



The Executive Guide to CRM Architecture

WHY CRM FLEXIBILITY WILL IMPACT YOUR SUCCESS

P I V O T A L C O R P O R A T I O N

White Paper

EXECUTIVE SUMMARY

Most businesses today are under increasing pressure to respond to change expeditiously—to adapt to the ongoing needs and demands of their customers, the changing competitive landscape, and the evolution of the marketplace. An organization's CRM system can either effectively support or hinder their business agility and capacity to respond to change, affecting overall corporate performance and customer satisfaction. This white paper explains the importance of flexible software architecture and how the right CRM solution can support and even advance an organization's ability to evolve in lock-step with changes as they occur—enabling them to attain and maintain a competitive advantage.

The Executive Guide to CRM Architecture: Why CRM Flexibility Will Impact Your Success

Most organizations have unique business processes and rules—even businesses that operate in the same industry or market. Whether your company's unique traits include specialized processes that give you a competitive advantage or complex informational requirements due to a diverse and multi-tiered customer set, understanding the importance of flexibility in a CRM system's architecture is key to avoiding implementation failure and to ensuring the solution meets your organization's requirements over the long term.

Most CRM vendors will claim their solution is customizable. Understanding what that really means, however, can make the difference between attaining your organization's goals and implementation disaster. In this paper, you will learn about the different categories of "customization" and the role a flexible architecture plays in being able to customize with ease, as well as flexibility's importance in deploying, upgrading, and integrating your CRM system successfully. By understanding these factors and how they relate to your organization's needs and resources, you can ensure the CRM solution you select enables you to operate as an adaptive enterprise, which is critical to maintaining a competitive edge in today's business climate.

Understanding Customization

When searching for a CRM solution, many organizations will start assessing their needs by reviewing their customer-facing business processes, as well as their internal information requirements. It is usually during this phase that companies realize that no software package will accommodate their needs "out-of-the-box" and that the ability to adapt or mold the software to their way of doing business will be key to generating tangible results.

The industry often uses the terms "customization" and "configuration" interchangeably to mean "tailoring the software to meet unique business requirements"—but in practice, these terms do not mean the same thing. There are several areas of a CRM application that may require tailoring to meet an organization's particular needs. Some of these changes are anticipated and provided for within the software, which will offer easy ways to "configure" these options. Other more elaborate changes may require deeper technical engagement with and alteration to the underlying software—these are "customizations." Examples of these two kinds of CRM tailoring include the following:¹

Configuration:

- Creating rules (such as report filters, escalation levels, and other business rules) that make the system behave in the manner you want and produce the information you need
- Adding fields, changing field names, and adding or changing field values (that is, data options for populating the field) to capture required information
- Formatting data elements on the screen, such as changing the order in which fields appear, as well as how they look (for example, bolding or putting required fields of entry in a different-colored font)

Customization:

- Scripting logic to drive process or workflow (for example, if the credit department puts an account on hold, an internal notice is automatically sent to the account manager handling the account)
- Managing the application programming interface (API) to enable integration with other applications/systems. (Although many CRM vendors will provide tools to integrate their software with industry-standard applications, such as accounting packages, this form of tailoring is still often required)

To summarize, configuration changes are generally those that can be accomplished by non-technical users, without the need for programming (though you may have to consider your resources and the skill level of existing staff—for example, a business analyst may be needed to configure more complex implementations that address end-to-end business processes). Engaging an external consultant or the software vendor to make configuration changes will cost you both time and money—be sure you know what configuration options you need and whether they are provided in the CRM software you are considering.

True customization changes are generally those that need to be made by technical users—actual modifications to the application or template through system-level properties or programming code. For example, a non-typical sales process to manage RFPs could potentially be modeled by adding tables and code to customize the sales module within a CRM application, but this would require programming experience.

1. The information for four of the categories was derived from "Pitfalls to Avoid When Choosing CRM Software," *CRM Daily*, April 11, 2006

Today's CRM vendors deliver systems with differing degrees of configuration and customization capabilities, and enterprises need to clearly understand and evaluate this functionality as it relates to their business needs. By clearly defining your business processes and requirements and understanding the important differences between configuration and customization, you will be well prepared to avoid implementation surprises that can result in substantial costs to your organization.

The Impact of a CRM Solution's Architectural Flexibility

In their search for the optimal CRM solution, many organizations either put too much focus on assessing

which requirements the software will meet at the time of implementation (whether out of the box or with tailoring) or not enough—they are sold on a "best in class" notion and believe they will simply "make it work" (in other words, they believe they can adapt their way of doing business to the software).

The best CRM solution is one that is capable of supporting your business model and processes at the time of implementation, as well as on an ongoing basis: it should be flexible and adaptable, so that it can be altered and scaled as your organization changes and grows. All too often, organizations make a choice based on ease of accessibility or other perceived advantages,

and then due to inflexible architecture find themselves being held ransom when the need arises to adapt the software. Implementing a solution with underlying

inflexibility can mean locking business processes in at the point in time of implementation, which can prove to be a significant barrier to the organization's ability to respond to change as needed—something that is becoming an increasing necessity for most businesses today—ultimately hindering their performance.

A system's inability to be adapted rapidly and reliably to meet the organization's changing requirements is a top reason for CRM failure. As with most business processes, the most effective CRM processes are not devised once and then never revisited—they need to be continually analyzed in relation to changing customer needs and expectations, as well as changes in the market and competitive landscape. The most successful CRM implementations are in organizations that are constantly assessing their CRM practices, with the objective of creating a triumph for both their customers and themselves.

Surprisingly, many CRM vendors today still focus on delivering support for standard business practices, hoping to cover a broad spectrum of functional requirements out of the box. However, as reported in *The State of Customer Relationship Management Software: 2003-2004* by Dick Lee and David Mangan,² this can clearly have repercussions when it comes to flexibility:

Of particular concern to customers is the Tier-1³ players' tendency to push customers to use their "out of the box" functionality, rather than adapting to meet individual customer functional requirements. Unfortunately, having extensive, pre-built functionality appears to make adaptation to specific customer needs more difficult for Tier-1 systems than for some Tier-2⁴ systems.

Flexibility, which Lee and Mangan refer to as "adaptability," is a direct consequence of underlying architecture. Simply put, businesses that purchase a CRM system built on an architecture designed for configurability often find that customizations require significant time, resources, and cost to implement and upgrade. For this reason, many organizations think it is easier to adapt their business processes to the software, rather than the other way around. For example, SaskTel, the Saskatchewan Telephone Company, "did not customize its Siebel sales force automation tool. Instead, the sales team changed its methods to fit the tool."⁵ While this strategy can result in faster

Mikohn Empowers Sales Team

Company Facts: Gaming Systems, Manufacturing; \$100M annual revenues

Business Problem: Steep growth curve challenged the company to keep pace with the needs of new customers.

Solution: Pivotal Sales

"Pivotal said that it could deploy almost immediately 'out of the box' and that would give our sales managers most of what they were looking for. And it was customizable, which was important because you want the system to adapt to your business model, rather than adapting your company to the software."

Bill Quinto, CRM Applications Specialist, Mikohn

2. *The State of Customer Relationship Management Software: 2003-2004* by Dick Lee and David Mangan, HYM Press, November 2003

3. Tier 1 examples include SAP and Oracle/PeopleSoft/Siebel

4. Tier 2 examples include Pivotal and Saleslogix

5. "Siebel To Offer Build-to-Order CRM Apps," *CRMDaily*, November 15, 2004

deployment time and easier upgrades, it can seriously jeopardize business performance.

Being forced to exchange your existing business processes for software-mandated ones also negatively

impacts user adoption.

An intuitive and easy-to-use interface that can be easily customized to reflect the way your employees work—instead of the way a software vendor thinks they should work—is key to end-user acceptance, which is critical to the success of your CRM implementation. When an organization has adapted its processes to the software, users often become frustrated and create their own work-arounds to get the information they need. The end result can be botched processes and redundancies that thwart potential productivity gains and inevitably affect customer relations, as well. Once organizations realize they cannot operate without their key unique processes, many implement a “quick-fix” by cobbling together databases that tie into the main system, increasing overall database administration efforts. The organization can find itself once again gathering information and performing customer-facing business processes through a patchwork of systems that does not deliver the single data repository and “360-degree customer view” that is the key strategic advantage of CRM.

for “general” business, some organizations turn to industry-specific CRM systems, believing that these are tantamount to “customized” solutions. Indeed, industry-tailored solutions may offer features that more closely fit a company’s business processes and data models, reducing the extent of customization needed. But industry-specific applications are not the same as customized applications. Industry-specific applications are a vendor’s attempt to approximate the processes and data models broadly required within an industry. Nonetheless, there is never a “perfect fit” that meets the needs of every organization within an industry, and as previously noted, companies within the same market or industry will often have dramatically different business processes, whose very differences may confer competitive advantage. It is important to evaluate a solution that is touted as being industry-specific with the same objectivity and criteria you would apply to a non-industry-specific one, and to consider the highly probable need for customization despite the inclusion of “industry-specific” features.

Integration with existing and future systems is another key area buyers need to consider when evaluating a CRM solution. Choosing a CRM system designed with more inflexible architecture—such as an architecture that binds data and processes together—can result in costly and time-consuming customization for effective integration with an organization’s existing infrastructure. Traditional applications—or those that were designed to be more or less self-contained or standalone—are especially expensive to integrate with, and often become cumbersome and problematic as IT attempts to integrate them using current enterprise integration applications, middleware, and so forth. A CRM application whose flexible architecture allows for ease of integration, by contrast, not only improves compatibility with pre-existing systems, but also makes it easier to enhance and extend functionality across systems. To be effective, the CRM vendor must supply an integration framework that spans multiple data stores, applications, and business processes across departmental and even enterprise boundaries.

By giving the same consideration to a CRM solution’s architecture as to its features and gaining an understanding of your organization’s ability to manipulate this architecture for adaptability and integration, you will mitigate deployment issues and ensure the successful implementation of a CRM

SecureWorks Uses Pivotal to Maintain a Competitive Edge

Company Facts: The market leader in managed security service providers and the maker of iSensor, a unique information security appliance; \$9.7M revenue (2004)

Business Problem: Growing at an extremely rapid rate, the company needed to ensure a high service level with rapid customer response times and easy and secure access to customer data across the organization. Automating processes with their partner channel and reducing operating costs were also key goals.

Solution: Pivotal CRM Suite

“... [We are] using Pivotal to further differentiate ourselves from our competitors in what is an increasingly high-growth, fast-paced, and competitive market ... We have reduced crucial response times, retained virtually all of our customers, and done so without [an increase] to our headcount. Pivotal has been the key factor in our rapid growth.”

Craig Bray, Director of Operations, SecureWorks

Note of Interest: SecureWorks was awarded the prestigious CRM Elite award by *CRM Magazine* for demonstrating outstanding ROI on its Pivotal CRM initiative.⁶

Having realized that their industry-specific requirements will not be met by a CRM vendor that offers solutions

⁶ “SecureWorks wins CRM Magazine Award for Outstanding ROI on Pivotal CRM Initiative,” *CRM Today* (CRM2Day.com), September 29, 2005

system that can meet your ongoing requirements and scalability needs. Ultimately, this will strengthen your organization's ability to deliver on internal business objectives while responding quickly and intelligently to customer and market opportunities.

Deployment and Upgrades

Many CRM implementations fail in the deployment stage due to an organization's overreach in its installation plans.⁷ Striving to implement every possible "wish-list"

ESRI Chooses Pivotal for Its Customization Capability

Company Facts: World's leading producer of geographic information systems (GIS) software; \$427M annual revenues

Business Problem: Customer information stored in a variety of departmental and individual databases created delays in response time, inaccuracies in information, loss of productivity, and redundant points of contact with the customer.

Solution: Pivotal CRM Suite

"Customization is the strength of Pivotal—that's why we chose it. It's the fact that Pivotal offers a rapid development environment and highly customizable system."

Jeff Peters,
Director of Sales Operations, ESRI

customization out of the gate can be overwhelming for the implementation team, as well as for users. Businesses that choose a flexible solution have the option of deploying in phases, knowing that further customizations and configuration changes can be deployed at any time. If a significant change in business processes is taking place in conjunction with the deployment of a CRM system, a phased approach may be advisable to ensure implementation success.

Whether customizations are phased in or deployed at the outset, a CRM solution must continue to evolve in lock-step with an organization's growth and development, as business goals and processes change or are refined in response to the changing marketplace and competition. It must be implemented

with the foresight to allow for post-implementation configurations and/or customizations without disruption to day-to-day business. And since effective CRM architecture today must cross multiple databases, applications, and business functions and support evolution at each of those layers, the necessity of post-implementation changes has become a potentially challenging and risky undertaking.

Systems that have a more rigid architecture—such as those that save customizations in the software code or inflexible table extensions—create a sizable ordeal when it comes time to deploy the solution and follow-on upgrades. This is particularly true for organizations with remote and mobile users—implementing customizations across distributed enterprises can be time-consuming and geographically challenging (in some cases requiring laptops to be sent to a central office for upgrades). Depending on the size and complexity of the organization, deployment could take anywhere from days to several months to complete, inflating administration costs and creating confusion while different parts of the business operate with different sets of business processes.

This is why, traditionally, highly customized CRM systems are viewed as "un-upgradable"—that is, too costly and risky to upgrade on a regular basis. This is another reason that some organizations think it best to deploy an uncustomized system, believing the ability to easily upgrade outweighs the downsides of changing their business processes to match those supported by an out-of-the-box CRM solution. However, most organizations are putting the future of their business at risk by refusing to customize; business processes need to be adapted as business models change in response to competitive pressures and in order to take advantage of new opportunities.

The best CRM solutions mitigate deployment and upgrade risks by offering flexible architecture at their core—architecture that saves customizations in a manner that allows administrators to deploy the original system and ongoing upgrades to all users seamlessly, regardless of the user's access method. Furthermore, CRM vendors must be able to support offline test and development systems so that organizations can create, implement, and test customizations and configurations offline before moving them into production. (CRM buyers should be careful to clarify how changes created in the testing environment are moved into production across the extended enterprise to ensure total cost of ownership is minimized.) If these elements are an intrinsic part of the CRM solution, rolling out the system and upgrades to LAN-based systems during off-peak hours should rarely pose a problem.

7. "Pitfalls to Avoid When Choosing CRM Software," *CRMDaily*, April 11, 2006

The Pivotal Approach

Pivotal believes that an organization's ability to tailor a CRM solution to meet its needs on an ongoing basis is critical to its performance. Accordingly, the Pivotal CRM suite has been developed in a manner that ensures companies can operate with the highest level of agility.

Centra Software Streamlines Delivery to Its Customers

Company Facts: World's leading global provider of enterprise software and services for eLearning and business collaboration; \$24M annual revenue

Business Problem: Customers had to interact directly with account managers and call center representatives to obtain product and technical information, including software updates.

Solution: Pivotal CRM Suite, including Pivotal CustomerHub

"[...]Pivotal's architecture allows us to more quickly adapt our technology to ever-changing business needs...Centra [now has] the most maintainable and extensible architecture to move our CRM application forward. As business rules change, we now have the lowest total cost of development and administration environment with which to grow our internal systems and processes."

Todd Williamson, Senior Business Systems Manager, Centra Software

toolkit, which facilitates modification of the application. These flexible components allow organizations to optimize their agility and responsiveness—a key to maintaining their competitive edge.

Pivotal stands apart from other CRM software solutions in delivering a complete suite of CRM products that are built on a sensible technology foundation and highly flexible architecture. Pivotal's technology architecture ensures enterprises gain a flexible, scalable, and easily deployable solution that facilitates the richest levels of collaboration and interactivity to increase revenues, margins, and customer loyalty.

Configuration and Customization

Architectural flexibility is about making CRM software, and thus CRM processes, work the way the organization sees fit. A flexible CRM application is one that is both easy to customize and easy to integrate with internal and external enterprise applications and data sources. Pivotal's architectural flexibility is grounded in the three separate component areas of its CRM suite: the platform (which defines data access/output); the application (the forms tied to business processes); and the graphical

Pivotal's metadata-driven architecture separates customer data from business rules, which makes it easier to quickly customize the solution to match business processes. This results in an architecture that facilitates the implementation of changes at all levels of the suite, with the ability not only to modify the user interface and business processes, but also the unique ability to customize the data model. Pivotal customers can change the underlying database entities or business objects to more closely model the way they do business. This includes the ability to change and create data elements and relationships between the data entities as required.

Through a combination of configuration and customization, complex business processes can be implemented in Pivotal by business analysts, without requiring extensive programming resources. For example, configuration can be as straightforward as allowing a sales manager to change the sales process by easily editing a milestone. Customization can also be accomplished in a straightforward manner by, for example, changing or adding tables within Pivotal's data model to more closely align with a company's business model.

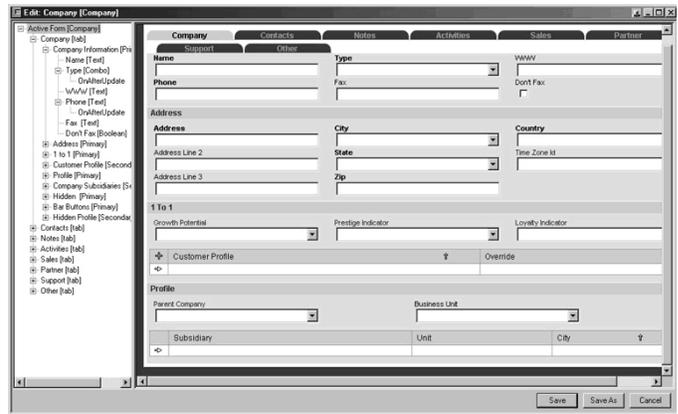


Figure 1: The Pivotal Toolkit Graphical UI

To ensure customizations could be easily implemented, Pivotal created a graphical customization toolkit: an easy-to-use visual tool that enables rapid customization to meet the organization's ongoing needs. Familiar elements such as forms, tables, lists, and queries—the main areas that customizers interact with—are designed to be intuitive for customizers to use and learn. Pivotal provides an elegant, uncomplicated framework for

determining how these elements interact with each other to create functionality.

Customizers work with forms, which are the visual representation of CRM data, business processes, and workflow that the user sees on their client. Forms contain the database structure; every field on a form is by default linked to a table in the database. To modify

a form to meet the needs of users, customizers lay out the form directly using point-and-click buttons and other screen elements. Customizations are then saved as metadata, not as code or rigid table extensions. For example, creating a customer contact form requires the customizer simply to link the new form to the corresponding database element, lay out the form using the graphical form designer, and register the new form with the navigation menu. All this is done without needing to write a single line of code. If a new table is required for the form, Pivotal has graphical tools to allow the customizer to quickly build new tables into the system.

This powerful WYSIWYG (What You See Is What You Get) model for both configurations and customizations makes the tailoring process rapid and intuitive. Pivotal provides out-of-the-box form templates with logic and rules built in, and additional logic and workflow can also be

attached. Because of this, the customizer role can be filled by a business analyst, as no code-level changes are required. However, if internal programmers are available, Pivotal does provide a comprehensive library of APIs (Application Programming Interfaces) for Visual Basic and VBScript application developers to customize

against, as well as offering support for .NET scripting, with the ability to write new server scripts in C#, VB.NET, and other .NET programming languages. In this way, the organization is given the choice of how they wish to work—customization performed at the more technical level by a developer is faster and can save on costs, but many companies prefer to have analysts, who are more closely aligned with business operations, perform customizations.

Deployment and Upgrades

To ensure customers can deploy easily, quickly, and reliably, Pivotal provides a push-button deployment method: customizers centrally modify the Pivotal CRM system and then move customizations from an offline development system into production with a single command called a UFO (Upgrade From Offline). After customizers have implemented a UFO, changes made to the metadata repository are compressed in a message and placed into the web server outbound queue, thereby distributing all application changes to the extended enterprise, including mobile and satellite systems. This ensures all users are always operating with the latest business processes, which avoids confusion, eliminates lost productivity, and minimizes disruption.

Pivotal further ensures ongoing upgradability of all aspects of the system by:

- *Preserving all configurations and customizations already selected/created.*
Pivotal makes available tools that compare an existing implementation to the new version, as well as to the original out-of-the-box system, effectively diagnosing a current system's position so customers can better understand exactly which customized functionality they can safely bring over to the new system. These tools significantly decrease the time and effort associated with any upgrade.
- *Preserving most integrations to other applications.*
As a general rule, Pivotal maintains backward compatibility with integration APIs from release to release. In this way, Pivotal ensures existing integration solutions created using best practices (such as indirection, layers, and encapsulation) will continue to function post-upgrade.

Micro Focus International Improves Response Times and Reduces Costs

Company Facts: U.K.-based provider of world-class solutions for developing and deploying COBOL applications; \$151M annual revenue

Business Problem: Disparate methods of managing customer information slowed the company's ability to generate new business and compromised customer service.

Solution: Pivotal CRM Suite

"As a company whose very purpose is to develop enterprise-wide solutions for our customers, we were in the strongest position to know what we wanted from our applications infrastructure. Pivotal's technology met all our expectations in terms of speed of deployment, ability to customize, mix of functionality, open architecture, and flexibility."

Sangeev Garg,
Director of Worldwide Business Systems,
Micro Focus International, Ltd.

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- *Delivering extensive upgrade documentation in conjunction with automated upgrade scripts.* Pivotal supplies automated agents that move both enterprise customer data and metadata into new structures to take advantage of the features delivered in the new version.

Integration

To ensure integration ease, Pivotal provides a framework that leverages middleware components, third-party adapters, and Web Services to provide a standards-based approach that can significantly decrease the time and effort needed to integrate CRM with enterprise applications and data both within and across business boundaries.

Conclusion

All CRM systems are flexible to a greater or lesser degree. Some organizations—especially businesses with simple and standard business practices—may find that an out-of-the-box CRM solution with the ability to configure specific business processes can accommodate their needs. But more established organizations, with complex requirements, unique business processes, and/or a differentiated business model cannot be so easily accommodated with a standard solution that does not provide for a wide breadth of customizations to be made cost-effectively.

Upon assessing their business processes, most organizations find that they deviate from standard practices. After all, “[v]irtually every company’s sales processes—both formal and informal—contain unique elements that help to differentiate that firm from competitors. If the ... sales processes are not aligned with the assumptions built into [the] CRM system, then implementation of that system simply automates chaos.”⁸

Ultimately, the ability to both configure and customize at multiple levels of a CRM system (from the data model to business processes to the user interface) in a straightforward manner yields the application with the greatest flexibility—an application that can be easily transformed to address whatever market pressures dictate. And to control upgrade costs and risks, the CRM vendor needs to be able to provide a method for fast, low-cost upgrades that deliver significant new features and functionality without risk to the business, productivity, or the overall system. The vendor must also ensure ease and reliability of integration with existing internal systems, as well as those of partners and customers.

As Charles Darwin stated, “It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change.”⁹ Businesses that are looking to grow and evolve should choose a truly flexible, adaptable CRM system that is reliable and capable of evolving along with them.

8. “Sales Process Is the Essential Success Ingredient for CRM” by Keith Eades, *CRM Magazine*, November 15, 2004

9. *The Origin of Species* by Charles Darwin, 1859



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