Understanding JD Edwards EnterpriseOne Mobility Applications

Your Guide to Planning and Implementing a New Mobile Application for EnterpriseOne

- A checklist for planning a new mobile solution
- Navigating the available tools and resources
- Best practices in design and architecture considerations

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Introduction

Mobile capabilities have evolved from nice-to-haves to business imperatives, especially in attracting and engaging the modern workforce. In today's JD Edwards EnterpriseOne environment, having a mobile application translates to efficiency in getting the job done without being tethered to a desk or laptop. Whether your users are on the shop floor, in the field, or working remotely, the ability to easily approve a purchase order, check an order status, or transfer inventory keeps your organization moving at the speed of business.

With Oracle's announcement that JD Edwards EnterpriseOne (JDE E1) mobile enterprise applications have gone into sustaining support, there is a new urgency around establishing a viable EnterpriseOne mobile solution going forward. In this whitepaper, we will look at the current state of JDE E1 Mobile and what it means for your organization. We will cover how to plan for a new mobile solution, showcase a selection of mobile application tools available, and identify best practices and architecture considerations for adopting a new solution to confidently move ahead.

Current State of JDE E1 Mobile Enterprise Applications

In May 2021, Oracle moved JD Edwards EnterpriseOne mobile enterprise applications to sustaining support. Going forward, EnterpriseOne mobile applications developed on Oracle Mobile Application Framework (MAF) will no longer be certified. Android 10 and iOS 13 are the last operating systems that have been certified, and mobile applications have been removed from the App Store and Google Play so that you can no longer download these mobile applications to new phones. For EnterpriseOne customers with an MAF mobile solution in place or for those actively considering a mobile strategy, this turn of events has created a sense of urgency to find a new mobile solution compatible with JDE E1.

On a related note, you may recall that with the EnterpriseOne 9.2 applications upgrade, Oracle introduced Orchestrator Studio, a gateway towards the digital economy. Through Orchestrator, enterprises have the ability to connect to JDE E1 logic and data, exposing EnterpriseOne functionality through orchestrations that can be called from a mobile device.

> The term "orchestration" refers to the ability to automate and sequence repetitive tasks involving EnterpriseOne and third-party applications.

The upside is that by leveraging the power of orchestrations, the possibilities are now endless for creating a very specific mobile user experience to meet the unique needs of your business. No longer confined to a specific toolset, JDE E1 enterprises are free to use industry-standard, front-end development tools, including those with which they may already be familiar.

While a new EnterpriseOne mobile strategy is needed going forward, companies have a lot of flexibility in choosing how to make that happen. So let's turn our focus to building knowledge around the planning process itself, the tools and options available, and best practices for designing a new mobile solution compatible with JDE E1.

# How Mobile Applications Work with EnterpriseOne

How the underlying process works is a good jumping off point to understand what you're building vs. what you're leveraging that's already in EnterpriseOne.

- When you log in to your new mobile application from your device, it will connect to the Application Interface Services (AIS) server and call the orchestration.

- The AIS server will use the HTML instance supporting AIS. Orchestrator will then provide the EnterpriseOne functionality for whatever you've designed that application to do, be it purchase order (PO) approval, work order approval, field services, customer relationship management, or something else.

- AIS/HTML will obtain the business logic and security server services from your enterprise server, and the business logic will then be executed and displayed back on your device. EnterpriseOne security, such as column-, row-, and end-user security will apply.

Even though the data will be transferred back and forth, none of the actual data is stored "transactionally" on the mobile device; rather, your device becomes an access point to see and do what you need to accomplish in EnterpriseOne. But what you see and how it appears on a mobile device will be something you need to establish (Figure 1).

"The format, in terms of what appears on each screen and what it looks like, is no longer going to be out of the box," explains Allen Jacot, Solution Architect at Syntax. "You will have to determine that with the toolset of your choosing."

Figure 1

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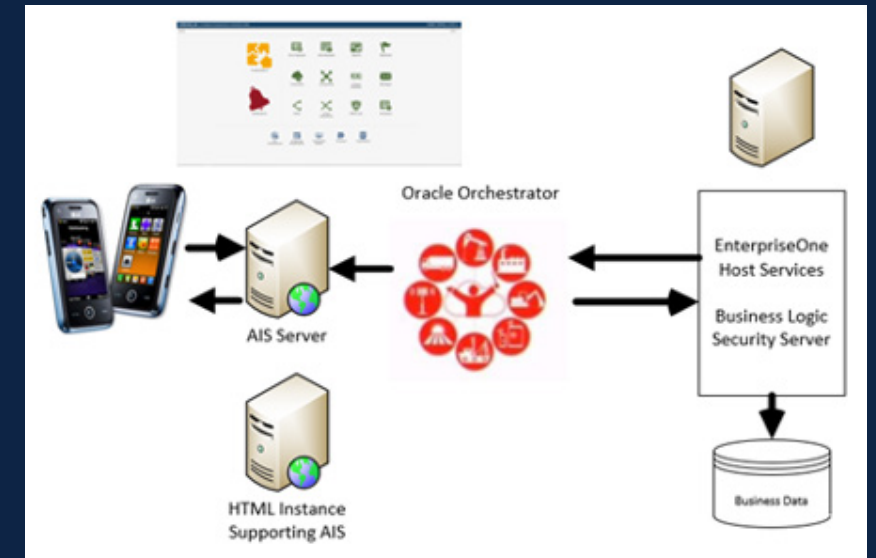
Checklist for Planning a New E1 Mobile Solution

Before choosing a front-end development tool for your mobile application, take the time to ask questions, identify scope, and establish specifications to guide tool selection and development. A Mobile Solution Checklist will help guide the planning process:

1. **Identify the business process(es) for which mobile will offer the most impact**

2. **Create a functional specification—understanding what the user wants to be able to do, which fields are important to the end users accomplishing these tasks, and planning how you will use the limited screen space on mobile devices most effectively**

3. **Identify the number of users—Is it 50 or 5,000?—which will impact the complexity of the rollout**

4. **Determine which devices you need to support: Apple/iOS and/or Android**

5. **Confirm whether the devices will be corporate or bring your own device (BYOD), as BYOD has additional security implications to comply with your organization's requirements**

6. **Determine the level of customization needed, which will guide whether you create your own solution vs. purchase a mobile app from a partner**

7. **If creating your own, make sure that you have a high enough JDE E1 tools release to use Orchestrator and its functionality, then get up to speed on Orchestrator**

A good mobile solution is one that meets the requirements of the business, giving users the functionality and capabilities that are required to do their job in an easy-to-use format—easy to grasp, easy to see, easy to click on. It should give users a very focused view, showing them only what they're interested in without having to navigate through the entire system. Just imagine trying to read a standard EnterpriseOne screen with hundreds of fields on your mobile device.

In the development process, always go back to "how well does it fit with what we've defined and what our users need to be able to do?" If users know they can log in and easily accomplish their task, they will be more likely to adopt the mobile solution.

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Mobile Application Tools

To develop your new mobile solution, you can choose from a wide variety of front-end mobile tools—Xamarin, Flutter, Mendix, React, Oracle Visual Builder—just to name a few. Again, the front end of the mobile application is about building the screens and incorporating robust and rich features as appropriate, while all of the data and report creation is handled by JDE E1 on the back end.

Think about the application development tools and skillsets that you have or that may already reside in your enterprise, specifically:

- **Mobile Development Tools in Use -** Is a mobile development tool already being used elsewhere in your enterprise? Consider tools and expertise that may already reside in the business and assess the fit with what you're trying to accomplish.

- **Existing vs. New Skillset -** Perhaps you already have a skillset with a particular tool that you can leverage. If not, consider whether or not you are willing to develop such a skillset for an unfamiliar tool.

- **Others Seeking Mobile Solution -** If there are other applications in your enterprise that also need to develop mobile capability, consider joining forces or at least learn from what they may have already discovered in their journey to mobile.

To provide a window into the range of front-end tools available, we will profile two such tools in this whitepaper: Oracle Visual Builder and Flutter.

Overview of Oracle Visual Builder

Oracle Visual Builder is a cloud-based, platform as a service (PaaS) software development tool that gives you a full DevOps solution, allowing for the development of web and mobile applications. Visual Builder is a licensed product, featuring built-in version control, agile planning, artifact management, and integration and delivery.

When you log in to add an application (Figure 2), you first name the application and then specify a navigation style. Visual Builder is big on graphical user interface (GUI) elements, with pre-defined navigation styles to help you choose how you want the mobile app to look.

In designing your mobile application (Figure 3), you can drag and drop user interface (UI) components and define page and flow navigation. With Visual Builder, you can extend out-of-the-box functionality with JavaScript, HTML, and CSS, and you can use custom reusable business objects as your data source to store data and access business logic.

Visual Builder also allows you to use any REST (Representative State Transfer) exposed data source, such as Orchestrator. This means that you can expose a REST service through an orchestration that you can consume from the screen you design for your mobile application. This orchestration will provide the business logic and data for your mobile application—an example might be a field service mobile application—and it will use EnterpriseOne business logic in the background to provide this functionality.

And you can publish your applications for download by going to "Build Profiles" to build for Android or iOS, and get a QR code to download the application.

Learn more about Oracle Visual Builder:
https://www.oracle.com/application-development/visual-builder/

Take a product tour:
https://docs.oracle.com/en/cloud/paas/app-builder-cloud/product-tour/index.html

Figure 2

Figure 3

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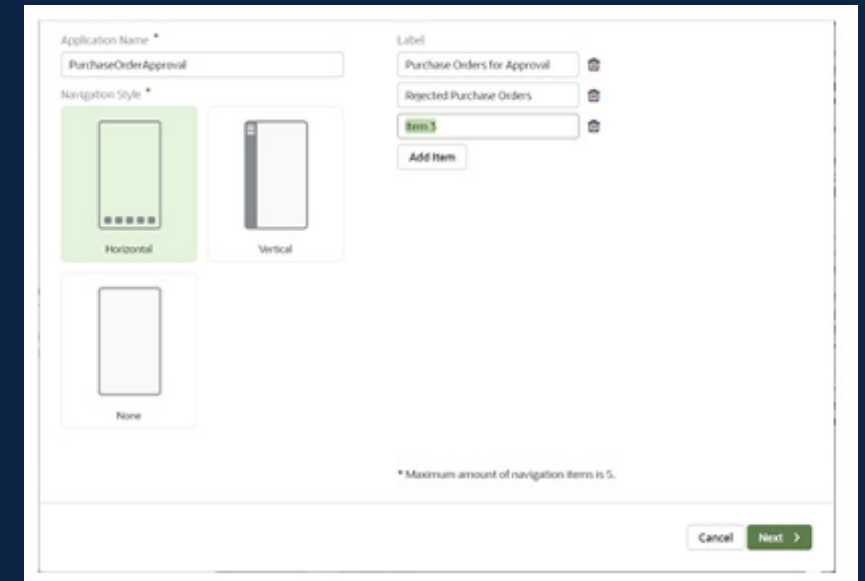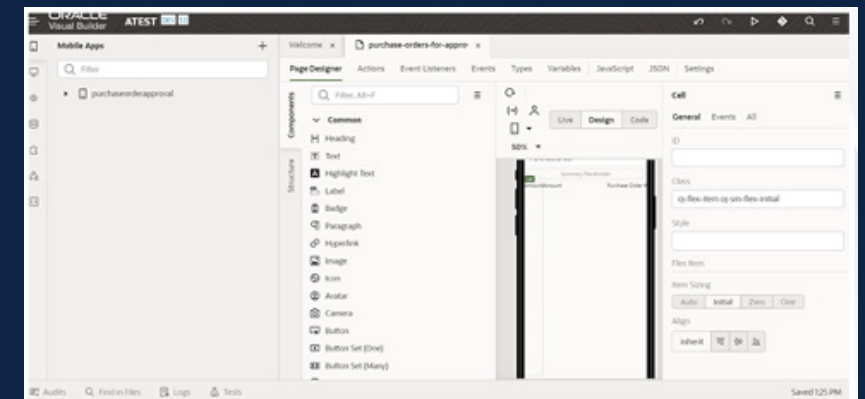## Overview of Flutter

Flutter is Google's mobile UI Framework, an open-source UI development kit that allows you to develop applications for Android, iOS, Linux and others. When you create the application, Flutter renders the app itself on the screen. Everything on the screens is a widget, such as a button or menu. Flutter uses Dart and C++ and deploys to multiple platforms with one code base, so that you can code once and then push it out to multiple platforms.

To make development more streamlined, Flutter features stateful hot reload so that the developer can see changes right away, without losing the state of the application. Flutter follows platform conventions, such as scrolling and navigation, and can publish to both the App Store and Google Play.

When you sign into the mobile application that you have created with Flutter (Figure 4), it will connect to Orchestrator via an AIS server. If you hit the plus button, you can define the URL. This will allow the user to be validated by the security server.

In this purchase order (PO) mobile application example (Figure 5), which was developed using Flutter, the application shows all purchase orders awaiting approval by the user. You can see the matching records in the EnterpriseOne P43081 application.

With Flutter, you will need an editor (such as Android Studio), as well as Git, which is a free and open source distributed version control system used for tracking changes to the code (Figure 6). You'll need to set up a machine as an administrator for your developer, downloading everything to this developer's machine and setting up the editor, as well as Git, in order for them to start using Flutter and rolling it out.

Flutter is a toolset unto itself and requires someone who is committed to dive in and learn it in order to move forward; however, there is a lot of documentation out there, including YouTube videos, as well as developers who will share code and show you how to do things so that you can get spun up fairly quickly. Learn more about Flutter at https://flutter.dev/
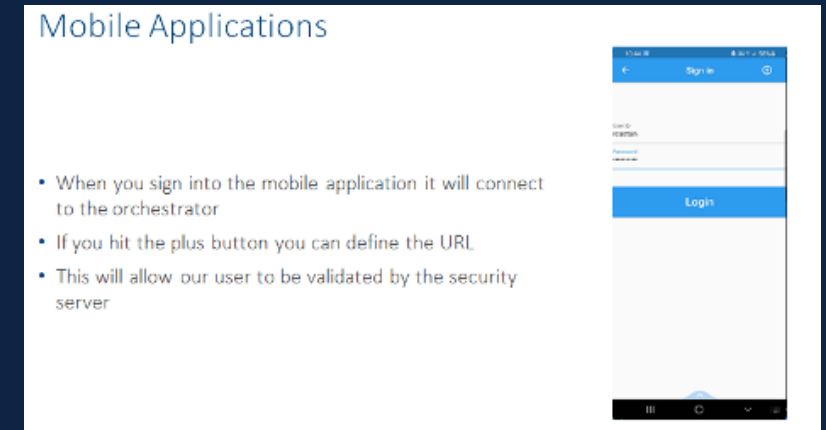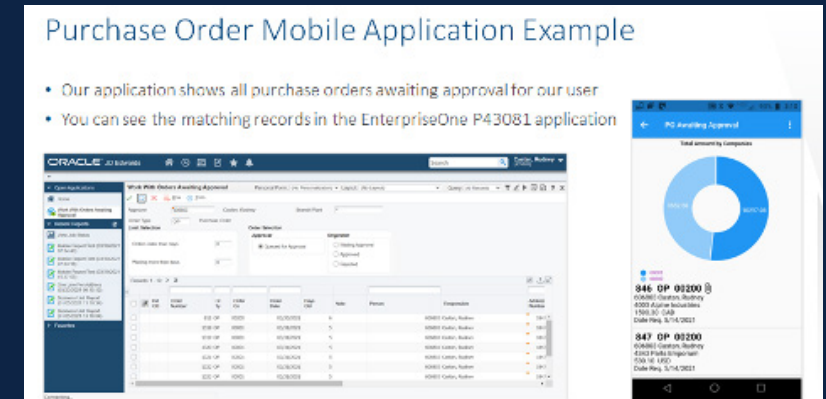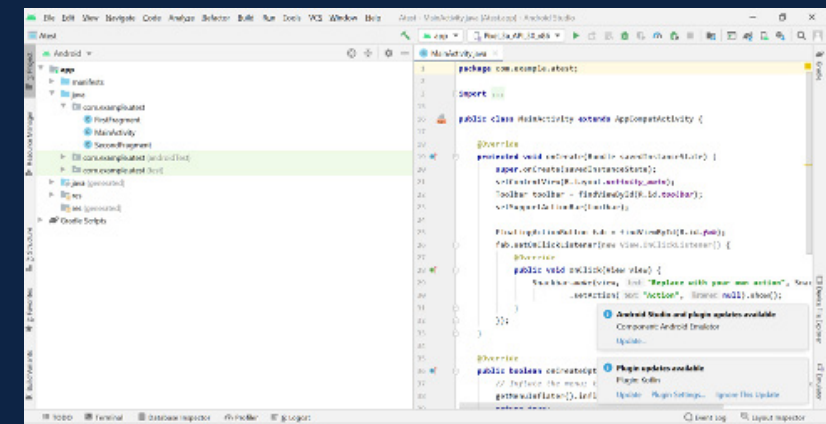
Figure 4

Figure 5

Figure 6

Summary of Key Differences: Visual Builder vs. Flutter

Oracle Visual Builder is easier to use and a lot more GUI than Flutter, but as a licensed product you pay for those conveniences. Visual Builder has version control and other attractive bells and whistles built in, as well as its own download capability. For larger organizations that are doing more with Visual Builder than just an EnterpriseOne mobile application, it can be a good fit.

Flutter offers developers a lot of options and it's free. You need a developer to use this tool, as it requires more technical skills than, say, a business analyst might have; however, there is a lot of information available for this tool on the Web if someone is willing to put in the time up front to learn.

As for other options, there are countless toolsets available with which you may already be familiar. You can also purchase a mobile application or outsource your mobile app development to a trusted partner.

Orchestrations Used in Mobile Applications

Several orchestrations will be needed to perform different functions for your EnterpriseOne-compatible mobile application. You'll need one orchestration for login, for example. "Rather than having all things in one orchestration, you want them divided out and 'calling each other' in a logical sequence," explains Allen Jacot, Solution Architect at Syntax, "so that if you make a change, you don't have to change the whole thing but rather just one component."

When you call a JDE E1 orchestration, remember that you are really executing EnterpriseOne business logic, just like you would if you were using the application. You're not creating new logic just for mobile. The Orchestrator Process Recorder can be used to step through a business process in EnterpriseOne and create a form request for an orchestration, so that it fires the exact same logic from your mobile application as it does from the EnterpriseOne page.

Best Practices for JDE E1-Compatible Mobile Application Development

- Keep a very tight scope

- Start small and enhance later, identifying Phase II items such as graphs, drill downs, or additional functionality

- Involve your subject matter experts (SMEs) early on in establishing and presenting the business requirement

- Design with support in mind

- If possible, use standard applications/functions in the background instead of re-inventing the wheel

- Architect the solution to put your mobile application's load on its own hardware and not with the user HTML interface

- Design your security now, not later

- Work with your security team to understand any additional security requirements, such as VPNs or monitoring applications to enable wiping a phone if lost

- Use https—don't ever roll out a mobile app without encryption in transit

Architecture Considerations

The load from your mobile applications should be isolated, if possible, so that mobile traffic does not slow other business processes (and other business processes do not slow mobile). You don't want to share with the standard HTML, and the AIS load should not be using the end-user HTML.

Be prepared to add to your architecture as you roll out more and more mobile solutions or add users. You can load balance the AIS servers just as you do your HTML servers. Start small and then grow. You may have multiple AIS servers and HTMLs, depending on what you're doing, but see how fast you need to grow that out, and know that you can add servers to accommodate as much growth as you need.

Making Mobile a Reality

Whether you are just starting to consider mobile for JDE E1 or you're at a crossroads because the download button for your old EnterpriseOne mobile solution is no longer there, don't let the plethora of possible development tools overwhelm you.

Maybe you don't yet have a level of proficiency with Orchestrator to take this on yourself, or perhaps you're lacking an in-house development team to create the JDE E1-compatible mobile app that you need. You can always outsource your mobile development to a trusted partner and still own the code. That's a fairly easy way to get started, and it allows you to have some of the customizations you need and the look and feel that you want, without having to pay licensing and support costs.

Syntax works with EnterpriseOne companies to facilitate their mobile journey, developing custom mobile solutions—from screen design to Orchestrations—to meet business requirements. Taking it one step further, you can work with a trusted partner like Syntax to create a single application for users that provides a menu of different JDE E1 business processes (purchase order approval, inventory management, order confirmation, etc.), so that your organization only has to push out and update a single app, rather than a separate app to download for each business process.

Starting with the checklist provided, identify the relevant business processes and functional requirements around a mobile JD Edwards EnterpriseOne solution. Assess the skillsets in your own organization and the willingness to take on development. Start small and apply the identified best practices. And seek guidance from a trusted partner to guide you through the process to realize an effective mobile solution for your EnterpriseOne users.

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Syntax provides comprehensive technology solutions to businesses of all sizes with over 800 customers trusting Syntax with their IT services and ERP needs. Today, Syntax is a leading Managed Cloud Provider for Mission Critical Enterprise Applications. Syntax has undisputed strength to implement and manage ERP deployments (Oracle, SAP) in a secure, resilient, private, public or hybrid cloud. With strong technical and functional consulting services, and world class monitoring and automation, Syntax serves corporations across a diverse range of industries and markets. Syntax has offices worldwide, and partners with SAP, Oracle, AWS, Microsoft, IBM, HPE, and other global technology leaders. Learn more about Syntax at www.syntax.com.

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