

NEW ERA OF CONFIGURABLE CASE MANAGEMENT SYSTEMS

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Highly configurable case management systems emerged in 2007 that use workflow engines and business-rule engines. This provides greater ability to adapt a system to fit court business processes, rather than the other way around, but requires changes in methods of identifying requirements.

Acquiring a new case management system (CMS) can improve the productivity of court staff and customer service. Traditional case management systems are not very configurable because of the need for moderate to extensive customization of the base code, which is expensive and risky. Some functions cannot be built into systems developed in the 1990s due to the systems' complexity and architectural limitations. Commercially available systems often do not fit local business practices, or they require hard-coded changes as legislation or business rules change. Highly configurable systems may solve these issues.

Types of Configuration

CMSs have offered a number of configurations since the 1990s. Such systems were "table-driven." Tables of configurable elements, including user information, access permissions based on roles, statutes, charges, sentencing conditions, payment-tender types, fee-distribution patterns, and a host of other items, allowed jurisdictions to modify table entries without programming support to adapt to some frequent business changes.

Beginning in 2007, a majority of CMS vendors announced and marketed a new generation of highly configurable systems referred to as "frameworks." (For one of the earliest descriptions of frameworks in the CMS context, see Wolfe and Kasten, 2005.) These are nearly all complete rewrites of legacy systems, which use commercially available or proprietary components for workflow and business rules.

Workflow engines and business-rules engines, while still young technologies, have been used in other industries for a number of years and have been applied to CMSs

only since 2005. Whether developed on a Windows or Java platform, workflow and business-rules engines are available commercially, through open source, or through proprietary development.

Not all CMSs are equally configurable, but the new era of configurable systems adds the following ways to adapt systems to users' needs without customizing base code:

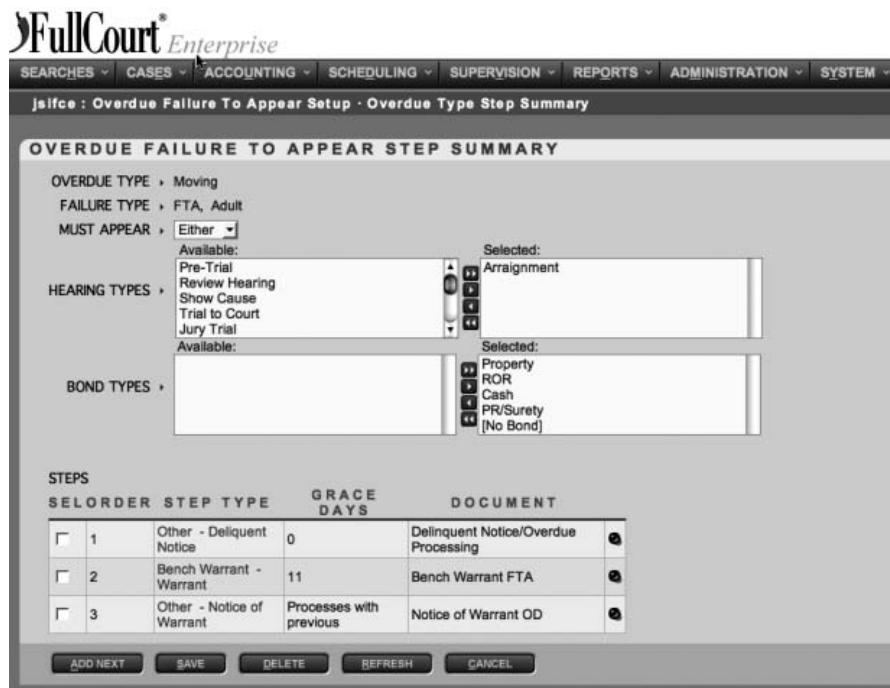
Configurable Feature	Court Example
Select and place data elements on a screen for ease of data entry in initiating or updating a particular case type	Place citation data fields on the screen in the same order that they appear on the citation for ease of data entry
Add user-defined data elements not included in the predefined database structure and use them in reporting	Add a checkbox required by recent legislation to flag and count a particular kind of event or condition
Specify tasks that can be chained together and performed automatically when the first task is initiated	When a bond is forfeited: make the accounting entry, make the docket entry, generate notice to defendant, send (notice of) warrant to sheriff
Identify the hand-off of a task from one user role to another when the first user has completed it	Judge signs warrant electronically and hands it off to the clerk for processing
Identify a task through a business-rule trigger to a user role when a case status changes or meets certain conditions	When a bench warrant letter is sent, a tickler is set for ten days for defendant to respond before a warrant is prepared
Handle differences in scalability between units in a court or courts within a state, by allowing different levels of specialization of function in different units or locations	In a multibranch court or multicounty district/circuit, set up specialized tasks for high-volume, urban caseloads versus setting up beginning-to-end processes for low-volume, less-urban ones
Manage work of users by setting up groups of users to handle tasks according to job roles and availability of staff to handle the workload, and change the load ad hoc to meet fluctuating amounts of work	Supervisor sees that there is a backlog on a certain work queue and temporarily assigns a clerk to help clear it up

The vendor must provide a framework that can be configured to meet the needs of a court or court system. The court must evaluate how configurable a vendor's framework is and whether it will meet the court's needs.

What Do You Have to Analyze to Configure a System?

State Transitions. A state is a set of conditions that describes an object or a business process at a particular time, and the object may transition to another state because of a changed situation or an external stimulus. Here are some examples of state transitions. A citation may have one day before it is due; the next day, if it is not paid or the defendant does not appear, it will change to "defaulted," with specific consequences. A defendant who pleads guilty will be classified as "to-be-sentenced." A fine payment may change from "due" to "overdue."

Workflows. Courts operate using hundreds of business processes that describe everyday actions of court staff and judges; they perform business processes



FullCourt Enterprise effectively configures "Overdue Failure to Appear" processing.

associated with case types, events, documents, files, money, and data exchanges with persons and organizations. The best visualization of a business process is a flowchart showing actions performed and decisions made.

An accounting supervisor approves a refund electronically and returns it to the clerk. A judge signs a sentencing order electronically and sends it to the clerk for processing. In these workflow examples, an event or a condition triggers the next step, transforming an object from one state to another—a refund approved, a sentence ordered. A user is notified of tasks to perform through one or more work queues associated with that user's job—an "event in-box" (see Havey, 2005).

Business Rules. Juvenile placement review hearings are held every six months. Court rules require reporting a case under advisement for more than 30 days. A court has a policy of sending a bench warrant letter and waiting 10 days before issuing the warrant. Rules such as these are set and changed by the legislature, the supreme court, and local court leadership (see Ross, 2005).

Putting It All Together. An ideal CMS will be able to configure all of the state transitions, workflows, and business rules of the court. Furthermore, it will have a workflow engine and a business-rules engine to execute in a runtime production environment. CMSs have varying amounts of configurability, so one of the procurement tasks will be to determine how configurable a CMS is and the extent to which it will meet the court's needs.

Problems with Traditional Methods of System Procurement

CMS development and acquisition have historically depended largely on a "waterfall" model of specifying requirements: specify all of the requirements up front, develop software and implement it, and make custom changes to the base code to meet deficiencies. This assumes that 80 to 90 percent compliance with requirements is good enough (it really is not) and leads to fast initial pilot implementations, years of dissatisfaction and development of manual workarounds to overcome CMS deficiencies, and slow statewide rollouts or project cancellations.

This approach is fraught with risk because users often do not know what they want until they see it, and the later in the process this occurs, the more expensive it is to fix the base code.

The traditional approach became more systematic and somewhat more effective with the adoption of the Case Management System Functional Standards beginning in 1999. This approach was more helpful because it identified what users need in the CMS and avoided issues of how a function is performed, which depend on a particular architectural approach. Since most CMS products now meet most of the functional requirements, courts can focus on requirements specific to their jurisdictions.

The functional requirement approach, while useful, has limitations because it mixes business processes with system processes that describe user interaction with the CMS. Furthermore, it does not fully describe case management state transitions, workflows, and business rules, which is necessary for configuring the new generation of CMSs for specific local courts.

Identification of Configuration Needs During System Procurement

What users think they want and what they really want tend to be different until they are able to use a prototype that brings the two concepts together. Acquisition strategies will need to become more like agile development methodologies by cycling through the process more than once.

This will require more time and effort by business analysts to properly configure the CMS and test it with users before implementation. Implementation of other case types and at other locations, however, should go faster and be more successful.

Sustain's eCourt allows a user to create and modify screens, without engaging a programmer to change.

For RFP writers no definitive or standard approach has been developed yet, but research is underway by the National Center for State Courts through collaboration with courts and vendors. A more useful requirement specification may include using scenario-based requirements (e.g., in-court arraignment processing, scheduling of a court event, bond forfeiture, or mass assignment of cases to a judge); mapping as-is business processes with UML or BPMN to accommodate state transitions and workflows in the demo/prototype system; and identifying business rules for configuring the system.

The prospective owner of a new, highly configurable CMS will need to keep an open mind about how the system should operate and expect to learn about system capabilities through trial and error.

RESOURCES

Havey, M. (2005). *Essential Business Process Modeling*. Sebastapol, CA: O'Reilly Media.

Ross, R. G. (2005). *Business Rule Concepts—Getting to the Point of Knowledge*. Houston, TX: Business Rule Solutions, LLC.

Wolfe, G., and V. Kasten (2005). "Bringing Courts into the Future—The Agility Imperative," 20:2 *Court Manager* 8.

ENDNOTES

¹ A consortium of court practitioners and CMS vendors developed civil, criminal, and domestic-relations functional standards, released in 2001.