

Senior IT manager's guide to customer experience management

IT departments are increasingly being asked to provide the extensive data integration and cross-platform delivery that are the foundations of exceptional customer experiences. To meet that challenge, senior IT managers must understand the platforms and tools most conducive to customer experience management (CEM). Is your IT department prepared to meet the challenges—and reap the rewards—of CEM? Is your technology platform empowering your company to offer exceptional customer experiences?

In today's world of rapid commoditization of products and services, the rules of the game have changed: Traditional business advantages like price competitiveness and quick time to market are no longer sustainable differentiators. Your company's continued success depends on its ability to maximize the value of every customer interaction. You are now required to provide customers with highly tailored information when and where they want it, whether the interaction occurs via desktop computer, cell phone, tablet, or another channel.

Patricia Seybold, a respected analyst and longtime advocate of customer-centric business practices, defines CEM as "the practice of designing, delivering, and continuously improving the manner and ease with which your chosen customers interact with your brands to achieve their desired outcomes." Simply put, the goal of CEM is to empower and delight customers, transforming them not just from users to satisfied users, but from satisfied users to brand advocates.

Regardless of the size of your organization or the depth of your CEM needs, Adobe can help you achieve your CEM goals with the industry's most comprehensive and versatile design tools and runtime support for realizing state-of-the-art CEM solutions.

Taking a customer-centric approach

To reap the rewards of CEM, your software and systems that support the business must be designed and realized in ways that drive increasing customer engagement and commitment. You must be able to accommodate the ongoing needs for real-time aggregation of content, including web pages, documents, forms, rich Internet applications (RIAs), images, videos, and user information, personalization of the content, and continuous optimization based on user feedback and activity streams.

At a minimum, a successful approach requires the ability to collect and deliver highly contextualized information and capture appropriate user responses across all available delivery channels. But it also means having the flexibility to present that content and information in the manner that customers want and expect, including not just HTML, but potentially Adobe Flash[®] Player compatible content, PDF files, and other rich media.

As the originator of Adobe PDF and Flash technology (and a longtime innovator in RIA technologies), Adobe is uniquely positioned to help organizations achieve their CEM goals by offering a combination of world-class creativity tools and infrastructure offerings that cover the entire CEM problem space, front to back. The Adobe Digital Enterprise Platform (ADEP) provides a unique combination of services and tools to enable enterprises and partners to build customer experience solutions that leverage the ubiquity of client-side technologies such as Adobe Reader[®], Adobe Flash Player, Adobe AIR[®], and HTML5.

The Adobe Digital Enterprise Platform also provides:

- Standards-based, cloud-ready Java™ architecture that is lightweight, extensible, and easy to manage
- Award-winning design and development tools for building applications that span multiple interaction channels (across desktop, web, and mobile clients) and leverage in-service data to provide insight and automation
- Business software layer for aggregating and manipulating structured data and unstructured content
- Comprehensive integration points to existing applications, systems, and repositories, leveraging industry-standard APIs and protocols
- Capability to interact with customers in real time in a transactional manner, whether via short-lived (single session) apps, long-lived collaborative processing, or offline so that information can be consumed by customers at their own pace

A platform approach to CEM

The Adobe Digital Enterprise Platform comprises three major pieces: a content repository, an RIA framework, and an integration layer with associated runtimes.

The content repository is fully JCR-compliant (JSR 283). Built on open source Apache Jackrabbit technology, the content repository incorporates Apache Felix, an Open Services Gateway initiative (OSGi) based runtime environment for easy hot deployment of services. It also incorporates the Apache Sling application framework, providing a RESTful, Ajax-friendly architecture for the development of content applications (augmented by Apache Lucene for search). With the content repository, all scripts, user content, web apps, and system artifacts can be stored, searched, access controlled, versioned, and updated in one place.

The ADEP provides developer tools for rapidly building and aggregating intuitive, expressive, customized, easy-to-use applications across leading web and mobile platforms and devices. Behind the scenes, the ADEP provides dynamic application services for automating business processes, accessing data in real time, and integrating with a variety of systems and databases to connect with existing IT assets. Rich content services enable content to be tightly woven throughout the experiences from dynamic websites to personalized interactive documents delivered securely outside the firewall.

The ADEP encompasses a services container (managed runtime environment), an integration layer to facilitate communication with back-end systems, a comprehensive workflow system, document-generation capabilities, and a highly compositional presentation layer for delivery of personalized content, along with world-class collaborative development tools for designing rich user experiences.

By combining a JCR-compliant content infrastructure with a framework for composite content applications, the ADEP allows you to leverage highly contextualized information across a wide variety of application types—it is fully compatible with all major client-side technologies.

Agility is the key to ROI

It can be challenging to effectively engage customers while reducing development costs and maximizing return on investment. The key to achieving this is agility: Rapid application development is not just desirable but essential to achieving a good ROI.

Rapid development of rich, content-driven applications and automated processes requires a highly modular, service-based architecture that favors compositionality, collaboration, and reuse. It also demands superior development tooling and rich APIs. The Adobe Digital Enterprise Platform has been designed with each of these areas in mind.

The ADEP robust Java architecture emphasizes a service-oriented approach to application delivery in which highly granular back-end processes are exposed as loosely coupled services and easily assembled into targeted solutions. Using the composite application framework, for example, developers can decompose monolithic applications into discrete, experience-oriented components called tiles, and make those assets available to business users via a flexible graphical design surface. Business users can then create new content, send it through an approval cycle, and publish it without IT intervention, a significant improvement in efficiency.

Tiles are a core concept of applications built with the Composite Application Framework. Tiles are discrete application user interfaces developed in Flex or HTML, enhanced with the Content Composite Application (CCA) client software development kit (SDK) and registered in the CCA catalog. In contrast to traditional enterprise portals, CCA fully leverages modern RIA technologies (Flex and Ajax), resulting in a lightweight server based on Java and Spring and a rich client SDK available in ActionScript® and JavaScript. Tiles can connect to any back-end server as well as hosted applications. Just by adding simple script to the client code and without any changes to the server code, tiles leverage the Composite Application Framework to communicate with other tiles in a view, persist contextual data, and trigger actions (for example, launching another tile). This client-centric concept makes it easy to convert existing web application user interfaces into reusable tiles.

The ADEP also offers RIA capabilities via a comprehensive set of server-side components, client-side libraries, APIs, and tools that simplify the development of Flex and AIR clients to reach into a wide variety of back-end systems. Clients can use ready-to-run, back-end services for connecting to data sources and storage and for managing retrieved data.

Of course, even the most flexible architecture in the world is of little use without powerful design and development tools. Here, Adobe excels with the Workbench, an Eclipse-based environment that unifies authoring tasks for forms, processes, document description XML (DDX), and data models. Integration with the Content Repository simplifies managing artifacts with built-in support for revision control, security, and auditing. The Workbench process-design perspective gives business analysts the ability to create processes graphically using standard Business Process Model and Notation (BPMN) constructs (for example, swim lanes and pools). The form-design perspective embeds the ADEP form-design functionality for the graphical layout of XML form templates that can be rendered as PDF, SWF, or HTML. (Forms, in turn, are easily integrated with back-end data sources and destinations to build applications that automate common tasks, such as data capture.) The data model perspective allows developers to write applications at a higher level, reducing development time and cost and simplifying data integration. The guide-builder perspective allows designers to author intuitive data capture interfaces based on Flash technology.

Why a standards-based infrastructure is critically important

Making maximum use of your developers' existing skills is important to achieving a compelling ROI on IT projects. For that reason, and because interoperability is key in today's world of increasingly heterogeneous systems, Adobe is committed to promoting the use of industry standards in its products. This is a common theme throughout the Adobe Digital Enterprise Platform, starting with the content repository, which is JSR-283 compliant and compatible with the Content Management Interoperability Services specification, and continuing throughout all layers of the architecture.

Applications can be written as ActionScript and MXML, ECMAScript, Java Server Pages, servlets, or native Java. Plain Old Java Objects (POJOs) can be deployed as OSGi bundles. All major client-side technologies, including HTML5, cascading style sheets, AIR, Flash, PDF, and many media formats, are supported. As a result, bundles are modular, which allows them to be shared, reused, or versioned, which in turn speeds development schedules and lowers costs.

At the invocation level, the Adobe Digital Enterprise Platform supports the use of REST, Ajax, Simple Object Access Protocol, Web Services Description Language-backed web services, email—via IMAP and POP3 using both basic authentication and Secure Sockets Layer (SSL)—and Remote Method Invocation with Enterprise JavaBeans). This flexibility and universality allows IT management to access a larger pool of development resources at a potentially lower cost and reduces the risk of having critical knowledge residing with a single employee.

The Data Services layer leverages a wide variety of APIs and protocols, including JDBC, JMS, LDAP, FTP, HTTP, RTMP, and Action Message Format (AMF) which allows broader integration to more data sources and applications. This provides the greatest history and contextual relevance to the CEM applications being built.

The ADEP Work Manager utilizes industry-standard JSR-237 Work Manager for Application Servers to receive status information. In addition, the CCA leverages the Spring Security framework and the OASIS XACML standard to further integrate user context into the delivery of the user experience.

These are just some of the major industry standards that the ADEP supports. The ADEP supports many others, including all standards that you would expect in a Java Enterprise environment.

A CEM Platform Checklist

When selecting a CEM vendor, ask the following questions.

- Cloud-first design**—Do I have the flexibility to deploy executables in the cloud? Was the system designed with cloud-readiness or was it added as an afterthought?
- Compositionality**—Are applications built on loosely coupled components that can be rewired and repurposed with ease?
- Content**—Can content be centrally managed in a repository? Can the repository accommodate both structured and unstructured content types with equal ease?
- Context**—Does your CEM vendor provide a context engine that understands all the history and attributes of different customer segments to drive dynamic targeting and optimization of content?
- Mobile-first design**—Will the available tools and libraries let me easily test and deploy applications across a variety of phones, tablets, and other devices?
- Multilingual**—Can I easily achieve my internationalization and localization goals?
- Rich media**—Does the system natively understand Flash technology and PDF files as well as HTML5?
- Runtime infrastructure**—Does the system support OSGi for hot deployment of code and app server independence?
- Scalability**—Will the system scale easily with hot-join clustering?
- Security**—Was the system designed with enterprise-grade security? Are there adequate provisions for single sign-on, hierarchical access control, and policy-based provisioning?
- Social-first design**—Does the system take into account the notion of a social graph for every user?
- Standards-based**—Does the system reflect widespread use of common industry standards for APIs, protocols, and data formats?
- Unified development tools**—Can business analysts, developers, and web designers work collaboratively using a common toolset?

The need for scalability and security

CEM applications need to extend the boundaries of the enterprise so that customers and business partners can interact with the business from anywhere, whether via laptop, desktop, phone, mobile device, or set-top box. This requires an infrastructure that has flexible deployment and scalability options to securely span firewalls. The ADEP architecture provides this kind of flexibility and robustness and can be deployed in numerous ways, with or without any number of staging servers and DMZs. In addition, the Data Services provides an edge server that allows for secure proxying of communications from web clients to the DMZ and into application services.

With the ADEP, cloud compatibility is not an afterthought. The ADEP can be deployed on premise or in a cloud environment and dynamically scaled through a managed services offering. Hot-join clustering capability is built into the Content Repository, allowing for horizontal scale-out of content and applications in a matter of minutes.

Security is controlled through a user management component, allowing you to configure the system to use your existing authentication and authorization mechanisms, including LDAP and common enterprise single sign-on systems. All communication channels into and out of the system can be secured using SSL.

Tools and systems that allow you to provide exceptional customer experiences while also fostering ease of development, compositionality, and reuse and adhering to industry standards, offer the best assurance in achieving CEM goals in a cost-effective manner.

Adobe can help

Achieving an exceptional user experience isn't easy. But in today's high-touch world—a world of rising customer expectations and ever-intensifying competitive pressures—providing a superior online experience is a necessity, not only for web customers but also for end users of internal systems. The question isn't whether you need to take customer experience to the next level, but what it will cost in time and resources to do so. The challenge is to optimize the end-user experience in a way that maximizes measurable ROI. Tools and systems that allow you to provide exceptional customer experiences while also fostering ease of development, compositionality, and reuse and adhering to industry standards, offer the best assurance in achieving CEM goals in a cost-effective manner.

Adobe has a long history of providing outstanding tools and solutions for creative professionals and is a recognized leader in RIA technologies. Adobe brings all its expertise in these areas—and in areas of multiplatform and multiscreen development, web analytics, and advanced document processing—together in the Adobe Digital Enterprise Platform, making it truly the premiere platform for customer experience management

Next steps

For more information about Customer Experience Management and the Adobe Digital Enterprise Platform, please visit: <http://www.adobe.com/solutions/customer-experience/enterprise-platform.html> and <http://www.adobe.com/devnet/enterprise-platform.html>



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