



Modernizing Case Management in the Public Sector

A Clear and Present Reality

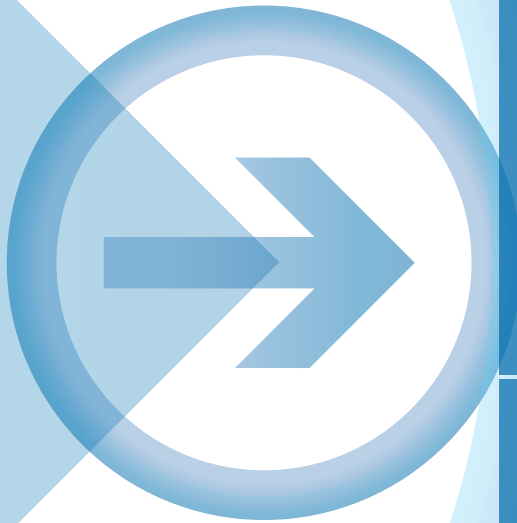


TABLE OF CONTENTS

1	MULTIPLE CASES-IN-POINT	5
2	COMPONENTS OF TIBCO'S CASE MANAGEMENT FRAMEWORK.....	7
3	SUMMARY	13
4	ABOUT TIBCO.....	14

Today, many federal, state, and local agencies throughout the United States have installed some type of case management system. Their attempt to coordinate with other systems or centralize the information to provide a standard approach throughout a jurisdiction has not been successful due to the complexities of their existing legacy environment.

Multiple systems are often deployed even within a single agency, creating islands of information and causing agencies to struggle due to little or no standards or interoperability other agencies. This reflects a legacy of installing whatever was most affordable or seemed best at the time. Many agencies are still using paper-based methods in key parts of their case management processes.

Often agency representatives must live with working on antiquated legacy case management systems that show limited amounts of information on a particular case order or citizen. This impacts the agency's ability to process cases, claims, or requests in a timely and efficient manner.

In many agencies there are at least two or three case management applications that do not talk to each other and have redundant data that do not serve the purpose of providing an integrated view of the citizen, criminal, claims, or the actual cases.

Traditional case management applications provide the following key functionalities:

- Collection
- Organization
- Processing of workflow
- Storage of data
- Distribution
- Analysis

These functions are important from an application-specific point of view, but still lack the following abilities:

- Interoperability with legacy systems, due to lack of standards support and formats
- Dissemination of real-time information across boundaries
- Correlation of events and activities as they occur
- Co-existence in a heterogeneous environment
- Ability to support large volumes of data and users

An effective approach to case management should not be seen as the deployment of another application, but rather building a flexible platform for information sharing. Focusing on a point solution around a single application will limit the government's ability to share information across different jurisdictions and agencies. The goal is to give public-sector agencies the ability to integrate the heterogeneous case management systems that already exist today to provide a full end-to-end view of the case process and activities within and across the enterprise.

Modernization of legacy environments is the key focus for all agencies due to the pressures on high operations and maintenance costs, lack of qualified resources, and the focus on citizen services. As a result, modernizing the case management platform is also required.

First steps in this process are to look at the enterprise IT scaffolding, integrate information flows and workflows in systems where it makes sense to do so, and provide web-enabled user interfaces and dashboards that keep users apprised of what's going on within the case management system. Agencies will then be able to process cases faster, and the system information can be used for audits and tracking key performance indicators, as well as providing a real-time status view for reporting and problem-identification.

A modern IT infrastructure focused on supporting agency goals translates into benefits that include:

- The ability to see when individual cases are impeded by the siloed nature of information

- Effectively transforming information handling from collection and storage to actionable intelligence by identifying trends and causal relationships the human mind would otherwise miss
- Increased collaboration among multiple users, departments, and agencies to examine cases' current statuses, related documents, associated evidence, involved people, latest comments, etc.
- Increased ability to analyze caseloads, clearance rates, dispositions, and other management reports
- Increased ability to measure current performance, detect potential bottlenecks, and plan upcoming resource requirements
- Improved case clearance and management by integrating systems across regions and departments

1. Multiple Cases-in-Point

Judicial Courts and Law Enforcement

An example that serves as a good case study for administrators throughout the world can be found within the U.S. judicial court system and its ties to law enforcement. Although numerous judicial courts in several states have implemented case management systems, many still use paper-based systems.

Current systems are often localized within a court or county system, with case information often stored in silos, where it is not standardized in format or content. Large courts may have invested in complex case management applications, but these are not shared with smaller courts, local law enforcement, or even federal courts, which have limited resources and typically use paper-based or Microsoft® Excel® systems.

This patchwork of systems impedes information sharing within a state and across state boundaries. This in turn can prevent courts from realizing efficiencies that enable budgetary savings to be cycled back into programs that improve citizen services or law enforcement and public safety.

Such an environment is more than simply inefficient, but can also prevent agencies from functioning as they should. Case management systems used by courts are

not integrated with those used in law enforcement, for example. The safety and quality of life for citizens are dependent on these crucial agencies having all the necessary information on hand at the right time, making this lack of integration very problematic. In many cases, helpful information is available somewhere, but the people who need it don't know about it or don't have easy access to it.

Additionally, many court cases are filed through local and state court systems, with a small percentage removed to federal court. On the other hand, a very large percentage of federal court cases originate in state courts. Within this context, most local or state lawyers are typically not conversant with federal procedures. This leads to errors when cases are removed to federal court, with files and notes arriving late in the process.

Cases often get passed back down to the local or state courts, and sometimes courts at all three levels have worked on cases concurrently and come to different conclusions. It is clear that all parties involved can only perform according to their charter if they have all the necessary information readily available in a timely fashion. Unfortunately, with most information being isolated that is often not the case.

Law Enforcement Impacts

Furthermore, imagine the impact and value an integrated case management solution can have on law enforcement. As a court clerk enters a warrant or updates a felony charge in a case management system, that information could be disseminated to a local police officer alerting them of an arrest.

Imagine, for example, a police officer pulls a driver over on a routine stop, he or she checks the driver's license and finds a criminal warrant issued in another part of the same state for this driver. The officer makes an arrest and a notification is sent to the jurisdiction where the warrant was issued.

Such information sharing across jurisdictional boundaries and the ability to have an integrated view of people and case information is of high value. Unfortunately, this level of interoperability is far from reality today within a state, let alone across state boundaries, in the existing legacy environment.

Federal Agencies

A significant number of opportunities for improved case management emerge at multiple federal law enforcement levels as well. Just a few examples drawn from the U.S. include:

- Department of Homeland Security—management of cases to process immigration and naturalization applications, tracking of fraud of duplicative cases with immigration, and automatic status updates for the applicant and citizens involved
- Department of Justice—sharing case-related information within and between the seven DOJ litigating entities as well as other partner organizations at the federal, state and local levels
- Department of Health and Human Services—tracking and processing of cases for welfare and workers compensation to ensure citizen services and support are met

More generally speaking, the demand for citizen-centric government; the need for reliable, online self-service processes for constituents; and the overarching requirement for increased efficiency are important issues that a modern IT infrastructure can help address. As with all public sector issues, implementations of these grand themes typically cross agency boundaries, requiring agencies to share information (and keep it secure) in order to provide desired services.

2. Components of TIBCO's Case Management Framework

TIBCO's case management framework provides the complete infrastructure platform needed for data exchange and governance across a wide range of federal, state, and local agencies in a real-time environment. The underlying architecture is based on an event-driven service-oriented architecture (SOA) that promotes reuse, data transparency and integration.

The flexibility of the TIBCO platform enables agencies to start small, but think big by focusing on a tactical project that could include providing the integration needed for a single case management system within a single agency. The

platform can then be used to extend this system across other agencies and provide the interoperability with their own unique systems.

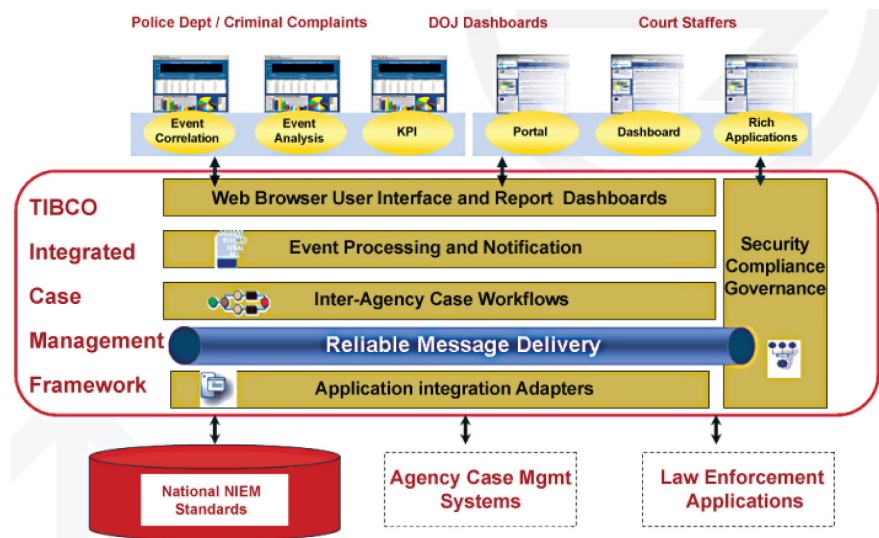
Once the platform is in place it can then be used to solve a myriad of problems. More strategically this can include modernizing an entire IT infrastructure while leveraging and extending legacy systems.

Taking an infrastructure modernization approach – as opposed to adding yet another case management application – differentiates itself by adding rich functionality that can be used to enhance existing case management systems. The following table illustrates the key differences in this approach versus the traditional “application” based solutions.

Traditional Approach	TIBCO Approach	Value
<ul style="list-style-type: none"> • Application-based • Compartmentalized, siloed view of case management information • Workflow-driven • Historical information management 	<ul style="list-style-type: none"> • Integrated Platform-based • Integrated view of inter/intra agency and third-party information • Enterprise Process Management-driven • Event driven architecture provides real time correlation and analysis of all data within the platform. 	<ul style="list-style-type: none"> • A flexible and scalable platform that can be extended to solve myriad business and IT requirements • single-screen overviews, holistic view of the case across entire process, leading to better decisions and actions • Faster and more efficient by replacing rigid workflow with flexible, dynamic end-to-end process management • Proactive approach delivers only relevant information to the right audience at the right time, more efficiently

The following illustration provides a logical view of TIBCO's Case Management framework.

Figure 1. Real-time insights, real-time decisions



This framework comprises the following key components:

SOA BASED INFORMATION INTEGRATION PLATFORM LAYER:

This platform connects islands of information. It makes sure that data in all existing systems is accessible and gets shared where needed. It allows agencies to integrate multiple, heterogeneous data sources distributed across its own and partners enterprises using industry-standard interfaces and protocols. The platform is all based on a robust Service Oriented Architecture (SOA) framework. It enables backend data sources as services that can be leveraged and reused in the case management process.

TIBCO delivers a high-performance services and messaging platform that serves as a robust backbone for integrating data retrieved from legacy applications or interagency data sources. Information flows through the TIBCO ESB (Enterprise Service Bus), which provides support for multiple industry standard interfaces and protocols to unlock data assets.

TIBCO has a suite of 150+ adapters and a suite of mainframe connectivity software that provides out-of-box connectivity to heterogeneous data assets

such as NIEM, to make sure you can leverage most of your existing systems. It enables secure data governance and a standards-based data translation and exchange function. This is crucial, as various existing applications might have their own data formats that need to be converted to make meaningful data transactions and exchanges possible. It is modular and scalable so that all agencies can participate regardless of the size of IT staff resources.

TIBCO integration enables agencies to make existing and new case applications, databases and technologies active participants in the end-to-end case management lifecycle. New applications can be built as services that can be reused and adapted to meet the needs of each local, state or federal jurisdiction. It allows agencies to augment the existing IT infrastructure and maximize its IT investments without the need to rip-and-replace the existing case management systems.

BUSINESS PROCESS MANAGEMENT (BPM) LAYER:

This layer enables not just the processing of a particular workflow, but also dynamic process management of a case across its entire lifespan. This layer allows agencies to define an end-to-end case process that involves human-to-human, human-to-system, and system-to-system interaction. This allows agencies to track and monitor the status of a case outside within or outside of their immediate organization.

TIBCO provides standards-based process management capabilities to model, deploy, manage and analyze the case management processes. TIBCO BPM provides extensive capabilities for non-IT analysts to take ownership of workflows and business rules, to better manage the changes that may occur in policies or government regulations.

This allows non-technical analysts to better automate and integrate existing case management processes across agencies and departments. It provides a complete lifecycle tool to define, model, simulate, analyze, and monitor case management workflows, as well as providing real-time information, audit and notification capabilities.

As the Government workforce gets impacted by the aging workforce and turnover capturing the institutional knowledge is critical in every agency. With TIBCO's BPM solution, institutional knowledge can be captured at every level from processes to data to business rules.

TIBCO BPM then functions as the single point-of-control of all legacy systems with respect to what is occurring from an end-to-end process. This also adds a measure of business continuity to the system, by managing automated processes that were developed over decades of time by key employees.

VISUALIZATION AND BUSINESS OPTIMIZATION LAYER:

This component provides enhanced visual and user interaction capabilities to allow users to process and gain awareness of what is happening with a particular case or overall situation. All the necessary and related information can be put on a user interface whether it be a dashboard, portal, or handheld device.

TIBCO's visualization layer automatically routes information to appropriate recipients, lets users access up-to-date information whenever they need it, and provides users with the ability to analyze and act on information in a real-time manner. This helps line-level clerks and representatives perform their jobs, helps managers identify and analyze problems and opportunities, and gives citizens the ability to get accurate and consistent information directly or through appropriate agency personnel.

TIBCO offers variety of options for information access and visualization: a portal solution with roles-based secured access, personalization, and enterprise-wide uniform interface; an outof-box dashboard for real-time monitoring and management for SLA and KPI management; and an AJAX (Asynchronous JavaScript and XML) system for development of rich web interfaces that are ideal for disconnected and low-bandwidth users.

INFORMATION CORRELATION LAYER:

The greatest amount of added intelligence comes with complex event processing (CEP) which can provide end-to-end, real-time visibility through event correlation and analysis. It can be used to intelligently manage cases that flow across justice departments, law enforcement, and other agencies, and respond proactively to anomalies and exceptions.

CEP adds the ability to track and trace, filter, and analyze information, correlate collected data from diverse sources to detect patterns and trends, and to predict potential future behavior or events.

- Work management - Proactive notification of Workload when backlogs occur in cases and notifications of workload must be escalated

- Public Safety - Notification of multiple warrants/cases related to a same felon but in different jurisdictions
- Fraud - Correlation of like events and transactions that occur multiple times that could signal fraud such as submission of benefits claims

TIBCO's event correlation engine is based upon the principles of CEP, first introduced by Dr. David Luckham, Professor, Stanford University, in a project funded by Defense Advanced Research Projects Agency (DARPA). TIBCO's event correlation capabilities enables agencies to understand the impact of events as they occur, and focus on responding to those with the most potential impact on the citizen or the agency.

It does this by collecting events throughout the enterprise, correlating them to identify meaningful patterns based on rules, assessing the probable impact of those situations, and pro-actively alerting the appropriate resource so that the situation can be addressed to maximize success, minimize risks and prevent unfortunate events.

A case management system that incorporates CEP can help agencies aggregate information from distributed systems in real time and apply rules to discern patterns and trends that would otherwise go unnoticed. This gives agencies the ability to identify and anticipate opportunities represented by seemingly unrelated events.

Figure 2. Sample of customizable user interfaces



3. Summary

TIBCO has been modernizing legacy IT infrastructures for more than 20 years. TIBCO's technology digitized Wall Street in the '80s with its event-driven "Information Bus" software, which helped make real-time business a strategic differentiator in the '90s. Today, organizations use TIBCO's infrastructure software to constantly innovate by connecting applications and data in a service-oriented architecture, streamlining activities through business process management, and giving people the information and intelligence tools they need to make faster and smarter decisions.

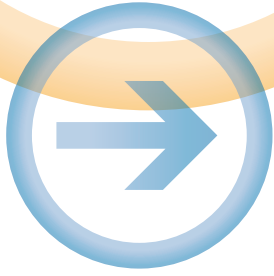
Within the government sector TIBCO has implemented enterprise-wide case management solutions for a diverse set of government agencies, spanning judicial courts, immigration, health care, and law enforcement. Government agencies in the U.S. and elsewhere, such as the U.S. Department of Homeland Security, Driver and Vehicle Licensing Agency in the UK, and the Ministry of Hajj in Saudi Arabia have leveraged TIBCO's integration and case management capabilities.

TIBCO's case management framework can be used as a platform to facilitate communication and access to information. TIBCO technology enables our customers to bridge systems and share useful case management information across boundaries, thus providing advanced capabilities for information sharing.

The benefits of this TIBCO's Case Management Framework include:

- Consistent, timely, and uniform data integration across a broad set of systems and partners interacting with each other on a daily basis.
- A standardized advanced case management platform that can improve public access to appropriate court and case information.
- Service reuse that can reduce future development time and costs by as much as 50 percent.

Beyond case management government agencies can also modernize their IT infrastructures by leveraging TIBCO's robust SOA environment, BPM, business optimization and CEP as part of a complete solution that enables information sharing in an accurate and timely fashion across their entire organization.



4. About TIBCO

TIBCO Software Inc. (NASDAQ: TIBX) is a provider of infrastructure software for companies to use on-premise or as part of cloud computing environments. Whether it's optimizing claims, processing trades, cross-selling products based on real-time customer behavior, or averting a crisis before it happens, TIBCO provides companies the two-second advantage™ – the ability to capture the right information at the right time and act on it preemptively for a competitive advantage. More than 4,000 customers worldwide rely on TIBCO to manage information, decisions, processes and applications in real time. Learn more at www.tibco.com



Global Headquarters
3303 Hillview Avenue
Palo Alto, CA 94304

Tel: +1 650-846-1000
+1 800-420-8450
Fax: +1 650-846-1005

www.tibco.com