upgrading. All desktops will use their browsers to obtain access to the modernized BETS application.

Systems Testing Environment

The modernized BETS environment will require a test region on the mainframe with a duplicate set of middleware infrastructure as that deployed in the production environment. The existing capacity and configuration of the mainframe will allow for the appropriate allocation of a test region on the existing mainframe. In the testing environment, the FTB will implement more modern and capable technologies such as the SoftBase TestBase product to properly select data sets to test the functionality of the system. These technologies will replace the current Test Data Management (TDM) facility that provides the testing team with the ability to effectively use the limited physical database resources to test new or enhanced system functionality with select sanitized data sets from the live environment. The testing environment will also include additional software testing tools such as WinRunner and LoadRunner to facilitate testing in a component architecture environment.

User Training Environment

The training environment will be upgraded to accommodate the modernized BETS environment. As with the testing environment, an appropriate allocation of a training region on the mainframe will be deployed.

Development Environment

The development environment will also need to transition to workstation based IDE (Integrated Development Environment) tools with the ability to develop and test components and shared services in both COBOL and any other language, which must comply with FTB architectural standards, that will be used to support the new implementation of this decoupling effort.

Source code control, configuration and deployment management will take advantage of the existing licenses for ISPW (Integrating Software Parts Wherever).

The developers will also have ongoing access to documentation and knowledge mining and abstraction tools (e.g. Software Mining, Relativity, etc.) to enable them to develop a thorough understanding of the existing COBOL applications. This information will assist in transforming or translating some of the COBOL modules, and separating the business logic from the presentation logic.

BETS Targeted Architecture

The current batch architecture on the mainframe will continue to operate in the same way it does today however, any references to the INSTALL/1 infrastructure will be removed. All remaining VSAM files (Codes Tables, etc.) will be converted to DB2 relational database tables and all Codes Table maintenance screens will be handled by a new management facility using a web user interface. All access to the Codes Tables will continue to be processed using the current I-O module or its replacement.

All business rules encoded in the online COBOL applications will be leveraged to create new Web Services using Service Oriented Architecture principles to enable the sharing of BETS business capabilities with internal FTB and Statewide applications. Modify FDF (Forms Definition Facility) to remove any INSTALL/1 dependencies and improve ease of maintenance and flexibility.

The report developers will be able to design and deploy operational reports most commonly used by the BES operations team. This includes converting the reports currently generated with Attachmate's EXTRA!.

Decoupling Development Approach

The BETS Decoupling effort should follow a traditional lifecycle of discovery, analysis, design, development, testing and deployment. The development approach limits the risk to the FTB in a number of ways. First, a Systems Integrator highly knowledgeable in tax solutions as well as legacy transformation technologies and methods will be held primarily accountable for the success of the overall project and knowledge transfer to the FTB staff. Second, the solution should seek to leverage as much of the existing business rules, functions and architecture in the current BETS in order to preserve the many person years of development that have occurred since implementation. This will also ensure that the FTB continues to have reliable and high integrity access to all tax returns, tax regulations and related changes for all previous years that currently exist in BETS. The modernized BETS will exchange data with external and internal systems and data sources in a manner similar to the current system and in alignment with reengineered EDR processes. The modernized BETS, using contemporary industry standard technologies and approaches, will be flexible enough to interface with additional systems that may be defined in the future.

User and Technical Staff Satisfaction

User Satisfaction

Business Entities Section (BES) users find the BETS CICS green screens dated, cluttered and difficult to use. Workarounds and macros were developed to perform activities that the BETS screens do not accomplish easily or at all. The BES has developed and uses approximately 48 macros for various functions such as the creation of dozens of letters, search for unapplied payments, and reconciliation of items in suspense.

Overall, the BETS users consider the system stable and reliable, with sub second response time. Enhancements to the BETS have been minimal given the limited IT resources and the higher priority given to mission critical fixes, annual changes, and legislative mandates. Users feel they would benefit from a move to web technologies that provide streamlined processes, access to needed information, improved navigation and reduced new-user training time.

Technical Staff Satisfaction

The inflexible nature of the BETS architecture hinders the technical management and staff from meeting new and changing program requirements and user requests. Development staff has limited knowledge of INSTALL/1, DESIGN/1, and CICS. Overall, technical satisfaction levels are low due to:

- Difficulty with changes due to size and complexity of the BETS programs
- Difficulty in attracting future staff due to legacy technologies
- Limited knowledge of underlying architecture and limited support for INSTALL/1 due to attrition and limited availability of training

Data Characteristics

The BETS database is currently comprised of 227 DB2 tables containing approximately 600 million database records totaling 113 GB of data in production. The FTB intends that this data will remain on the mainframe in DB2 for any BETS upgrade. The BETS requires five (5) application Virtual Sequential Access Method (VSAM) files for logging and audit trail purposes, and the INSTALL/1 Execution Architecture requires nine (9) VSAM files for conversation flow, screen management and user context.

Security, Privacy and Confidentiality

The BETS has been developed and implemented to ensure the confidentiality, privacy and security of tax return data in accordance with the departmental Information Security Policy Manual (ISPM) – FTB Policy File 9500. Any changes to the BETS will be designed to continue providing the necessary levels of confidentiality, privacy and security.

The BETS does not use the INSTALL/1 execution security module. Rather, the BETS applications are secured by the mainframe security access facility though CA Top Secret, a third party z/OS security program. The BETS DB2 database is secured by native IBM DB2 security. Management predetermines security profiles and grants access to only those profiles necessary for an employee's specific job duties.

Software Characteristics

The BETS consists of both interactive (online) and batch components. Batch and online applications are written in COBOL while the online applications utilize CICS for online transaction processing (OLTP). CICS provides a pseudo-conversational technology platform based on an IBM computer terminal (3270 type) emulation that uses a purely

textual user interface. The BETS uses COBOL with Report Writer and Natural for producing reports.

INSTALL/1 and DESIGN/1 Proprietary Products

Accenture's proprietary INSTALL/1 and DESIGN/1 products are highly integrated into the BETS online development and testing environment.

The DESIGN/1 CASE tool and its repository reside on a Windows server. DESIGN/1 is the originating point for all INSTALL/1 components including:

- Code Tables
- Conversations
- Copybooks
- Data elements for all components (essentially a data dictionary)
- DB2 Table definitions
- Flat file definitions
- Programs (batch, online and utility)
- Screens

The BETS online application programs are written specifically to use INSTALL/1. At runtime, the INSTALL/1 Execution Architecture provides an interface between the application program and CICS, driven by COBOL programs and VSAM files. The INSTALL/1 Conversation Control Program (CCP) and Message Editing Service (MES) are the main COBOL programs that drive the execution architecture in the production environment. The BETS is comprised of approximately 250 batch, 450 online and 725 utility COBOL programs. The COBOL utility programs handle code table access, date manipulation, forms processing and functions associated with INSTALL/1 online processing. The BETS online environment is comprised of approximately 240 screens and 75 conversations.

INSTALL/1 repositories for the BETS development and system testing regions contain all of the components that originated with DESIGN/1. INSTALL/1 Promotion processes are used throughout the Software Development Life Cycle (SDLC) to keep these repositories synchronized. Screens, conversations, code table structures and DB2 table structures are maintained with the INSTALL/1 configuration management functionality

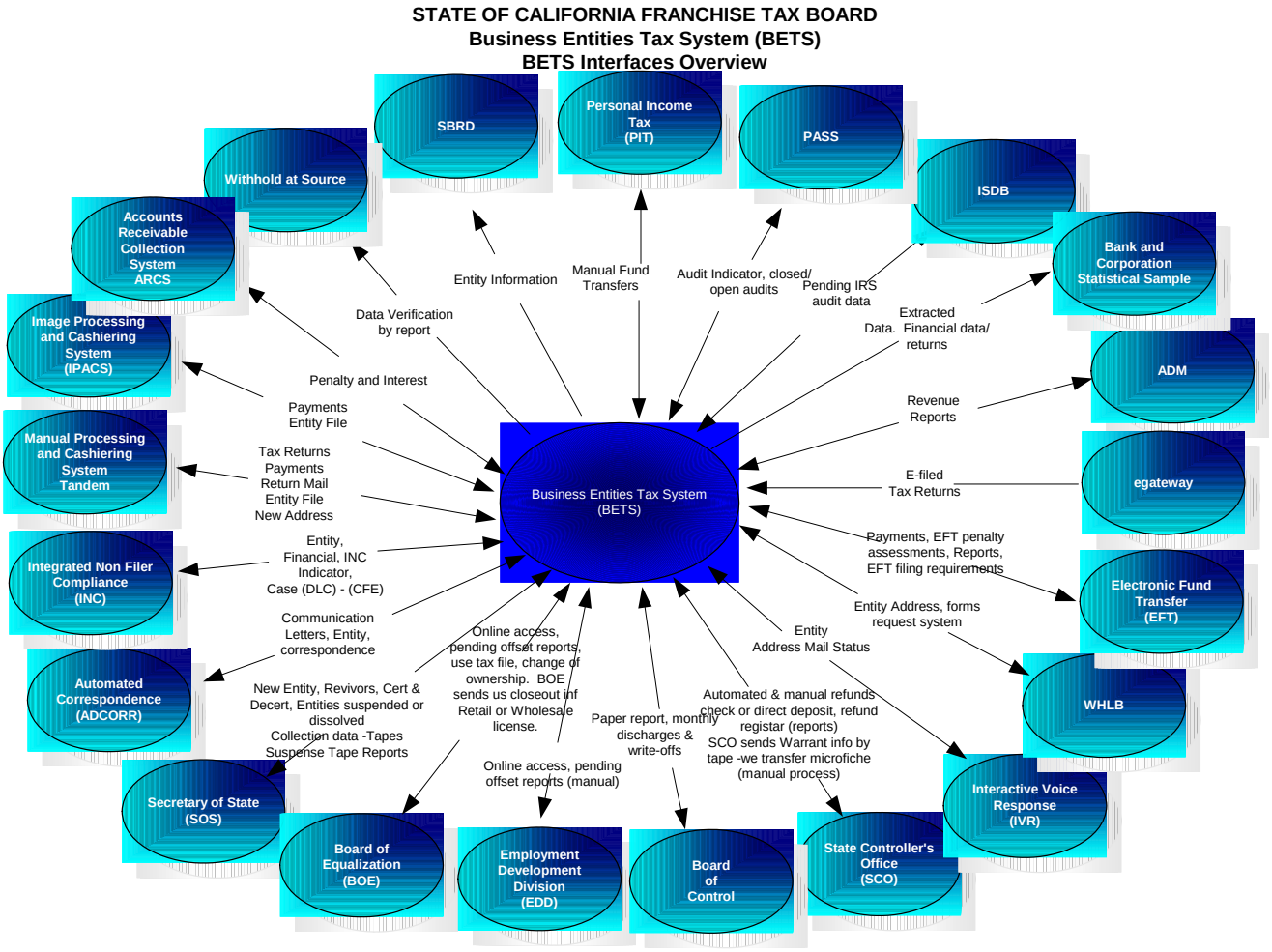
The BETS batch, online and utility applications and copybooks are maintained outside of INSTALL/1 by the Integrating Software Parts Wherever (ISPW) configuration management tool. To keep the Install/1 repositories in development and systems test synchronized, ISPW invokes selected INSTALL/1 procedures during the SDLC.

INSTALL/1 Test Data Management (TDM) processes manage the test data for developers and system testers. This functionality allows developers and testers to share DB2 tables in their respective region and enables them to have their own unique test data (up to 100 unique versions per developer or system tester). Developers and

system testers use a variety of internally developed utility processes to extract, copy, save, replicate, and restore test data versions.

Internal and External Interfaces

The BETS currently exchanges information with other FTB systems as well as external agencies for various business purposes, as shown in the figure below:



Most of the data exchanges depicted above are accomplished through batch reports and files generated from one system and periodically uploaded into the receiving system. Several external State of California agencies, including the Board of Equalization (BOE), California Child Support Automation System (CCSAS) and the Employment Development Department (EDD), have limited direct online access to the BETS.

External Systems Interfaces

The new BETS architecture must continue to provide the information presently exchanged with internal FTB systems as well as external organizations/agencies including BOE, CCSAS, EDD and SOS as described above.

System Documentation

Comprehensive documentation will be produced with contractor support during the EDR project through the use of a knowledge mining and abstraction tool. In addition to system and user documentation, business rules will be identified and isolated for use by subsequent EDR service enablement activities.

The BETS INSTALL/1 Decoupling alternatives analysis team created a comprehensive Baseline Functionality Traceability Matrix (BFTM). This document describes INSTALL/1 and DESIGN/1 native features and their usage in the BETS environment. The BFTM examines the development tools and execution architecture at all levels, including run time architecture, major facilities and stand-alone features.

Alignment With State Information Processing Policies

Any transformation or modernization of the BETS architecture or functionality will consider the larger goals of the California State Information Technology Strategic Plan and the goals and objectives of the FTB Enterprise Architecture and EDR project.

Legal and Public Policy Constraints

Because the BETS processes and maintains confidential taxpayer information, the system must continue to abide by the FTB's security and disclosure policies. Additionally, California has enacted Government Code Section 11135-11139.8 adopting, in its entirety, the amended U.S. Rehabilitation Act of 1973 Section 508. Through Section 11135-11139.8 California Legislature declared "that the ability to utilize electronic or information technology is often an essential function for employment in the current world." Section 508 states that the electronic and information technology allows, regardless of the type of medium of the technology provide individuals with disabilities access to and the use of information and data that is comparable to those without disabilities. Section 508 continues to provide information technology standards.

Anticipated Changes in Equipment, Software, or the Operating Environment

Currently, there are no enterprise-level changes planned to the FTB equipment, software or the operating environment that will affect the BETS INSTALL/1 Decoupling Project. All FTB system environments, including any proposed changes to the BETS, must adhere to the FTB security and technology standards and must comply with the FTB Enterprise Architecture standards and guidelines.

Availability of IT Personnel

A core team of FTB staff will support the system integrator as members of the project team and will be trained to support the maintenance and operations of any new systems

Technical and User Staff Training

Technical Training

BETS staff will receive training classes in system areas such as web development, application development and testing as it relates to the new language environment and SOA. This will be augmented by any additional training the FTB staff needs as a result of any changes to the technical environment (testing tools, IDE tools, etc.) for which they will become responsible. Computer-based training will be leveraged, when appropriate, for follow-up and technical skill enhancements.

Knowledge transfer from the Systems Integration vendor to the FTB staff will occur throughout the project via mechanisms such as partnering, assignment of responsibilities and code and deliverable walkthroughs.

User Training

The Systems Integration vendor will develop a training plan that will focus on the users of the system. The plan will address Systems Integration vendor development of user manuals and other training materials. The Training Manager, Business Analysts and Help Desk support personnel that are involved throughout the project will attend courses provided by the Systems Integration vendor to familiarize themselves with the modernized BETS. These FTB employees will in turn train approximately 2,900 users throughout the FTB on the modernized BETS. User training will be provided in a timely manner that will accommodate completion and information retention. Courses will be conducted at the FTB headquarters.

Information Security

Information stored on the BETS database will continue to be accessible to authorized personnel only. All database transactions are logged, ensuring data accountability for the actions of any individual.

To ensure data integrity, confidentiality and integrity of data, the BETS INSTALL/1 Decoupling project team will work closely with Privacy, Security and Disclosure Bureau staff to ensure compliance with departmental security policy, standards, guidelines and protocols. The proposed solution will comply with the FTB's security audit logging requirements as described in the department's Information Security Policy Manual (ISPM) and where applicable, IRS Publication 1075. The mainframe security for the application files, the WebSphere Application Server and DB2 will use eTrust CA-Top Secret that controls user access to mainframe resources. The Security Audit Logging (SAL) utility program will be used for audit logging.

Newly developed systems and architectural or functional changes to existing systems require security re-certification prior to deployment. The FTB's Compliance Monitoring Unit will perform a complete system vulnerability scan, and any identified deficiencies will be corrected before system promotion to production status.

Confidentiality

The BETS INSTALL/1 Decoupling project team will work with the Privacy, Security and Disclosure Bureau to ensure departmental security guidelines are followed in regard to confidential taxpayer and employee information. The FTB staff will only have access to data for which they have a true business need and their access level to the data will be controlled by their role(s) within the BETS.

BETS Decoupling Impacts

Impact on End Users

The proposed solution will improve customer service to the FTB program area staff by providing effective and efficient workload processing. The modernized architecture will enable a more responsive system that more closely aligns with the users' workflow and EDR goals and objectives.

All FTB business users impacted by the system will receive training on any modifications to the existing functionality and the new web user interface. A communications plan will be developed to provide project information to internal FTB and external stakeholders. In addition, this plan will include methods to facilitate user acceptance.

Impact on Existing System

The core functionality of the BETS will remain intact, including access to all previous years of business tax records. Batch applications will experience changes as it relates to their interactions with the INSTALL/1 infrastructure and EDR reengineering activities. The DB2 database will experience minimal changes, although remaining VSAM files will be converted to DB2 tables to improve consistency and data management.

The functionality currently provided by the macros will be replaced. Approximately 48 user maintained functions were developed with the Attachmate terminal emulation software macro functionality. The macros fall into four broad categories of Correspondence / Noticing (approximately 18), Status Flags / Account Notes (approximately 18), Reporting (approximately 10) and Miscellaneous (approximately 2 to 3).

Impact on Current Infrastructure

The modernized BETS should leverage the existing mainframe and the current investment in DB2. The key change in the modernized architecture will be the performance and workload characteristics of the SOA and the web user interface.

Backup and Operational Recovery

The modernized BETS supports several critical functions in tiers 1-3 of the Business Impact Assessment that have an earliest Recovery Time Objective (RTO) of 1-2 days.

Data backups are created on a daily basis for all application and user data and kept in a storage vault located near FTB's data center. Once a week, a full set of backups is sent off-site utilizing an off-site storage vendor managed by the Infrastructure Services Bureau (ISB). The off-site backups are rotated weekly and a minimum of 2 generations of backups will be off-site at any time.

The modernized BETS will reside entirely on the mainframe and is covered by the hotsite contract. As is the current strategy, the BETS will be recovered when the mainframe is recovered.

The Tax Systems and Applications Bureau (TSAB) will maintain the modernized BETS once implemented. The existing TSAB Operational Recovery Plan will be updated to reflect the new system and include recovery strategies for the system. This will also be reflected in the Operational Recovery Plan (ORP) submitted to the Department of Finance annually.

Project Phasing

The project will be completed in distinct phases in accordance with the SDLC and system integrator deliverables that are specific to each phase.

- Phase 1: Prototype
- Phase 2: Install/1 specific Discovery and Analysis
- Phase 3: Design
- Phase 4: Code, Integration Test, System Test
- Phase 5: User Acceptance Test
- Phase 6: Deployment

Appendix 7: EDR Questionnaire

Questionnaire for Information Security and Privacy Components in Feasibility Study Reports and Project-Related Documents

The following Questionnaire provides state agencies guidance and direction for including information security and privacy components in Feasibility Study Reports and other project-related documents. The Office of Information Security and Privacy Protection reviews these documents to ensure information security and privacy components are addressed by the state agency and then provides recommendations to the Office of the Chief Information Officer and the applicable super Agency.

This Questionnaire provides state agencies the opportunity to describe the information security and privacy components associated with an IT project.

If any of the answers could be considered sensitive in nature, the agency should address them in a separate addendum marked "Confidential" and included as an attachment to the document.

Information Security Officer (ISO) Role and Responsibilities

1. What is the role and responsibilities of the Agency ISO in relationship to this project?
   The FTB ISO assigns an information security consultant to every IT project. The consultant is a member of the ISO's staff and is delegated the responsibility to ensure State, Federal and FTB security policies and requirements are communicated, documented, and followed, and that the proper security controls are in place prior to production release. The ISO provides oversight and guidance to the information security consultant.
2. Will the ISO be involved in developing and reviewing the security requirements?
   Yes. The ISO assists project staff with developing and reviewing security requirements.
3. Will the ISO be involved in developing and reviewing the security testing efforts?
   Yes. The ISO assists project staff with developing and reviewing security testing efforts.
4. Has the ISO participated in the response to these questions and signed off on the project-related document(s)?
   Yes. The ISO has participated in the response to these questions and has signed off on the project-related document(s).

Proposed System Name: The name of the proposed system(s) have not yet been identified for the Enterprise Data to Revenue Project.

1. Who will be the designated owner of the proposed system (system)?
   1. Filing - Return Processing System
   2. Enterprise - EDW and Common Services
2. Who will be the custodians and users of the system?
   At this time, the custodians will be within the Technology Services Division and the users will be enterprise wide.
3. Has the data for the system been classified by the owner? Explain.
   The owner must use SAM 5320.5 to classify the data for EDR. Here's the link: http://sam.dgs.ca.gov/TOC/5300/5320.5.htm
4. Does the project require development of new application code or modification of existing code? Explain.
   Yes, it is a new system.

5. Will your agency share the data for the system with other entities? If so, who?
    a. ☒ Federal partners
    b. ☒ Local city/county partners
    c. ☒ State agency partners
    d. ☒ Judicial branch
    e. ☐ Universities
    f. ☐ Researchers
    g. ☐ Others

    There will be no change to current data shared with external entities. However, how and when the data will be shared with the current external entities will change for some types of data.

6. If data for the system is to be shared with other entities, will your agency implement data exchange agreements with the entities? Explain.
   Interagency agreements will be modified as required.
7. Are there checkpoints throughout the software development life cycle (SDLC) verifying and certifying that the security requirements are being met?
   Security requirements will be tested to verify requirements are being met at the appropriate time consistent with the SDLC approach, test plan and requirements.
8. At what points will risk assessments be performed throughout the SDLC?
   Security risk assessments will be tested during the development phase and executed in production consistent with FTB Security Policies and requirements.
9. At what point will vulnerability assessments be performed once the system is put into production (e.g., ongoing risk management after implementation)?
   Vulnerability assessments will be executed consistent with FTB Security Policies and requirements.
10. Will this system collect federal data? If so, have you yet determined the National Institute for Standards and Technology 800-53 rating (i.e., high / medium / low)?
    Yes
11. Does your state agency's Five Year IT Capital Plan address information security and privacy as related to this system?
    Yes

Department: Franchise Tax Board
Project: Enterprise Data to Revenue (EDR) FSR 08-05
Date: December 22, 2008 11:30 am

EXISTING SYSTEM/BASELINE COST WORKSHEET
All costs are shown in whole (rounded) dollars.

FSR EAW

	FY 2008/09		2009/10		2010/11		2011/12		Y 2012/13		2013/14		2014/15		Y 2015/16		Y 2016/17		Y 2017/18		TOTAL	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
Continuing Information Technology Costs																						
Staff (salaries & benefits)	491.7	43,219,982	491.7	43,219,982	491.7	43,219,982	491.7	43,219,982	491.7	43,219,982	491.7	43,219,982	491.7	43,219,982	491.7	43,219,982	491.7	43,219,982	491.7	43,219,982	**4,917.2**	**432,199,823**
Hardware Lease/Maintenance		867,789		867,789		867,789		867,789		867,789		867,789		867,789		867,789		867,789		867,789		**8,677,890**
Software Maintenance/Licenses		1,470,753		1,470,753		1,470,753		1,470,753		1,470,753		1,470,753		1,470,753		1,470,753		1,470,753		1,470,753		**14,707,530**
Contract Services		0		0		0		0		0		0		0		0		0		0		**0**
Data Center Services		0		0		0		0		0		0		0		0		0		0		
Agency Facilities		0		0		0		0		0		0		0		0		0		0		**0**
Staff OE&E		1,006,854		1,006,854		1,006,854		1,006,854		1,006,854		1,006,854		1,006,854		1,006,854		1,006,854		1,006,854		**10,068,538**
Other		0		0		0		0		0		0		0		0		0		0		
Total IT Costs	**491.7**	**46,565,378**	**491.7**	**46,565,378**	**491.7**	**46,565,378**	**491.7**	**46,565,378**	**491.7**	**46,565,378**	**491.7**	**46,565,378**	**491.7**	**46,565,378**	**491.7**	**46,565,378**	**491.7**	**46,565,378**	**491.7**	**46,565,378**	**4,917.2**	**465,653,780**
Continuing Program Costs:																						
Staff	2,807	184,673,579	2,807	184,673,579	2,846	188,121,765	2,885	191,569,952	2,924	195,018,139	2,963	198,466,326	2,963	198,466,326	2,963	198,466,326	2,963	198,466,326	2,963	198,466,326	**29,084**	**1,936,388,641**
Other		6,579,942		6,579,942		6,728,766		6,728,766		7,026,414		7,175,238		7,175,238		7,175,238		7,175,238		7,175,238		**69,520,015**
Total Program Costs	**2,807**	**191,253,520**	**2,807**	**191,253,520**	**2,846**	**194,850,531**	**2,885**	**198,298,718**	**2,924**	**202,044,552**	**2,963**	**205,641,563**	**2,963**	**205,641,563**	**2,963**	**205,641,563**	**2,963**	**205,641,563**	**2,963**	**205,641,563**	**0 29,084**	**2,005,908,656**
TOTAL EXISTING SYSTEM COSTS	**3,299**	**237,818,898**	**3,299**	**237,818,898**	**3,338**	**241,415,909**	**3,377**	**244,864,096**	**3,416**	**248,609,930**	**3,455**	**252,206,941**	**3,455**	**252,206,941**	**3,455**	**252,206,941**	**3,455**	**252,206,941**	**3,455**	**252,206,941**	**34,001**	**2,471,562,436**

0

Department: Franchise Tax Board
Project: Enterprise Data to Revenue (EDR) FSR 08-05
Date: December 22, 2008 11:30 am

PROPOSED ALTERNATIVE (Alt B)

All costs are shown in whole (rounded) dollars.

FSR EAW

	FY 2008/09		FY 2009/10		FY 2010/11		FY 2011/12		FY 2012/13		FY 2013/14		FY 2014/15		FY 2015/16		FY 2016/17		FY 2017/18		TOTAL	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
One-Time IT Project Costs																						
Staff (Salaries & Benefits)	15.5	1,599,412	29.4	3,029,648	29.6	3,064,057	101.6	10,029,992	112.6	11,027,657	58.6	5,817,674	15.3	1,557,268	2.6	278,683	0.0	0	0.0	0	365.2	36,404,391
Hardware Purchase		0		21,751		1,099,050		0		0		16,699,516		0		0		0		0		17,820,318
Software Purchase/License		0		437,381		140,075		0		0		14,850,230		0		0		0		0		15,427,686
Telecommunications		0		0		0		0		0		0		0		0		0		0		0
Contract Services																						0
Software Customization		0		780,000		0		0		34,449,536		18,772,425		68,074,504		0		0		0		122,076,464
Project Management		0		0		0		0		0		0		0		0		0		0		0
Project Oversight		0		0		1,224,000		1,224,000		1,224,000		1,224,000		1,224,000		1,224,000		612,000		0		7,956,000
IV&V Services		0		0		0		1,224,000		1,224,000		1,224,000		1,224,000		612,000		0		0		5,508,000
Other Contract Services		0		50,000		121,410		0		9,512,800		12,163,008		2,239,468		409,256		0		0		24,495,941
TOTAL Contract Services		0		830,000		1,345,410		2,448,000		46,410,336		33,383,433		72,761,971		2,245,256		612,000		0		160,036,405
Data Center Services		0		0		0		0		0		0		0		0		0		0		0
Agency Facilities		0		0		0		0		0		0		0		0		0		0		0
Staff OE&E		32,319		77,911		50,794		479,016		234,335		122,070		31,858		5,466		0		0		1,033,769
Other- Training & Travel		0		0		0		686,400		686,400		343,200		0		0		0		0		1,716,000
Total One-time IT Costs	**15.5**	**1,631,731**	**29.4**	**4,396,691**	**29.6**	**5,699,386**	**101.6**	**13,643,407**	**112.6**	**58,358,727**	**58.6**	**71,216,123**	**15.3**	**74,351,098**	**2.6**	**2,529,405**	**0.0**	**612,000**	**0.0**	**0**	**365.2**	**232,438,569**
Continuing IT Project Costs																						
Staff (Salaries & Benefits)	-	-	-	-	-	-	-	-	-	-	30.40	2,999,845	58.90	5,812,407	68.60	6,770,607	68.60	6,770,607	68.60	6,770,607	295.1	29,124,073
Hardware Lease/Maintenance		-		100,000		100,000		284,000		284,000		284,000		10,037,903		3,535,301		3,535,301		3,535,301		21,695,804
Software Maintenance/Licenses		-		-		87,476		115,491		130,095		134,065		8,765,466		3,065,365		3,065,365		3,065,365		18,428,689
Telecommunications		-		-		-		-		-		-		-		-		-		-		0
Contract Services		-		-		-		-		-		-		12,477,125		2,280,156		-		-		14,757,280
Data Center Services		-		-		-		-		-		-		-		-		-		-		0
Agency Facilities		-		-		-		-		-		-		-		-		-		-		0
Staff OE&E		-		-		-		-		-		63,291		122,630		142,825		142,825		142,825		614,396
Other																						0
Total Continuing IT Costs	**0.0**	**0**	**0.0**	**100,000**	**0.0**	**187,476**	**0.0**	**399,491**	**0.0**	**414,095**	**30.4**	**3,481,200**	**58.9**	**37,215,530**	**68.6**	**15,794,254**	**68.6**	**13,514,098**	**68.6**	**13,514,098**	**295.1**	**84,620,243**
Total Project Costs	**15.5**	**1,631,731**	**29.4**	**4,496,691**	**29.6**	**5,886,862**	**101.6**	**14,042,898**	**112.6**	**58,772,822**	**89.0**	**74,697,323**	**74.2**	**111,566,627**	**71.2**	**18,323,659**	**68.6**	**14,126,098**	**68.6**	**13,514,098**	**660.3**	**317,058,812**
Continuing Existing Costs																						
Information Technology Staff	482.7	42,311,854	482.7	42,311,854	482.7	42,311,854	482.7	42,311,854	482.7	42,311,854	482.7	42,311,854	482.7	42,311,854	478.7	41,916,144	478.7	41,916,144	478.7	41,916,144	4,815.2	421,931,411
Other IT Costs		3,326,658		3,326,658		3,326,658		3,326,658		3,224,017		3,224,017		3,224,017		3,215,689		3,215,689		3,215,689		32,625,748
Total Continuing Existing IT Costs	**482.7**	**45,638,512**	**482.7**	**45,638,512**	**482.7**	**45,638,512**	**482.7**	**45,638,512**	**482.7**	**45,535,871**	**482.7**	**45,535,871**	**482.7**	**45,535,871**	**478.7**	**45,131,833**	**478.7**	**45,131,833**	**478.7**	**45,131,833**	**4,815.2**	**454,557,159**
Program Staff	2,807.0	184,673,579	2,832.6	186,106,351	2,920.4	192,355,977	2,980.9	197,129,345	3,031.9	201,401,963	3,316.5	218,367,270	3,495.0	230,660,163	3,577.2	233,640,295	3,588.3	237,059,855	3,588.3	237,059,855	32,138.2	2,118,454,653
Other Program Costs		6,579,942		7,141,577		7,131,585		6,989,846		7,925,405		9,425,539		9,227,869		9,455,446		9,117,726		9,048,260		82,043,194
Total Continuing Existing Program Costs	**2,807.0**	**191,253,520**	**2,832.6**	**193,247,928**	**2,920.4**	**199,487,562**	**2,980.9**	**204,119,191**	**3,031.9**	**209,327,368**	**3,316.5**	**227,792,809**	**3,495.0**	**239,888,032**	**3,577.2**	**243,095,741**	**3,588.3**	**246,177,581**	**3,588.3**	**246,108,115**	**32,138.2**	**2,200,497,847**
Total Continuing Existing Costs	**3,289.7**	**236,892,032**	**3,315.4**	**238,886,440**	**3,403.1**	**245,126,073**	**3,463.7**	**249,757,702**	**3,514.6**	**254,863,238**	**3,799.2**	**273,328,680**	**3,977.7**	**285,423,903**	**4,055.9**	**288,227,574**	**4,067.0**	**291,309,414**	**4,067.0**	**291,239,948**	**36,953.4**	**2,655,055,005**
TOTAL ALTERNATIVE COSTS	**3,305.2**	**238,523,763**	**3,344.7**	**243,383,131**	**3,432.8**	**251,012,935**	**3,565.2**	**263,800,601**	**3,627.2**	**313,636,061**	**3,888.2**	**348,026,003**	**4,051.9**	**396,990,530**	**4,127.1**	**306,551,233**	**4,135.6**	**305,435,512**	**4,135.6**	**304,754,046**	**37,613.7**	**2,972,113,817**
INCREASED REVENUES		0		3,809,116		13,738,022		22,402,520		80,943,209		249,853,907		582,282,288		888,770,935		934,432,442		940,110,084		**3,716,342,523**

Department: Franchise Tax Board
Project: Enterprise Data to Revenue (EDR) FSR 08-05
Date: October 21, 2008 2:00 pm

ALTERNATIVE 1 (A)

All costs are shown in whole (rounded) dollars.

FSR EAW

	FY 2008/09		FY 2009/10		FY 2010/11		FY 2011/12		FY 2012/13		FY 2013/14		FY 2014/15		FY 2015/16		FY 2016/17		FY 2017/18		TOTAL	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
One-Time IT Project Costs																						
Staff (Salaries & Benefits)	15.5	1,599,412	29.4	3,029,648	29.6	3,064,057	69.1	6,758,297	72.0	7,001,491	33.8	3,332,221	5.3	557,367	2.6	278,683	0.0	0	0.0	0	257.3	25,621,176
Hardware Purchase		0		21,751		1,099,050		0		16,952,376		119,332		0		0		0		0		18,192,510
Software Purchase/License		0		437,381		140,075		0		14,316,262		643,153		0		0		0		0		15,536,871
Telecommunications		0		0		0		0		0		0		0		0		0		0		0
Contract Services																						
Software Customization		0		780,000		0		0		44,591,747		60,022,059		0		0		0		0		105,393,806
Project Management		0		0		0		0		0		0		0		0		0		0		0
Project Oversight		0		1,224,000		1,224,000		1,224,000		1,224,000		1,224,000		1,224,000		612,000		0		0		7,956,000
IV&V Services		0		0		0		1,224,000		1,224,000		1,224,000		612,000		0		0		0		4,284,000
Other Contract Services		0		94,600		121,410		12,540,912		21,541,000		20,633,904		1,270,980		0		0		0		56,202,806
TOTAL Contract Services		0		2,098,600		1,345,410		14,988,912		68,580,747		83,103,963		3,106,980		612,000		0		0		173,836,612
Data Center Services		0		0		0		0						0		0						0
Agency Facilities		0		0		0		0		0		0		0		0		0				0
Staff OE&E		32,319		77,911		50,794		227,521		149,938		70,315		10,933		5,466		0		0		625,197
Other- Training & Travel		0		0		0		686,400		686,400		343,200		0		0		0		0		1,716,000
Total One-time IT Costs	**15.5**	**1,631,731**	**29.4**	**5,665,291**	**29.6**	**5,699,386**	**69.1**	**22,661,130**	**72.0**	**107,687,215**	**33.8**	**87,612,185**	**5.3**	**3,675,279**	**2.6**	**896,150**	**0.0**	**0**	**0.0**	**0**	**257.3**	**235,528,367**
Continuing IT Project Costs																						
Staff (Salaries & Benefits)	-	-	-	-	-	-	-	-	-	-	85.0	7,568,099	311.6	27,525,246	508.7	44,854,820	510.7	45,062,724	510.7	45,062,724	1,926.8	170,073,612
Hardware Lease/Maintenance		-		100,000		100,000		284,000		4,455,228		4,502,629		4,502,629		4,502,629		4,502,629		4,502,629		27,452,375
Software Maintenance/Licenses		-		-		87,476		215,491		4,429,326		4,521,214		4,555,314		4,555,314		4,555,314		4,555,314		27,474,764
Telecommunications		-		-		-		-	0	-	0	-		-		-	0	-	0	-		0
Contract Services		-		-		-		-		-		11,999,417		10,054,529		-		-	0	-		22,053,945
Data Center Services		-		-		-		-		-		-		-		-		-		-		0
Agency Facilities		-		-		-		-		-		-		-		-		-		-		0
Staff OE&E		-		-		-		-		-		174,503		638,673		1,042,248		1,046,412		1,046,412		3,948,247
Other																						0
Total Continuing IT Costs	**0.0**	**0**	**0.0**	**100,000**	**0.0**	**187,476**	**0.0**	**499,491**	**0.0**	**8,884,554**	**85.0**	**28,765,862**	**311.6**	**47,276,391**	**508.7**	**54,955,011**	**510.7**	**55,167,079**	**510.7**	**55,167,079**	**1,926.8**	**251,002,944**
Total Project Costs	**15.5**	**1,631,731**	**29.4**	**5,765,291**	**29.6**	**5,886,862**	**69.1**	**23,160,621**	**72.0**	**116,571,769**	**118.8**	**116,378,047**	**316.9**	**50,951,671**	**511.3**	**55,851,160**	**510.7**	**55,167,079**	**510.7**	**55,167,079**	**2,184.2**	**486,531,310**
Continuing Existing Costs																						
Information Technology Staff	482.7	42,311,854	482.7	42,311,854	482.7	42,311,854	482.7	42,311,854	482.7	42,311,854	414.6	36,038,927	195.1	16,924,743	0.0	0	0.0	0	0.0	0	3,023.3	264,522,941
Other IT Costs		3,326,658		3,326,658		3,326,658		3,326,658		988,116		838,337		239,221		0		0		0		15,372,305
Total Continuing Existing IT Costs	**482.7**	**45,638,512**	**482.7**	**45,638,512**	**482.7**	**45,638,512**	**482.7**	**45,638,512**	**482.7**	**43,299,970**	**414.6**	**36,877,264**	**195.1**	**17,163,965**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**3,023.3**	**279,895,246**
Program Staff	2,807.0	184,673,579	2,832.6	186,106,351	2,921.3	192,419,636	3,010.4	198,742,608	3,073.1	203,795,044	3,351.4	220,237,295	3,512.3	231,687,812	3,617.6	235,886,378	3,575.7	235,660,213	3,575.7	235,660,213	32,277.1	2,124,869,130
Other Program Costs		6,579,942		7,141,577		6,966,133		7,053,003		7,379,118		7,884,169		9,438,097		10,190,209		9,075,768		9,075,768		80,783,782
Total Continuing Existing Program Costs	**2,807.0**	**191,253,520**	**2,832.6**	**193,247,928**	**2,921.3**	**199,385,770**	**3,010.4**	**205,795,611**	**3,073.1**	**211,174,162**	**3,351.4**	**228,121,464**	**3,512.3**	**241,125,908**	**3,617.6**	**246,076,587**	**3,575.7**	**244,735,981**	**3,575.7**	**244,735,981**	**32,277.1**	**2,205,652,912**
Total Continuing Existing Costs	**3,289.7**	**236,892,032**	**3,315.4**	**238,886,440**	**3,404.1**	**245,024,281**	**3,493.1**	**251,434,123**	**3,555.9**	**254,474,131**	**3,766.0**	**264,998,727**	**3,707.3**	**258,289,873**	**3,617.6**	**246,076,587**	**3,575.7**	**244,735,981**	**3,575.7**	**244,735,981**	**35,300.4**	**2,485,548,158**
TOTAL ALTERNATIVE COSTS	**3,305.2**	**238,523,763**	**3,344.7**	**244,651,731**	**3,433.7**	**250,911,143**	**3,562.2**	**274,594,744**	**3,627.9**	**371,045,901**	**3,884.8**	**381,376,774**	**4,024.2**	**309,241,544**	**4,128.9**	**301,927,748**	**4,086.4**	**299,903,060**	**4,086.4**	**299,903,060**	**37,484.6**	**2,972,079,468**
INCREASED REVENUES				7,015,215		14,228,191		26,202,418		96,594,837		276,715,004		612,111,369		925,446,396		951,848,296		951,848,296		**3,862,010,023**

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PROJECT FUNDING PLAN

All costs are shown in whole (rounded) dollars

	FY 2008/09		FY 2009/10		FY 2010/11		FY 2011/12		FY 2012/13		FY 2013/14		FY 2014/15		FY 2015/16		FY 2016/17		FY 2017/18		TOTALS	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
TOTAL PROJECT COSTS	**15.5**	**1,631,731**	**29.4**	**4,496,691**	**29.6**	**5,886,862**	**101.6**	**14,042,898**	**112.6**	**58,772,822**	**89.0**	**74,697,323**	**74.2**	**111,566,627**	**71.2**	**18,323,659**	**68.6**	**14,126,098**	**68.6**	**13,514,098**	**591.7**	**303,544,714**
RESOURCES TO BE REDIRECTED																						
Staff	15.5	1,631,731	25.6	2,688,933	25.8	2,712,950	37.0	3,702,445	48.0	4,749,920	24.0	2,435,664	9.6	1,014,768	6.6	688,188	4.0	404,038	4.0	404,038	**200.1**	**20,432,675**
Funds:																						
Existing System		0		0		0		0		0		0		0		0		2,338,542		2,338,542		**4,677,084**
Other Fund Sources		0		0		0		0		0		0		0		0		0		0		**0**
TOTAL REDIRECTED RESOURCES	**15.5**	**1,631,731**	**25.6**	**2,688,933**	**25.8**	**2,712,950**	**37.0**	**3,702,445**	**48.0**	**4,749,920**	**24.0**	**2,435,664**	**9.6**	**1,014,768**	**6.6**	**688,188**	**4.0**	**2,742,580**	**4.0**	**2,742,580**	**200.1**	**25,109,759**
ADDITIONAL PROJECT FUNDING NEEDED																						
One-Time Project Costs	0.0	0	3.8	1,707,758	3.8	2,986,436	64.6	9,940,962	64.6	53,608,807	34.6	68,780,459	5.7	73,336,330	0.0	2,245,256	0.0	612,000	0.0	0	**177.1**	**213,218,009**
Continuing Project Costs	0.0	0	0.0	100,000	0.0	187,476	0.0	399,491	0.0	414,095	30.4	3,481,200	58.9	37,215,530	64.6	15,390,216	64.6	13,110,060	64.6	13,110,060	**283.1**	**83,408,129**
TOTAL ADDITIONAL PROJECT FUNDS NEEDED BY FISCAL YEAR	**0.0**	**0**	**3.8**	**1,807,758**	**3.8**	**3,173,913**	**64.6**	**10,340,453**	**64.6**	**54,022,902**	**65.0**	**72,261,659**	**64.6**	**110,551,860**	**64.6**	**17,635,472**	**64.6**	**11,383,518**	**64.6**	**10,771,518**	**460.2**	**291,949,053**
TOTAL PROJECT FUNDING	**15.5**	**1,631,731**	**29.4**	**4,496,691**	**29.6**	**5,886,862**	**101.6**	**14,042,898**	**112.6**	**58,772,822**	**89.0**	**74,697,323**	**74.2**	**111,566,627**	**71.2**	**18,323,659**	**68.6**	**14,126,098**	**68.6**	**13,514,098**	**660.3**	**317,058,812**
Difference: Funding - Costs	0	0	0.0	0	0	0	0	0	0	0	0.0	0	(0.0)	0.0	0.0	0	0.0	0	0.0	0	**(0.0)**	**0**

Total Estimated Cost Savings	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	**0.0**	**0**

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ADJUSTMENTS, SAVINGS AND REVENUES WORKSHEET
(DOF Use Only)

	FY 2008/09		FY 2009/10		FY 2010/11		FY 2011/12		FY 2012/13		FY 2013/14		FY 2014/15		FY 2015/16		FY 2016/17		FY 2017/18		Net Adjustments	
Annual Project Adjustments	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
One-time Costs																						
Previous Year's Baseline	0.0	0	0.0	0	3.8	1,707,758	3.8	2,986,436	64.6	9,940,962	64.6	53,608,807	34.6	68,780,459	5.7	73,336,330	0.0	2,245,256	0.0	612,000		
(A) Annual Augmentation /(Reduction)	**0.0**	**0**	**3.8**	**1,707,758**	**0.0**	**1,278,678**	**60.8**	**6,954,526**	**0.0**	**43,667,845**	**(30.0)**	**15,171,652**	**(28.9)**	**4,555,871**	**(5.7)**	**(71,091,074)**	**0.0**	**(1,633,256)**	**0.0**	**(612,000)**		
(B) Total One-Time Budget Actions	0.0	0	3.8	1,707,758	3.8	2,986,436	64.6	9,940,962	64.6	53,608,807	34.6	68,780,459	5.7	73,336,330	0.0	2,245,256	0.0	612,000	0.0	(0)	**177.1**	**213,218,009**
Continuing Costs																						
Previous Year's Baseline	0.0	0	0.0	0	0.0	100,000	0.0	187,476	0.0	399,491	0.0	414,095	30.4	3,481,200	58.9	37,215,530	64.6	15,390,216	64.6	13,110,060		
(C) Annual Augmentation /(Reduction)	**0.0**	**0**	**0.0**	**100,000**	**0.0**	**87,476**	**0.0**	**212,015**	**0.0**	**14,604**	**30.4**	**3,067,105**	**28.5**	**33,734,330**	**5.7**	**(21,825,314)**	**0.0**	**(2,280,156)**	**0.0**	**0**		
(D) Total Continuing Budget Actions	0.0	0	0.0	100,000	0.0	187,476	0.0	399,491	0.0	414,095	30.4	3,481,200	58.9	37,215,530	64.6	15,390,216	64.6	13,110,060	64.6	13,110,060	**283.1**	**83,408,129**
Total Annual Project Budget Augmentation /(Reduction) [A + C]	**0.0**	**0**	**3.8**	**1,807,758**	**0.0**	**1,366,154**	**60.8**	**7,166,541**	**0.0**	**43,682,449**	**0.4**	**18,238,757**	**(0.4)**	**38,290,200**	**(0.0)**	**(92,916,388)**	**0.0**	**(3,913,411)**	**0.0**	**(612,000)**		

[A, C] Excludes Redirected Resources

Total Additional Project Funds Needed [B + D]	**460.2**	**296,626,137**

Annual Savings/Revenue Adjustments																						
Cost Savings	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0		
Increased Program Revenues		0		3,809,116		13,738,022		22,402,520		80,943,209		249,853,907		582,282,288		888,770,935		934,432,442		940,110,084		

Department: Franchise Tax Board
Project: Enterprise Data to Revenue (EDR) FSR 08-05
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PROGRAM FUNDING PLAN

All costs are shown in whole (rounded) dollars

	FY 2008/09		FY 2009/10		FY 2010/11		FY 2011/12		FY 2012/13		FY 2013/14		FY 2014/15		FY 2015/16		FY 2016/17		FY 2017/18		TOTALS	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
TOTAL PROGRAM COSTS	**2,807.0**	**191,253,520**	**2,832.6**	**193,247,928**	**2,920.4**	**199,487,562**	**2,980.9**	**204,119,191**	**3,031.9**	**209,327,368**	**3,316.5**	**227,792,809**	**3,495.0**	**239,888,032**	**3,577.2**	**243,095,741**	**3,588.3**	**246,177,581**	**3,588.3**	**246,108,115**	**28,549.9**	**1,954,389,731**
RESOURCES TO BE REDIRECTED																						
Staff	2,807.0	191,253,520	2807.0	191,253,520	2,846.0	194,850,531	2,885.0	198,298,718	2,924.0	202,044,552	2963.0	205,641,563	2,963.0	205,641,563	2,963.0	205,641,563	2,963.0	205,641,563	2,963.0	205,641,563	**29,083.9**	**2,005,908,656**
Funds:																						
Existing System		0		0		0				0		0				0		0		0		**0**
Other Fund Sources		0		0		0		0		0		0		0		0		0		0		**0**
TOTAL REDIRECTED RESOURCES	**2,807.0**	**191,253,520**	**2807.0**	**191,253,520**	**2,846.0**	**194,850,531**	**2,885.0**	**198,298,718**	**2,924.0**	**202,044,552**	**2963.0**	**205,641,563**	**2,963.0**	**205,641,563**	**2,963.0**	**205,641,563**	**2,963.0**	**205,641,563**	**2,963.0**	**205,641,563**	**29,083.9**	**2,005,908,656**
ADDITIONAL PROGRAM FUNDING NEEDED							0						0									
One-Time Program Costs	-	0	0.0	0	-	0	-	0	-	0	0.0	0	-	0	-	0	-	0	-	0	**-**	**0**
Continuing Program Costs	-	0	25.7	1,994,408	74.4	4,637,031	96.0	5,820,473	107.9	7,282,815	353.5	22,151,246	532.0	34,246,469	614.2	37,454,178	625.3	40,536,018	625.3	40,466,552	**3,054.3**	**194,589,190**
TOTAL ADDITIONAL PROGRAM FUNDS NEEDED BY FISCAL YEAR	**-**	**0**	**25.7**	**1,994,408**	**74.4**	**4,637,031**	**96.0**	**5,820,473**	**107.9**	**7,282,815**	**353.5**	**22,151,246**	**532.0**	**34,246,469**	**614.2**	**37,454,178**	**625.3**	**40,536,018**	**625.3**	**40,466,552**	**3,054.3**	**194,589,190**
TOTAL PROGRAM FUNDING	**2,807.0**	**191,253,520**	**2832.6**	**193,247,928**	**2,920.4**	**199,487,562**	**2,980.9**	**204,119,191**	**3,031.9**	**209,327,368**	**3316.5**	**227,792,809**	**3,495.0**	**239,888,032**	**3,577.2**	**243,095,741**	**3,588.3**	**246,177,581**	**3,588.3**	**246,108,115**	**32,138.2**	**2,200,497,847**
Difference: Funding - Costs	-	0	0.0	0	-	0	-	(0)	-	(0)	0.0	(0)	-	(0)	-	0	-	0	-	0	**-**	**(0)**

Total Estimated Cost Savings	-	0	0.0	0	-	0	-	0	-	0	0.0	0	-	0	-	0	-	0	-	0	**-**	**0**

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ADJUSTMENTS, SAVINGS AND REVENUES WORKSHEET
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	FY 2008/09		FY 2009/10		FY 2010/11		FY 2011/12		FY 2012/13		FY 2013/14		FY 2014/15		FY 2015/16		FY 2016/17		FY 2017/18		Net Adjustments	
Annual Program Adjustments	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
One-time Costs																						
Previous Year's Baseline	-	0	0.0	0	-	0	-	0	-	0	0.0	0	-	0	-	0	-	0	-	0		
(A) Annual Augmentation /(Reduction)	**-**	**0**	**0.0**	**0**	**-**	**0**	**-**	**0**	**-**	**0**	**0.0**	**0**	**-**	**0**	**-**	**0**	**-**	**0**	**-**	**0**		
(B) Total One-Time Budget Actions	-	0	0.0	0	-	0	-	0	-	0	0.0	0	-	0	-	0	-	0	-	0	**-**	**0**
Continuing Costs																						
Previous Year's Baseline	-	0	0.0	0	25.7	1,994,408	74.4	4,637,031	96.0	5,820,473	107.9	7,282,815	107.9	7,282,815	107.9	7,282,815	107.9	7,282,815	353.5	22,151,246		
(C) Annual Augmentation /(Reduction)	**-**	**0**	**25.7**	**1,994,408**	**48.7**	**2,642,623**	**21.6**	**1,183,442**	**12.0**	**1,462,342**	**245.6**	**14,868,431**	**178.5**	**12,095,223**	**82.2**	**3,207,709**	**11.1**	**3,081,840**	**-**	**(69,466)**		
(D) Total Continuing Budget Actions	-	0	25.7	1,994,408	74.4	4,637,031	96.0	5,820,473	107.9	7,282,815	353.5	22,151,246	286.4	19,378,038	190.1	10,490,525	119.0	10,364,655	353.5	22,081,780	**1,606.5**	**104,200,971**
Total Annual Program Budget Augmentation /(Reduction) [A + C]	**-**	**0**	**25.7**	**1,994,408**	**48.7**	**2,642,623**	**21.6**	**1,183,442**	**12.0**	**1,462,342**	**245.6**	**14,868,431**	**178.5**	**12,095,223**	**82.2**	**3,207,709**	**11.1**	**3,081,840**	**-**	**(69,466)**		

[A, C] Excludes Redirected Resources

Total Additional Program Funds Needed [B + D] **1,606.5** **104,200,971**

Annual Savings/Revenue Adjustments

Cost Savings	-	0	0.0	0	-	0	-	0	-	0	0.0	0	-	0	-	0	-	0	-	0		
Increased Program Revenues		0		3,809,116		13,738,022		22,402,520		80,943,209		249,853,907		582,282,288		888,770,935		934,432,442		940,110,084		

Department: Franchise Tax Board
Project: Enterprise Data to Revenue (EDR) FSR 08-05
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ECONOMIC ANALYSIS SUMMARY

All costs are shown in whole (rounded) dollars.

	FY 2008/09		FY 2009/10		FY 2010/11		FY 2011/12		FY 2012/13		FY 2013/14		FY 2014/15		FY 2015/16		FY 2016/17		FY 2017/18		TOTAL	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
EXISTING SYSTEM																						
Total IT Costs	491.7	46,565,378	491.7	46,565,378	491.7	46,565,378	491.7	46,565,378	491.7	46,565,378	491.7	46,565,378	491.7	46,565,378	491.7	46,565,378	491.7	46,565,378	491.7	46,565,378	4,917.2	465,653,780
Total Program Costs	2,807.0	191,253,520	2,807.0	191,253,520	2,846.0	194,850,531	2,885.0	198,298,718	2,924.0	202,044,552	2,963.0	205,641,563	2,963.0	205,641,563	2,963.0	205,641,563	2,963.0	205,641,563	2,963.0	205,641,563	29,083.9	2,005,908,656
Total Existing System Costs	3,298.7	237,818,898	3,298.7	237,818,898	3,337.7	241,415,909	3,376.7	244,864,096	3,415.7	248,609,930	3,454.7	252,206,941	3,454.7	252,206,941	3,454.7	252,206,941	3,454.7	252,206,941	3,454.7	252,206,941	34,001.1	2,471,562,436
PROPOSED ALTERNATIVE	**PROPOSED ALTERNATIVE (Alt B)**																					
Total Project Costs	15.5	1,631,731	29.4	4,496,691	29.6	5,886,862	101.6	14,042,898	112.6	58,772,822	89.0	74,697,323	74.2	111,566,627	71.2	18,323,659	68.6	14,126,098	68.6	13,514,098	660.3	317,058,812
Total Cont. Exist. Costs	3,289.7	236,892,032	3,315.4	238,886,440	3,403.1	245,126,073	3,463.7	249,757,702	3,514.6	254,863,238	3,799.2	273,328,680	3,977.7	285,423,903	4,055.9	288,227,574	4,067.0	291,309,414	4,067.0	291,239,948	36,953.4	2,655,055,005
Total Alternative Costs	3,305.2	238,523,763	3,344.7	243,383,131	3,432.8	251,012,935	3,565.2	263,800,601	3,627.2	313,636,061	3,888.2	348,026,003	4,051.9	396,990,530	4,127.1	306,551,233	4,135.6	305,435,512	4,135.6	304,754,046	37,613.7	2,972,113,817
COST SAVINGS/AVOIDANCES	(6.5)	(704,865)	(46.0)	(5,564,233)	(95.0)	(9,597,027)	(188.5)	(18,936,505)	(211.5)	(65,026,130)	(433.5)	(95,819,062)	(597.2)	(144,783,589)	(672.4)	(54,344,292)	(680.9)	(53,228,571)	(680.9)	(52,547,105)	(3,612.6)	(500,551,381)
Increased Revenues		0		3,809,116		13,738,022		22,402,520		80,943,209		249,853,907		582,282,288		888,770,935		934,432,442		940,110,084		3,716,342,523
Net (Cost) or Benefit	(6.5)	(704,865)	(46.0)	(1,755,117)	(95.0)	4,140,995	(188.5)	3,466,015	(211.5)	15,917,079	(433.5)	154,034,845	(597.2)	437,498,699	(672.4)	834,426,643	(680.9)	881,203,871	(680.9)	887,562,979	(3,612.6)	3,215,791,142
Cum. Net (Cost) or Benefit	(6.5)	(704,865)	(52.6)	(2,459,982)	(147.6)	1,681,013	(336.1)	5,147,028	(547.6)	21,064,106	(981.1)	175,098,951	(1,578.3)	612,597,650	(2,250.8)	1,447,024,293	(2,931.7)	2,328,228,164	(3,612.6)	3,215,791,142		
ALTERNATIVE #1 (A)	**ALTERNATIVE 1 (A)**																					
Total Project Costs	15.5	1,631,731	29.4	5,765,291	29.6	5,886,862	69.1	23,160,621	72.0	116,571,769	118.8	116,378,047	316.9	50,951,671	511.3	55,851,160	510.7	55,167,079	510.7	55,167,079	2,184.2	486,531,310
Total Cont. Exist. Costs	3,289.7	236,892,032	3,315.4	238,886,440	3,404.1	245,024,281	3,493.1	251,434,123	3,555.9	254,474,131	3,766.0	264,998,727	3,707.3	258,289,873	3,617.6	246,076,587	3,575.7	244,735,981	3,575.7	244,735,981	35,300.4	2,485,548,158
Total Alternative Costs	3,305.2	238,523,763	3,344.7	244,651,731	3,433.7	250,911,143	3,562.2	274,594,744	3,627.9	371,045,901	3,884.8	381,376,774	4,024.2	309,241,544	4,128.9	301,927,748	4,086.4	299,903,060	4,086.4	299,903,060	37,484.6	2,972,079,468
COST SAVINGS/AVOIDANCES	(6.5)	(704,865)	(46.0)	(6,832,833)	(96.0)	(9,495,235)	(185.5)	(29,730,648)	(212.2)	(122,435,970)	(430.1)	(129,169,833)	(569.5)	(57,034,603)	(674.2)	(49,720,807)	(631.7)	(47,696,119)	(631.7)	(47,696,119)	(3,483.5)	(500,517,031)
Increased Revenues		0		7,015,215		14,228,191		26,202,418		96,594,837		276,715,004		612,111,369		925,446,396		951,848,296		951,848,296		3,862,010,023
Net (Cost) or Benefit	(6.5)	(704,865)	(46.0)	182,382	(96.0)	4,732,956	(185.5)	(3,528,230)	(212.2)	(25,841,133)	(430.1)	147,545,171	(569.5)	555,076,766	(674.2)	875,725,589	(631.7)	904,152,178	(631.7)	904,152,178	(3,483.5)	3,361,492,991
Cum. Net (Cost) or Benefit	(6.5)	(704,865)	(52.6)	(522,483)	(148.6)	4,210,474	(334.1)	682,243	(546.2)	(25,158,890)	(976.3)	122,386,281	(1,545.8)	677,463,047	(2,220.0)	1,553,188,636	(2,851.8)	2,457,340,814	(3,483.5)	3,361,492,991		

/1 Alt #1 (A) includes an additional year of ongoing costs and revenue for comparison purposes (one year later)