

# IBM Solves Taxing Problem for The State of California

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## Countdown to Success

<b>Late 1998</b>	Contract awarded to IBM
<b>June 1999</b>	Project commences
<b>June 1999 — Feb. 2000</b>	Requirements phase
<b>June 1999</b>	Cleansing of five million records begun
<b>Feb. 2000</b>	Prototype released
<b>January 2001</b>	Data store loaded
<b>April 2001</b>	Data store live
<b>April 2001</b>	External user access established

## The Agency

*The California Franchise Tax Board (FTB), the agency responsible for collecting personal income taxes, bank, and corporation taxes for the State of California.*

<b>The Situation</b>	The FTB’s goal was to increase compliance with tax filing laws. Both businesses and individuals who fail to file tax returns represent significant revenue loss for the state. In addition, e-government initiatives in California and nationally created incentives for government agencies to increase efficiency and employee productivity.
<b>Solution Partner</b>	IBM Global Services provided the expertise on government revenue applications, as well as a scalable, reliable platform to integrate legacy applications, and develop new ones for the Internet.
<b>The Bottom Line</b>	The FTB has realized a 17% improvement in filing base, which in a state the size of California is significant: \$68 million in revenue has been generated since the implementation of the new system. In addition, redesigned tax notices generated by the system have improved response rates by 7%.

## Executive Summary

The California Franchise Tax Board (FTB), the agency responsible for collecting personal income, bank, and corporation taxes for the State of California, partnered with IBM to build a case management system, enterprise data store, and business intelligence capabilities to enable the Tax Board to identify nonfilers more effectively and efficiently. The case management system includes an integrated Web and IVR front end for improved customer service. The system is used by Franchise Tax Board employees to work on and close out cases as well as by nonfilers, via a Web-based interface, to ask for additional time to reply to their notices and grant extensions online.

The Franchise Tax Board partnered with IBM to build an integrated system to access, process, and analyze over a terabyte worth of data. The results to date have been quite significant (see table below). In April, the California Franchise Tax Board won the Federation of Tax Administrators 2001 Compliance Award for this system. The award is given to those compliance programs that show excellence, creativity, and effectiveness.

### *IBM at California Franchise Tax Board*

#### **Business Drivers**

- ▶ Improve compliance
- ▶ Improve customer service
- ▶ Improve employee productivity

#### **Business Benefits**

- ▶ Additional \$68M in revenue collected from nonfilers annually
- ▶ Additional 100,000 nonfilers identified
- ▶ Reduced erroneous contacts by 50%

#### **Software**

##### **IBM Products**

- ▶ WebSphere Application Server, 3.02
- ▶ DB2 Universal Database
- ▶ MQSeries
- ▶ Visual Age for Java, Enterprise Edition
- ▶ Intelligent Miner
- ▶ Tivoli

##### **IBM ISV Partners**

- ▶ ETI Extract
- ▶ Vality INTEGRITY
- ▶ Blaze Software (now Brokat) Data Element Advisor
- ▶ Rational Rose

*continued...*

**Servers**

- ▶ IBM RS/6000 SP
- ▶ IBM 3466 Network Storage Manager
- ▶ IBM 7133 Serial Storage Architecture (SSA) disc system
- ▶ Enterprise Storage Server (Shark)
- ▶ SAN Fibre Channel Switch

**Services**

- ▶ IBM Global Services Software Practice Areas
- ▶ IBM Global Services Revenue and Fiscal Management Practice
- ▶ IBM Global Services Public Sector Outsourcing Practice

## Franchise Tax Board Background

The California Franchise Tax Board (FTB) is the agency responsible for collecting state personal income taxes as well as bank and corporation taxes for the State of California. Each year the department collects over \$33 billion in tax revenues from individuals, banks, and corporations.

The mission of the Franchise Tax Board is to “collect the proper amount of tax revenue, and operate other programs entrusted to us, at the least cost; serve the public by continually improving the quality of our products and services; and perform in a manner warranting the highest degree of public confidence in our integrity, efficiency and fairness.”

### How are California nonfilers identified?

Nonfilers are identified by gathering and processing more than 160 million income information records. Sources of data include W-2 forms, 1099 information, real property sales, K-1 partnership returns, etc. These records are matched against filed returns to identify nonfilers. Noncompliance notices are generated by the system. Consider the statistics. There are 14 million residential tax filers in the State of California and an estimated two million nonfilers with tax amounts due. Based upon cost benefit considerations and FTB’s commitment to reduce taxpayer intrusiveness, it makes sense to pursue one million of these.

In an effort to make sure that “everyone pays their fair share” of state income taxes, the Franchise Tax Board launched its nonfiler compliance program in the 1950s. The program was aimed at identifying those individuals and corporations that didn’t file state tax returns. This initial program was manual in nature, but as computers became part of the landscape in the 1970s, the Board moved to automate identification and case management of nonfilers. The system was rolled out for individuals in 1975, for corporations in 1979, and for self-employed nonfilers in 1985.

## A New Nonfiler System Is Needed

Although the original program met with success and has generated approximately \$300M dollars in additional revenue per year (over the last few years), the infrastructure used in the program was old and inflexible. For example, the systems couldn't deal with income records that were not perfect, such as missing social security numbers or missing or misspelled first names. The system also could not handle newer sources of information. The FTB believed it was losing millions of dollars in additional revenue because of this. On the customer service front, the old system didn't allow for requests such as extending time to file; manual work arounds were required for this. Additionally, taxpayers were sometimes contacted in error because of data cleansing and scrubbing problems.

The old system could not be modified to support new requirements. According to Cathy Cleek, Director of the Filing Compliance Bureau, "Basically, we had an old legacy system that needed to be replaced, but we didn't want to do it unless we got some strategic bang for the buck." In 1992, the State of California went through a major 10-year planning process resulting in a series of five projects of which the new nonfiler program was a part. The new nonfiler system (called INC for Integrated Nonfiler Compliance system) would be used by the nonfiler program as well as the auditing and collections departments.

## Goals for the New System

The Franchise Tax Board had three goals in mind when it looked to replace its 1970s mainframe solution:

- ▶ **Improve compliance and increase revenue.** The California Franchise Tax Board believes in the governing principal, "everyone needs to pay their fair share." As stated above, California is looking to pursue upwards of one million additional individual filers each year. The new system would enable processing of new types of compliance information and identify additional entities (individuals and corporations) to pursue. At the time the system was being replaced, California stated that identified nonfilers represented 4.6% of the filing base. The FTB's short-term goal was to increase this percentage of known nonfilers to 5.4%, with the obvious longer term goal of increasing the overall filing base.
- ▶ **Improving customer service.** The Franchise Tax Board had three customer service improvement objectives. First, it wanted to decrease the number of erroneous contacts that it made with individuals and corporations that were, in fact, filing tax returns but had been identified as nonfilers due to the inadequacies of the old system. Or, as Cathy Cleek, put it, "We want to reduce

## States of e-business Adoption

Companies go through a number of stages or states in their e-business evolution. The end state is one where the enterprise has not only integrated its back-office systems and connected to its suppliers, to its customers, and to other business partners, but it also has linked at the business process level, and these business processes are supported by applications that are dynamically created. These states are outlined below:

**State 1 • Publish** — Maintains a multipage Web site. Uses the Web for e-mail, and/or for noninteractive publishing of business information

**State 2 • Transact** — Uses the Web to enable clients to execute one-way or two-way transactions against core business systems

**State 3 • Integrate Internally** — Uses the Web to improve and/or integrate core business processes within the enterprise

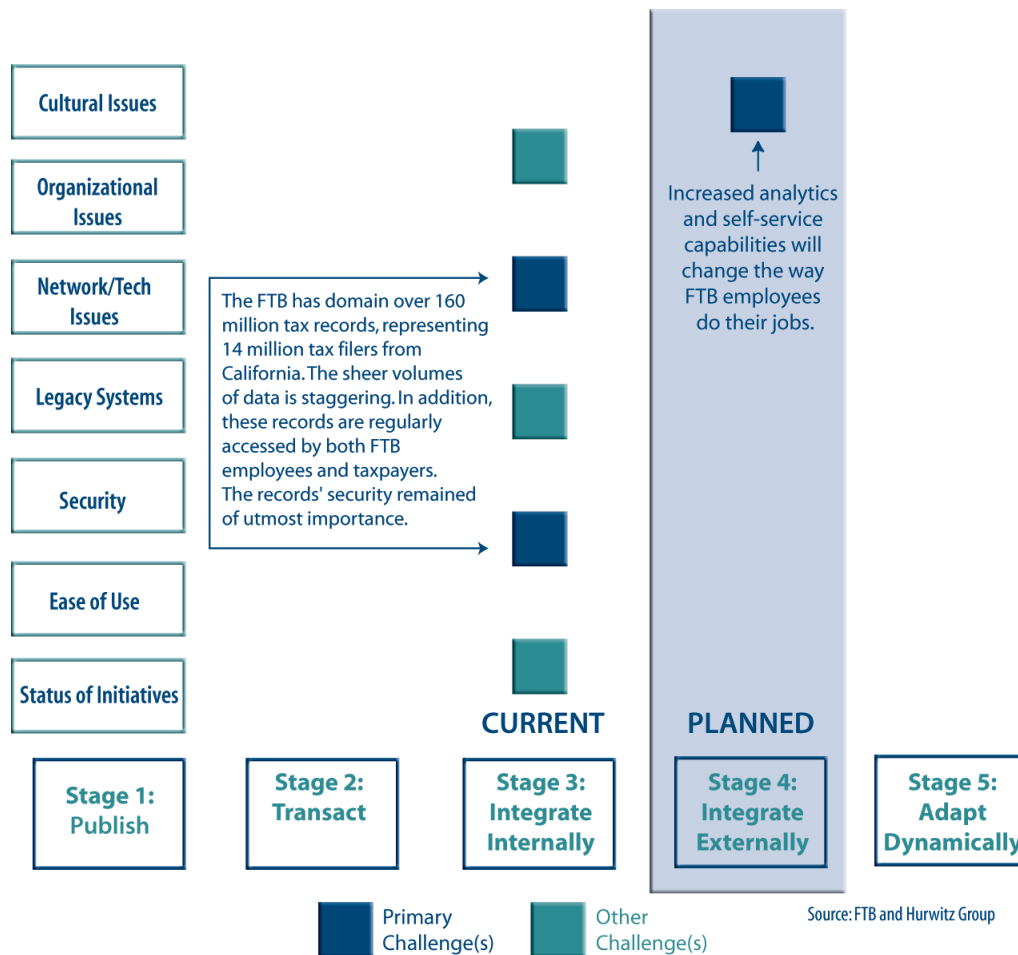
**State 4 • Integrate Externally** — Uses the Web to integrate business processes across enterprise boundaries

**State 5 • Adapt Dynamically** — Uses the Web as the foundation for operating in a digital community

Of course, drivers and barriers vary between states. The barriers can be cultural as well as technical. For example, a driver for a company moving from state 1 to state 2 is often to improve customer support with the use of self-service applications. A barrier between these states might be that the organization doesn't have the skills to handle the new system.

intrusion into taxpayers' lives."The goal was a 50% reduction in these contacts, which are estimated at 100,000 per year. Second, the FTB wanted to be able to improve the effectiveness of customer notices. Finally, as part of a larger State of California e-government initiative, the Franchise Tax Board planned to implement Internet self-service capabilities to reduce costs. At the same time, FTB wanted to make it easier for filers to obtain forms or get the status of a refund due.

- ▶ **Improve the efficiency and effectiveness of the nonfiler program, collections, and auditing programs by organizing income information more effectively and providing better case management and decision support solutions.** For example, the old system utilized flat file formats. The goal for the new system was an enterprise data store that built upon relational database technology. Implicit in this goal was to improve employee productivity and satisfaction.



### Challenges at Various States of FTB’s e-business Evolution

#### Selecting the Right Partner

The FTB was looking for a partner to help build the enterprise data store infrastructure and case management solution. That partner had to be capable of cleansing, loading, storing, accessing, and analyzing literally a terabyte or more of information — coming from multiple sources — in order to identify and prioritize nonfiler cases to be pursued. In May 1998, the FTB issued a ‘Solicitation for Conceptual Proposal’ (SCP) for this project. The government’s innovative “alternative procurement” method was used as part of the selection process. Under this policy, the State pays the vendor based on the value of the solution; i.e., resulting benefits are used to pay for the development of the system.

A team of approximately eight people from FTB was involved in the decision-making process. One organization was responsible, but teams across the department were involved. Three vendors

entered the competitive selection process that took approximately five months. IBM was selected for a number of reasons, both technical and business related. According to Cathy Cleek, “IBM came in with the stronger technical solution,” both in breadth and depth. IBM also had a very strong training package. This was critical to the FTB, since several thousand users would access the system. Additionally, what impressed the decision makers was that, “IBM could address cultural change management — they really cared about the human side.” Having rolled out several other systems as part of its 10-year strategic initiative, the FTB knew the importance of change management.

## Implementing the Solution

In effect, the Franchise Tax Board was making the move from a pre-Internet/e-business solution to one that would be integrated across departments as well as help the FTB transact with taxpayers. The goals, drivers, and degree of integration for the system put it at a state 3 implementation (see side bar on page 5). What is notable about the deployment are the infrastructure requirements as well as its innovativeness. Infrastructure, integration, and innovation are key components in assessing where a company stands in terms of its e-business deployments.

The Franchise Tax Board faced a considerable challenge in delivering the necessary information to its employees and taxpayers. Much of the information resides in legacy systems that are not designed for widespread sharing of data. To accomplish its goal, FTB needed a flexible platform that emphasized ease-of-integration. WebSphere Application Server provided this flexibility, and allowed the integration of data from — not only legacy systems — but also any number of other points throughout the enterprise. The combination of WebSphere, MQSeries messaging, and a number of other tools, which integrated well into the WebSphere platform, allowed the FTB and IBM Global Services to accomplish its tasks.

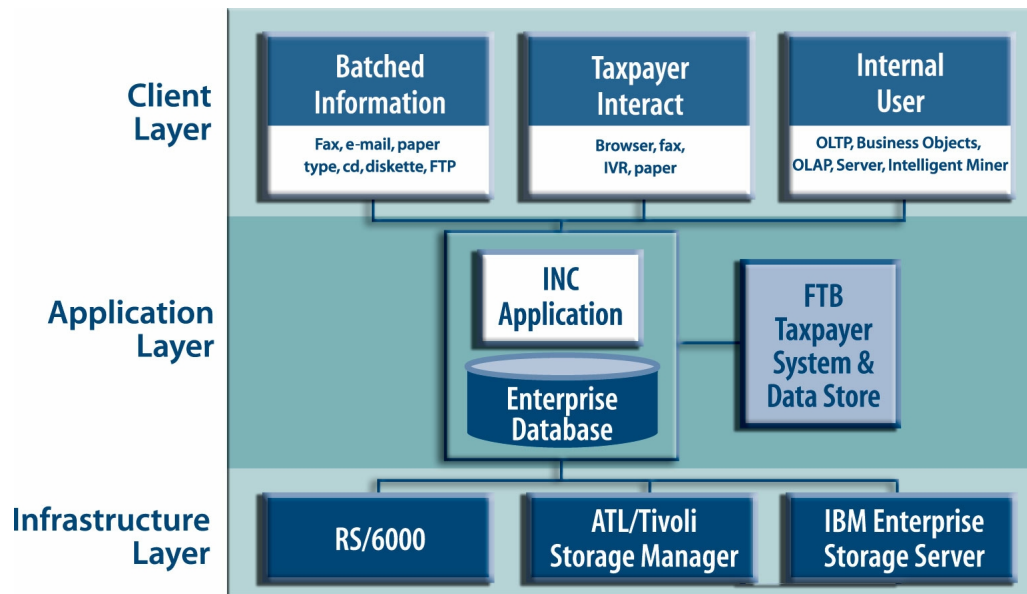
## Countdown to Change

The contract was awarded to IBM in late 1998. IBM Global Services and the Franchise Tax Board began working together in June 1999 on the requirements phase of the project.

In conjunction with this, IBM began cleansing over five million records. This data was loaded back into the FTB's existing data store. In early 2000, a prototype was developed which included data extraction, cleansing, and business rule development from which to identify nonfilers. Development also began on what was to be the larger INC system.

In January of 2001, IBM and the FTB commenced loading the data store with several hundred million records, with the goal of refreshing the system annually. A high level overview of the current INC system is shown below:





Income records from multiple sources and in various formats flow into the system and are passed through ETI data extraction and reformatting routines for putting the records into a standard file format. Vality's INTEGRITY product is then used to perform complex data cleansing. The data is stored in an IBM DB2 Universal Database enterprise data store. Business rules captured and executed using the Blaze Advisor Software (and separate from the data store) run over the data and identify nonfilers. Notices are automatically generated to the tune of 42,000 per week from the original load of data. The system is architected using IBM's WebSphere Application Server. WebSphere provided the foundation for not only the Web-based solution, but also the integration to other back-end databases and systems.

In addition to the enterprise data store and automatic notice generation capability of the system, the INC application implements a case management system that is used online by internal users to work through cases. This capability, along with external user access to the system via a Web-based interface, went live in April 2001. MQSeries is used for communicating with other FTB systems such as a taxpayer information system and business taxpayer information system. MQSeries allows the systems connectivity to share data and functionality.

The physical environment consists of an IBM RS/6000 SP computer using two frames with 17 nodes, which runs the INC application and the data cleansing software. The enterprise data store resides on

an IBM Enterprise Storage Server with over 4.2 TB capacity. Back-up, storage management, and disaster recovery are provided through Tivoli Storage Manager and an IBM Automated Tape Library with Linear Tape Option drives. All internal users are connected via a secure, high-speed private network. The security for external users is described below. The solution is used by one central office in Sacramento and 17 other locations in California.

## End User View

### Internal Users

As mentioned above, the case management system creates cases — and based on computed tax liability — chooses those cases to pursue. The system then generates automated notices and integrates with other systems to be notified when a tax return is received. Nonfilers are given 60 days to either file, protest, or provide proof that a return is not required. Questionable cases are put into a review status. California Franchise Tax Board case workers have access to this system to help work through the questionable cases as well as help them and the call center staff work through the phone calls, e-mails, and faxes they receive as a result of the 42,000 notices that get generated by the system each week.

The interface to the system is Web based. A sample screen is shown below:

The screenshot displays a web-based application window titled "MCA Application" for a taxpayer named JOHN T. TAXPAYER. The interface is divided into several sections:

- Tax Years:** 1999, 1998, 1997, 1996
- Return Information:** A table with columns for Tax Return, Tax Year, and Income Record. For 1999, the Tax Return and Income Record are checked.
- Nonfiler Program Activity:** A table with columns for Request, Demand, NPA, Final, Paid, and Closed. All are currently unchecked.
- ID Information:** Name: JOHN T. TAXPAYER, DOB: 00/00/0000.
- Address (Mailable):** Street: 9745 Butterfield Way, City: Sacramento, CA 95827, County: Yuba.
- Summary Table (1999):**

TP Income	93,056.00
Deductions	2,711.00
Taxable Income	90,345.00
Tax Before Credits (Single)	6,706.00
Exemption Credits (After Limitation)	72.00
Withholding	960.00
Estimate/Other Payments	0.00
<b>Computed Tax Liability</b>	<b>5,774.00</b>
Demand Penalty	0.00
Filing Enforcement Fee	0.00
Late Filing Penalty	1,443.00
<b>Total Due</b>	<b>7,217.00</b>
- Navigation:** Summary, Income, Tax Comp, Audit View, History

The work area is divided into four sections: a summary page, an address section, a correspondence section, and a history section. Case workers can call up specific information as well as enter information into the system. For example, the summary screen shown illustrates a case where income records exist for John T. Taxpayer, a model has been run, and the case makes sense to pursue. Other parts of the application let the case worker deal with address changes, input and record correspondence, and keep a history on the nonfiler. According to Cathy Cleek, "IBM understood that the user interface is 'the system' to the case worker. It is, in effect, how they do their job. IBM gets kudos for spending time on the interface."

### External User

According to Cathy Cleek, "We wanted to use California's e-government initiative to provide additional services to taxpayers." A public Web site was built to provide information to California taxpayers; however, only those who were sent a notice can actually log into the nonfiler portion of the system to perform transactions. To enter the system, both the notice ID and the taxpayer's social security number are required. Once on the system, taxpayers can ask for additional time-to-reply to their notice and be granted an extension online. A nonfiler can also request and download the forms needed online. Additionally, if taxpayers receive a notice with an incorrect ID on it, and they have already filed, they can go online, answer a series of questions, and if the system finds their correct filing, can receive a confirmation notice online. To date, these are the two transaction types available to the public, but more functionality is planned (see What's Next for the Franchise Tax Board?).

A sample screen of the system is shown below:



# Challenges

The Franchise Tax Board entered into this initiative with its eyes wide open to a number of business/cultural and technical issues that it knew could cause problems — if not addressed properly.

## Technical

The sheer amount of data that needed to be cleansed, processed, and analyzed is staggering. The database currently has at least one billion rows of information. The team knew that loading the database would certainly take time and that getting the database tuned to the proper level was also going to be an issue. The team did performance testing on a large amount of the data (40%), but initial runs of generating nonfiler notifications actually took at least twice as long as expected. This is often the case when fine-tuning a large database. IBM was able to solve the problem because, for example, its hardware uses parallel processing, and its DB2 database has tuning tools (e.g., for tracing).

## Business/Cultural

Change management was a critical component of the overall solution. As stated earlier, one thing that impressed the FTB was that IBM had clearly thought about the change management issues. The FTB and IBM worked together to develop a user interface that would make the transition easier. As Cathy Cleek put it, “The user cares about the system interface and IBM understood that.”

Additionally, IBM worked with the FTB team to develop a training package that consists of eight hours of classroom training including lecture, hands-on work, and Web-based training. The system also has online help, and students are given quick reference cards. 2000 users have been trained to date.

## Benefits of the Solution

Since going live in April 2001, the program has already generated some impressive results. These are outlined below, arranged by business goal.

Goal	Results
<b>Improve Compliance and Increased Revenue</b>	<ul style="list-style-type: none"> <li>▶ 17% improvement in filing base</li> <li>▶ \$68M in revenue generated since deployment</li> </ul>
<b>Improve Customer Service</b>	<ul style="list-style-type: none"> <li>▶ Taxpayers have better information</li> <li>▶ Taxpayers receive notices on a more timely basis</li> <li>▶ Redesigned notices generated by the system have improved response rates by 7%</li> </ul>

**Improve Internal Efficiency and Effectiveness**

- ▶ While it is too early to measure productivity enhancements, FTB believes that the fact that case workers now have more data at their fingertips, arranged in a much better way, will certainly improve internal productivity

## What's Next for the Franchise Tax Board?

The Franchise Tax Board is very pleased with the results of this deployment. What's up next? The corporate nonfiler system is due to be deployed in early of 2002. In addition, in the next phase of the project, the Franchise Tax Board plans to further enhance the analytical capabilities of the enterprise data store. Together with IBM, the FTB plans to add data mining capabilities as well as enhanced

The solution has proven effective and popular with taxpayers, as reflected in an informal e-mail received by the FTB liaison desk:

*FTB,  
I got a letter stating that I didn't file a tax return. Per the letter, I went to the Web site and entered my Social Security number to show that I had filed. This was the easiest resolution of a government issue that I can ever recall.  
Thank you for the simplicity!  
Great Web solution!  
— Chris*

trend analysis. One of the next goals is to continue to drive down the number of repeat nonfilers.

On the customer service side, the Franchise Tax Board is working toward more self-service capabilities, including return-free filing — for example, allowing nonfilers to view completed returns from the Web site as envisioned in its Filing 2010 planning document.

Summing it all up? According to Cathy Cleek, "The IBM team has been very good about people, technology, and process. The data is even more powerful than we envisioned. We're very excited about taking this step forward in e-Government."



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