



Introducing the QAD Enterprise Platform

by Carter Lloyds
Chief Marketing Officer, QAD

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INTRODUCING THE QAD ENTERPRISE PLATFORM

INTRODUCTION

The QAD Enterprise Platform allows developers and business analysts to rapidly create and deploy cloud applications that are dependable, secure and scalable without having to write code or worry about provisioning hardware or application stacks.

The QAD Enterprise Platform makes building apps easier and faster using out-of-the-box tools and services that automate business processes and include relevant security, user interface capabilities like menus and screen templates, collaboration, attachments, globalization, embedded analytics and automated support for desktop and mobile deployment.

Apps built using the QAD Enterprise Platform benefit from core enterprise data stored on the platform which eliminates the time, effort, cost and risk of data synchronization. The result: Manufacturers create apps in days instead of months and eliminate the writing of costly and complex customizations that inhibit making future upgrades and changes.

This paper examines the business purpose for QAD Enterprise Platform as well as the major components and benefits of the platform.

MEETING REQUIREMENTS: TODAY AND TOMORROW

Aligning the right business processes to your business strategy is a critical component in delivering what your customer requires (for example, greater levels of product and customer services at lower prices) while maintaining the operational efficiencies to deliver on your profitability goals. Systems are required to support business processes efficiently at scale.

Changes in the business environment and the way products are manufactured can impact a manufacturer's tactics and related business processes. The ability of the ERP system to

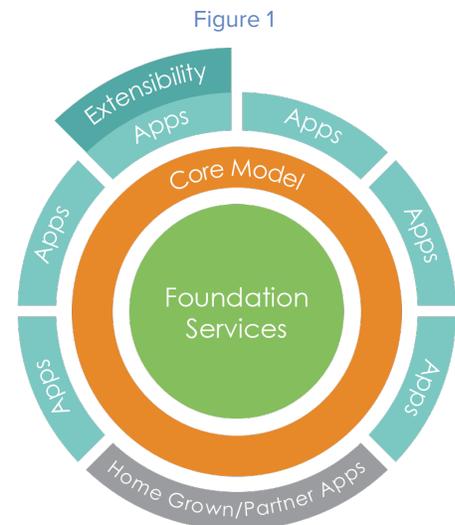
respond to change, to deliver fit over time and continue to support new business processes, will determine its effectiveness.

Traditionally, providing fit, including the "last mile" functionality unique to a single customer/user, and being provided an agile system that provides a rapid response to needed changes in business process, have been at odds.

QAD ENTERPRISE PLATFORM: FOUNDATION FOR AGILITY

QAD designed the QAD Enterprise Platform to make it simple for each manufacturer to deliver unique functionality without creating long-term rigidity in the system. Eliminating rigidity means that future enhancements and upgrades are not impaired or complicated by current enhancements. Similarly, enhancements can move forward through future upgrades without needing to be recreated. This provides greater agility over the long term and increases the value of enhancements through greater longevity.

The QAD Enterprise Platform (see Figure 1) consists of two foundational components: Foundation Services and Core Model. Apps can be extended or New Apps written on top of these components.



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FOUNDATION SERVICES

Foundation Services provides a variety of platform services for common use during application development, platform management tools to support the development lifecycle and platform infrastructure management capabilities to address configuration and deployment.

PLATFORM SERVICES

Platform Services include User Interface, Mobile, Security, Integration, API Management, Analytics, Data Query, Browse, Globalization, Collaboration and Event/Task Scheduling. These best-in-class services streamline the development of apps by providing common frameworks for reuse.

By centralizing Platform Services, apps across the platform deliver a consistent user experience and can leverage the full capabilities that underpin QAD Cloud ERP. Enhancements to Platform Services are instantly available for use by all apps, often without the need to enhance or update the app. For example, new dashboard visualizations can be leveraged in apps that use embedded analytics without needing to update the app.

Advanced Technologies under the umbrella of Industry 4.0 are changing the way products are manufactured. These technologies include: Internet of Things, Artificial Intelligence, Machine Learning, Blockchain, Augmented Reality, Additive Manufacturing and Digital Twin, and more. The pace of change in these technologies is far more rapid than the traditional ERP upgrade cycle. Platform Services allows for quick deployment and easy adoption of enhancements to these technologies.

PLATFORM MANAGEMENT

Platform Management simplifies application lifecycle management associated with apps that run on the QAD Enterprise Platform. It includes cloud-based tools to help with the development,

deployment, management and promotion of apps from one system or instance to another. This includes a web integrated development environment (IDE) for building apps and tools for automated testing and code management. It also includes tools to build and manage development forums and documentation.

PLATFORM INFRASTRUCTURE MANAGEMENT

Platform Infrastructure Management handles various infrastructure configurations and capabilities across deployments. Apps can be developed without regard for the underlying infrastructure, reducing the complexity of app development. Apps are universal: The same app can run on various cloud infrastructures managed by the platform. Platform Infrastructure Management also provides network management, infrastructure provisioning and disaster recovery.

CORE MODEL

Core Model builds on the concept of Foundation Services by making available business focused, higher level shared objects related to enterprise data. Core Model provides the ability to seamlessly blend and share information across the platform, effectively delivering one version of the truth while eliminating the need for data focused integrations. Services provided by Core Model include: Domain Entity, Address, Customer/Supplier, Attributes, Chart of Accounts, Calendar, Currency and Exchange Rates, Daybook, Item and Site, Codes and Global Tax Management.

RAPID RESPONSE TO CHANGE

The QAD Enterprise Platform provides five technologies that enable a rapid response to business requirement changes. Each supports a somewhat different level of depth and ease of use. Collectively, the simplification provided by the rapid response technologies enables self-service by making the creation of powerful

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enhancements easier and more accessible. Enhancements can be made by those close to the business requirements or by the users who use the enhancement, optimizing fit-for-purpose.

1. PERSONALIZATION

Designed for users, Personalization supports self-service modification of screens using a simple graphical point and click interface. Going beyond per-defined job roles, individuals can select the fields and sections they want to see in the order they prefer, reducing distraction and streamlining tasks.

2. EMBEDDED ANALYTICS

One of the most common user requests made to IT is to generate new or modified reports. Embedded Analytics puts powerful reporting in the hands of users who can rapidly create and modify reports and dashboards. This includes creating custom alerts that generate notifications when certain criteria or events are met.

Embedded Analytics also provides decision makers actionable insights that reduce the time required to act based on changing data and business conditions.

3. MODULARIZATION

Continuous improvement projects typically focus on a narrow set of processes where the greatest return on investment can be achieved. The modular design of QAD software allows customers to select the areas of the platform they want to upgrade – without needing to upgrade the entire application. The platform, based at this point in its evolution on QAD Cloud ERP's business services and capabilities, consists of four business areas, or modules, including Financials, Customer Management, Supply Chain and Manufacturing, which may be upgraded individually.

Modularization makes upgrades smaller, faster and easier, helping manufacturers to stay current and reducing the gap between business needs and ERP.

Following the concept further, QAD has atomized these business areas into individual apps which provide a specific set of business services. For example, "Sales Orders" is an app within Customer Management providing business services to create and modify a sales order. Each of these atomized apps can be upgraded independently of other apps, including those in the same business area.

4. EXTENSIBILITY

External Extensibility: Cloud Connected Apps

Modularization is enabled by modern, robust REST APIs/microservices that support interoperability of all apps within the QAD Enterprise Platform. The REST API approach also allows for easy integration with best of breed third party apps, particularly cloud apps. No changes or modifications to the QAD system are required to leverage the benefits delivered through extensibility while still respecting the QAD Enterprise Platform security model.

Internal Extensibility: Extending App Functionality

It is easy to extend apps running on the QAD Enterprise Platform. By leveraging the existing functionality, extensions allow for functional changes without rewriting the entire app. Imagine that the Core Model is missing data needed for a new warehouse setup. The Core Model can be extended to include fields and functions to support the warehousing management extension. This extension then provides the objects (data + functions) to all apps that use the extension. The extension is unobtrusive to the app, allowing for upgrades to the app without breaking the extension.

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5. NEW APPS

Leveraging the concepts of modularization and extensibility, QAD customers and partners can easily and quickly create new apps with the QAD Enterprise Platform. These new apps can deliver additional deep functionality without adding to system rigidity.

For example, using Foundation Services such as Mobile, Embedded Analytics, Personalization and Collaboration, developers can rapidly deploy a new app at reduced cost. There is no need to reinvent the wheel or pay for it twice. Apps written on the platform leverage the platform's master data ensuring data consistency and providing users with one version of the truth. The approach reduces complexity and the risk associated with data synchronization. Apps provide the benefits of customization without the need for intrusive code that creates version lock-in.

New apps on the QAD Enterprise Platform natively use the platform management tools designed to reduce the burden of application lifecycle management – all invisible to the developer. Similarly, the platform handles the lower level aspects of running and managing the app without developer intervention. Instead, developers focus on the unique functionality the app provides – where the true value is added.

APP MATURITY MODEL

Apps do not need to be written explicitly on and for the QAD Enterprise Platform to benefit from or run on the platform. The QAD Enterprise Platform provides the ability to support many existing apps developed for other deployment models – legacy apps. The platform makes it simple to build containers to wrap legacy apps. Containers are created to wrap apps with the complete filesystem needed by the platform, including code, runtime, system tools and system libraries allowing them

to run on platform with little or no modification. These apps benefit from Platform Management services such as high-level monitoring.

Depending on the use case, smaller more focused apps can be developed using only the needed components from the platform. They may be as narrow as infrastructure management (in a similar fashion to what legacy apps would use) or more extensive including Foundation Services and or Platform Management. The full advantages of the platform are available to apps that use the foundational components plus Core Model.

DELIVERING AGILITY EFFICIENTLY

The QAD Enterprise Platform reduces the effort and expertise required to make changes to ERP. Depending on the level of complexity, extending an existing app can be as simple as adding a field or creating validation using a graphical tool. Adding more complex logic may require using a high-level scripting language. See Figure 2 for a comparison of development approaches between QAD Enterprise Platform versus native QAD Enterprise Applications.

Common use cases for enhancements include the need to create a new entity (an entity is a single person, place or thing about which data can be stored), adding a field to an existing entity, creating a panel or moving fields in and out of a panel within the user interface.

When required, scripting using the QAD Enterprise Platform can be performed by extending existing apps. Without the underlying platform, coding requires copying and modifying standard code. This difference has critical implications for future enhancements: Extensions can benefit from updates to the underlying app without intervention. Modifications made directly to code, however, become stranded and unable to benefit from enhancements made to the original code.

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Figure 2. Development Comparisons - QAD Enterprise Platform vs. QAD Enterprise Applications

Type	QAD Enterprise Platform	QAD Enterprise Applications
Entity Structure	Designer	Code
Entity Validation	Designer/Scripting	Scripting/Code
Entity Record (Create, Read, Update, Delete)	Designer	Code
Entity Logic	Scripting	Code
Entity Web Services	Automatically generated	Code
Field	Designer: Unlimited number of fields defined on creation. Creates new table with key,	Designer: Using existing finite number of preset fields. Code: Side table using ICT
Panel	Designer	Code

THE RIGHT PLATFORM FOR ENTERPRISE APPLICATIONS

Enterprise applications leverage common elements around data and security. The QAD Enterprise Platform was designed at its core around QAD Cloud ERP. As such, it delivers a broad foundation of base data and business services that other enterprise applications can utilize. This greatly reduces the time and complexity required to write new apps. Other platform providers that do not have a broad enterprise core application leave it in the hands of the app developer to create the external integrations and/or data synchronization necessary to deliver the required business functionality.

With an ERP system at its core, the QAD Enterprise Platform has the proven ability to run mission critical complex applications at scale delivering greater than 99.5% application uptime in the cloud. Not all platforms are engineered for this level of performance and reliability.

FIT FOR PURPOSE

From self-service user personalization to deeply connected apps, QAD provides a range of Rapid Response Technologies that are fit for purpose. Each is designed to efficiently and effectively meet the requirements of a set of use cases. Complexity is reduced and systems rationalized by minimizing code creation in favor of reuse and providing a maturity model that includes support for legacy apps to highly integrated natively written apps.

The QAD Enterprise Platform allows manufacturers to maximize the return on their ERP investment by more easily achieving greater levels of fit and rapidly responding to changes required in business processes to ensure the strategic business alignment of the ERP system now and into the future.

The QAD Enterprise Platform is part of the QAD Cloud ERP initiative. Development is ongoing.

For more information about how QAD Enterprise Platform can help your company, please contact QAD at +1-805-566-6100 or email info@qad.com.



QAD Inc.

100 Innovation Place
Santa Barbara, CA
93108 USA
Tel: + 1 805 566 6100
www.qad.com