Future-proof Your Oracle Forms:

5 PATHS TO MODERNIZATION

Oracle Forms has been a mainstay in enterprise applications for decades. Many of the world's Fortune 500 companies depend on back-office systems running on this robust technology. Unfortunately, as time moves on, so does the IT landscape. As new technologies arise, Oracle Forms applications are often relegated to maintenance mode, and branded 'legacy' software. Organizations are challenged on how to future-proof their Oracle Forms applications while keeping their systems agile in this mobile, user-focused digital revolution.

In this whitepaper, two of Oracle Forms most insightful experts offer in-depth guidance to Oracle Forms customers facing the challenges (and opportunities) of the digital transformation era.

About The Authors

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Francis Mignault has over 34 years of experience in IT using Oracle databases. In 2002, he co-founded Insum Solutions, where he currently holds the role of Executive Vice-President Technologies and Innovation. In 1986, he started as a developer on Oracle version 5 using Forms 2.3. In 2004, he began using Oracle Application Express - APEX and hasn't looked back since. He has presented at several conferences in the United States, Canada, and Europe, including Oracle OpenWorld, IOUG Collaborate, ODTUG Kscope, APEX World, and APEX Connect. Francis is an Oracle ACE Director and coauthor of two books : Expert Oracle Application Express and Oracle Application Express Administration.

Introduction

Historically, with each new release, Oracle Forms has evolved significantly in some way - from character mode to client server, to web-based mode, (Forms running through the browser), and finally, to a browserless standalone option. Although often called "legacy", these robust applications still get the job done, and they've been doing so very successfully for decades. The business logic and functionality remains the same, even though the way people conduct business operations - meaning the devices they use, the front-end platforms and the experiences users expect, have changed dramatically. Consider the following example: 10 years ago, if you ordered pizza, you would phone the restaurant, and speak with someone at their call center, who might be sitting across from an Oracle Forms application. They would manually type in your name, order, delivery address, and enter your credit card details etc. The order would then be

made and transferred to the kitchen.

The same backend is still relevant today - if you want pizza, businesses still need to know your order, where to deliver it, and how to get paid. However, in order to compete and succeed these days, companies must target a new generation of users who are tech savvy, use social media and their mobile devices on a daily basis. They want to be able to order pizza by chatting with a bot, ordering on Facebook, Twitter, or with a simple click in an app or website.

These days, it's no longer a luxury to take existing investments and modernize them- it's an imperative. So what does Oracle have to offer for your Oracle Forms environment? While no two systems are the same, there are 5 main options you should consider that will help bring your Oracle Forms applications into the next generation. Briefly, these are:

1. **Upgrade to the latest version** - Upgrade to Oracle Forms 12c, keeping your application certified and supported.
2. **Lift and shift your Oracle Forms to the cloud** - Enable applications to run on Oracle Cloud Infrastructure (OCI) and enjoy all the benefits that cloud provides.
3. **Modernize the look and feel** - The user interface and user experiences available with your Oracle Forms. As discussed in the "pizza" example. Modernization will allow you to access your applications from mobile devices, digital assistants and even social channels.
4. **Use hybrid applications** - Maintain your Oracle Forms applications in maintenance mode for on premise, while all new development is on a next generation technology, specially designed for web, working on a common database or using REST services.

5. **Migrate away from Forms** - Of course, there is this fifth approach - the full system migration to a different technology. Although, migrating away from Oracle Forms has been an option seriously considered by many organizations, one should understand that there is no magic bullet. We have yet to see a tool that is able to migrate a significant amount of Oracle Forms logic automatically, so this approach requires a full rewrite and often restructuring of the application. Let's now look at each option more closely in order to better understand its pros and cons.

Option 1: Upgrading to Oracle Forms 12c

Upgrading your Oracle Forms & Reports to the latest version should be the first step in any type of modernization process. Before looking to the future, a solid foundation is critical. Only recently, Oracle renewed its commitment to Forms by extending the support date to August 2025, and announcing another version in the works. This is a clear indication that Oracle has no plans to de-support Forms or even discontin-ue adding new features. Because Forms has a large and active user base, Oracle remains committed to its development and support. They have done an incredible job of keeping the technology moving forward and progressing with the times. It is critical for existing Oracle Forms customers to standardize on the most current release of Oracle Forms. This not only ensures that the systems and applications remain supported, but also gives Oracle a deeper understanding of the Forms user base. Upgrading to the latest versions will make you an integral part of the Oracle community. By keeping your Forms environment current, not only do you reduce your risk by remaining in support, but you also benefit from a wide range of new features that can help improve both the functionality and appearance of your applications without a major redevelopment effort. Recent updates include a cloud version, capabilities for REST services, different runtime options, and much more. Also, as browsers stopped supporting Java Applets, Oracle released version 12c which includes a way of running Forms via a Java application directly from the desktop, bypassing the need for a browser. All of this ensures that your applications continue running and will be certified and supported well into the future. The upgrade of Forms and Reports applications could either be an easy and straightforward process or a more involved one, depending on your current version of Forms. Versions 6i and lower tend to be more challenging to upgrade,

whereas versions 10g and higher should be easier to upgrade to 12c, since they run on the same infrastructure and application server layers. The upgrade itself involves installation and configuration of the server, followed by the upgrade of the Forms files themselves. Complete testing of the applications should be an integral part of your upgrade project plan. Some of the main advantages of upgrading include:

Pros:

- **Ensured support** - Applications developed years ago on older versions are no longer supported by Oracle. All certifications for operating systems, new browsers and Java versions are done with Oracle For 2004/10g Dec. 2011).
- **New features** - Upgrading Forms allows you to take advantage of crucial features such as SOA, JavaScript, Devops and Cloud.
- **Monitoring, security & debugging functionality** - Has been extended and improved in the newest releases.
- **Management & Performance** - Node manager means that there is much less administration required, and the Forms themselves are at least twice as fast.
- **Go Browserless** - Oracle Forms 12c comes with an ability to run Oracle Forms without a browser.

Although there are no direct "cons" to upgrading Oracle Forms applications, many current users have cited the following as reasons to simply move away from this strategic platform.

Cons:

- **Limited number of Oracle Forms developers** - With colleges these days focusing on newer technologies such as Java, Javascript and HTML, it can be a challenge to find Oracle Forms developers

- **Still locked to the desktop** - Despite the many benefits of upgrading to a new Oracle Forms version, it does not get you completely off the desktop as it requires a Java applet to run.
- **Lack of confidence and trust in the "Future of Oracle Forms"** - We regularly hear from our customers that they are being told that 'Forms are dead'. This raises doubts for them about future support.
- **High licensing costs** - Companies running Oracle Forms 6i environments are actually only paying for a client server license The latest version requires the addition of application server licensing which can be prohibitively costly.

This stage is right for you if:
- You rely heavily on multiple and/or complex Oracle Forms-based systems in your operations - migrating away from Forms would likely turn into a multi-year and multi-million dollar project.
- You are eventually looking to modernize using any of the options listed below - while ensuring no downtime, the upgrade will grant you the highest level of security and stability of your mission-critical systems.
- You have a lot of business logic trapped inside your Oracle Forms application.
- Moving away from Forms altogether could be risky and require considerable development and QA.
- Your back-office applications are meeting your business requirements but you want to ensure future technology support.

Feel free to email AuraPlayer at info@auraplayer.com for a free assessment of the effort to upgrade your Forms systems.

Option 2: Running Oracle Forms on OCI

You likely already use cloud computing for a number of your business-critical applications, and may be tempted to manage your Oracle Forms in a similar way - using Oracle Cloud servers. Assuming you are running the latest version this is now possible.

Oracle Cloud Infrastructure (OCI) is a next generation IaaS that provides on-premise computing power to perform IT workloads in the Cloud. Moving to OCI provides customers with endless opportunities, ultimate flexibility and numerous benefits. They no longer need to manage servers in-house, and are able to scale up in minutes thanks to elastic cloud capabilities. Additional features include automatic configuration and imaging.

Deploying your Oracle Forms to the Cloud can save you money on licenses, maintenance costs, and can also save you precious time when it comes to installation and configuration. Cloud deployment may be done as part of an upgrade process (described above), or as a completely separate step.

How does it work? The Oracle Cloud Marketplace VM Image (with Forms) is provided as a quick-start way for customers to provision and use Forms in Cloud. When provisioned, all of the Oracle servers are configured (except Reports) and their corresponding servers are automatically started. Once the provisioning is complete, the customers access an environment that is completely pre-configured. All that remains is to add their specific files, perform any desired patches and consider the various security aspects of the machine as needed.

The major benefits of an Oracle Forms cloud environment include:

Pros:
1. **Test Server Creation in Minutes** - Spin up test servers at any time.
2. **Ease of Installation** - Oracle Cloud Infrastructure (OCI) comes with an out-of-the-box Oracle Forms Image where all you have to do is put in your specific customizations and paths.
3. **Environment available outside of organization** - Enjoy having an environment without having to rely on system managers to make small changes and enable things

such as test environments.
4. **Easy to adopt** - The software running in OCI is treated exactly as if it was installed on-premise. Therefore, all the Forms and Weblogic administration will be the same regardless of on-premise or in OCI.
5. **Access to other cloud services** - Object Store for example, as well as Autonomous Database, Oracle's fully managed Database service.

Cons:
- **Upgrading might be more complicated -** These are "quick-start" virtual machines.
- **Patches and upgrades** are the customers' responsibility to perform.
- **Planning security and architecture** - As when deploying systems on any new environment or platform one must properly plan, architect, secure and build the necessary authentication mechanisms.
- **Hesitation to enable systems to cloud** - Many organizations have yet to embrace the cloud revolution and are still wary of having systems and data available on cloud environments.

Working with a strategic partner like Insum can mitigate many of these risks. Their team of experts can help customers better understand their cloud environment, make recommendations, and handle patching and security as required.

This stage is right for you if...
- You are planning on staying with Oracle Forms and would like to be on the most modern, stable, supported and standardized infrastructure.
- You would like your data to be available and accessible in the cloud - using Oracle's database Cloud with OCI and Oracle Forms will provide you with the most cost effective as well as native inborn support solution.
- Also for customers migrating from Oracle Forms 6i, the cloud server Oracle Forms license is significantly less expensive than its on premise counterpart.

To learn more about how to best approach a Cloud migration, feel free to reach out to the experts at Insum at info@insum.ca. As Oracle Cloud specialists, with Oracle OCI certified experts on staff, we've developed a methodical, proven approach to implementing Cloud migrations and Cloud maintenance.

Learn more at the Oracle Forms OCI
Homepage.

Option 3: UI / UX Modernization

Today, simply upgrading to the latest version of Oracle Forms, and even moving your infrastructure to Oracle Cloud, is not enough. Businesses can no longer afford to rely on the "old school" Oracle applications as their end-users not only expect, but demand, a user-friendly, modern experience, accessible anytime, anywhere from any device. The UX/UI modernization option enables desktop-bound Forms to be extended to next generation technologies, such as mobile, chat, and automation, in a phased manner, while your production systems remain untouched. Rarely does an organization require ALL of their enterprise applications to be digitally enabled immediately. Often only a subset of business processes are needed by specific customers, partners or employees in the field. Apps can be rolled out based on specific use-cases from the original desktop system in an agile way. This is particularly important during these difficult times with COVID-19, as many companies are in need of a quick and easy solution that can give their employees mobility and access to their Forms from home or remotely. AuraPlayer's solution was designed specifically to bridge this gap between Oracle back-ends and next-generation front-ends, without redevelopment, migration, or changes to production environments. Organizations can successfully modernize existing systems by simply selecting a business need for modernization (mobility / automation / chat), identifying the relevant fields and processes in the Forms system, and using the AuraPlayer toolbar to capture the use case they wish to modernize. The technology behind AuraPlayer allows customers to unlock the complex, business logic embedded in Forms so that all customizations, validations, and triggers built into the system are fired from a new front-end via exposed REST services, making the world of Web, HTML5, Oracle APEX, mobility and automation immediately available. With this strategy, migration and modernization can coexist seamlessly. You can build new front ends while still running your complex Forms on the back-end as a first phase, then, as you redevelop or migrate the Forms application, your modernized user interface can run on the new back-end code unfazed. Getting modernized systems to market as soon as possible while continuing to redevelop the complex back-end Oracle Forms for years to come. Organizations that are seeking a solution that can be imple-mented during a full migration process, as part of a hybrid environment (see below), or even with no immediate migra-tion plans, can benefit from such a modernization:

Pros:

- **Fast time-to-market (TTM)** - Capture Oracle workflows using a wizard-based development tool, making them agile and immediately available for mobile/web.
- **Automation** - Perform automation on the application layer without screen scraping ensures that the Services will be immune to changes that occur in the back-end application.

- **Cost-effective** - No need to redevelop or migrate the existing system nor develop new DataBase API's.
- **No need for a major QA initiative** - Enabling the existing system so no need for a lengthy QA process.
- **Low/No Risk** - Start small and grow as you go - no need to re-engineer the entire application, simply extend specific business flows to mobile as needed.
- **Ensures stability** - No intrusive production installations, configurations nor major back-end redevelopments, ensuring system consistency and reliability while modernizing.
- **Easy integration and automation of Oracle EBS** - The new application, equipped with modern-day APIs, is now accessible to other external applications. It can be easily integrated or automated by any platform in the organiza-tion.

Cons:

Although there are no direct "cons" to modernizing Oracle Forms applications, some users have expressed concerns about staying with Oracle Forms in the long term, making them reluctant to embark on a modernisation project on top of it, such as:

- **Solution Costs** - You will still need to maintain valid Oracle Forms licensing.

- **Confidence in Forms** - Being supported into the future.
- **Lipstick on a Pig** - This codename has often been used to describe this strategic approach whereby although the front-end looks modernized, the back-end is not a new next generation technology.
- **Against corporate strategy** - People might want to be completely off legacy no matter the risk and cost and a corporate strategy. However, that strategy needs to be offset by the costs of the migration project.

To enrich your knowledge on the different Forms modernization solutions, a good place to start is with our modernization strategy blog post or learn more about the solutions here.

Option 4. Create a hybrid environment

Sometimes, even modernization of existing Forms might still not be enough. Over time, business changes, requirements change, and you may face significant challenges meeting these needs using a legacy development tool. For times when new applications require new development environ-

ments and technologies, you may want to consider a hybrid environment. In this development strategy, you still maintain all or some of your Forms applications (modernized or not), but in addition, new applications are developed in a modern Web technology such as Oracle APEX. A hybrid environment using Oracle APEX is a great way to address these needs and modernize your Forms applications in a cost-effective manner, whether or not you are looking for a full transition in the long term. It is your way to build alongside your legacy application and help you bridge the gap to more modern applications, allowing your business to quickly begin addressing some immediate digital pain points.

Oracle APEX is a fully supported, no cost, rapid web and mobile application development framework included with the Oracle database. If you have Oracle Forms, you already have Oracle APEX. Using just a web browser, you can build powerful and professional-looking web and mobile applications that are robust, scalable, and secure, all with little programming experience. And because they share the same database as your Oracle Forms, they can co-exist seamlessly, leveraging both your existing skill set and code base. In addition, APEX comes bundled with ORDS, allowing you to capture or expose data in an Oracle Database using the ubiquitous REST protocol. In a nutshell, this means that applications you create with APEX can both consume REST services or expose their data via REST easily. Finally, an important added benefit is that Oracle APEX, with its powerful Interactive Reports and Oracle JET integration, can be part of your Oracle Reports replacement strategy, something that many Forms customers are concerned with. In this hybrid stage, you may also want to leverage AuraPlayer REST services, with an Oracle APEX front end. This can radically speed up the time it takes to give your users a modern and mobile-friendly UI without having to rework any of your Oracle Forms business logic for integration, particu-larly when it comes to complex Forms that may have been developed many years ago. Hybrid applications, combining Oracle APEX and your existing Forms, give you the best of both worlds allowing you to delve into next generation technologies while minimizing risk to your existing systems. The major benefits include:

Pros:

- **Existing interfaces** - to other enterprise applications remain intact.
- **Quick turnaround on new requirements** - Using Oracle APEX, new business requirements can be quickly addressed without disruption to existing systems.
- **Change Management** - the transition to newer UI is slower and done over time, allowing your business users to become accustomed to a new way of working.
- **Leverage existing IT resources** - Oracle Forms and APEX both use PL/SQL and can share database code and elements seamlessly.

- **Business logic** that may traditionally be locked away in your Forms applications does not completely have **to be reverse-engineered if exposed by AuraPlayer REST services**.
- **Leverage mainstream technologies -** Such as RESTful APIs, powerful visualizations and responsive design.
- **Allows a phased approach to full migration** - Opposite of a big-bang approach, migration can happen over time, with new and urgent demands addressed quickly, with existing back-end applications migrated slowly.

Cons:
- You will still need to maintain valid **Oracle Forms licensing**.
- Potential additional cost of REST services for development or integration.
- Need to support and QA 2 sets of applications.

This stage is right for you if…
- You are an organization that has large and/or numerous Oracle Forms applications with complicated business logic and interfaces to other enterprise tools.
- Your Forms applications are running well on the whole, but a subset of them have usability or portability issues
- You may also have new and often urgent requirements to meet new business processes and need to quickly adapt to market demands on more modern platforms.
- If you'd like to do new development with a next generation framework, however you also do not want to waste your time reinventing the wheel of your Forms application.
- You are working towards a full migration away from Forms, but want to do so in a slow and steady way over time. The hybrid environment can help you bridge that gap.

To learn more about Insum's Forms-APEX methodology, [click here](), or to learn more about why Oracle APEX is a perfect fit for your Oracle Forms hybrid environment, read our post [here]().

Option 5: Migrate Away From Forms

There might be cases, however, when none of the above mentioned solutions make sense for your business. Have your business processes changed so much that your existing applications no longer fit your needs? Are you constantly having to make costly updates? Are you struggling to get the support you need? Are your existing back end applications simply no longer adequate? Are there off the shelf products that can meet most of your needs? Is your upgrade path from much older versions of Forms fraught with difficulties? If so, you're likely thinking about a migration. A full migration is an opportunity to review all business logic, functions, and workflows and make necessary changes when there have been significant updates to business processes. It is an opportunity to create responsive applications that run on any device, and are readily able to interact with data from numerous sources. It isn't, however, something that should be undertaken lightly. Full migrations are often a challenge. With Oracle Forms, the business logic is intricately linked to the actual items on the screen (when you push a button, the logic triggers which then appears on the screen). The robust nature and the complexity of the Forms makes it very difficult to recreate all of those validations, checks and balances and visualizations using another tool, occasionally resulting in a multi-year, multi-million dollar project which entails reverse engineering of what's been done so far. A full migration away from Oracle Forms means a complete rewrite of all your back-office Oracle Forms applications. This entails taking the business logic that is often buried inside Oracle Forms and redeveloping it with a more modern Web technology such as Oracle APEX. A full migration away from Oracle Forms to Oracle APEX means leaving your legacy, client-server applications behind and starting fresh with technology that is fully-responsive, runs on any device, allows you to quickly adapt to changing requirements and market expectations in a scalable, secure and fully supported manner. In addition, your existing Forms developers likely have strong PL/SQL skills and a good understanding of data modelling, and, assuming some of your code is handled by PL/SQL packages, you will likely be able to leverage some of your existing code as well as your existing skill sets when moving to Oracle APEX. Oracle APEX is also a logical choice for Oracle Reports replacement.

So while such a major migration can often be a complex, lengthy and costly undertaking, choosing a development platform such as Oracle APEX and a strategic partner such as Insum can mitigate many of these risks. Insum has developed tooling to

help with large-scale Forms migrations, and has decades of combined experience with both Oracle Forms and Oracle APEX technologies, and numerous Forms to APEX projects in its portfolio.

Pros:

- **Reimagine the existing system** - Redeveloping presents new opportunities to review and streamline processes.
- **Not dependent on Oracle Forms** - After initial investment to redevelop the original system, no longer dependent on Oracle Forms licenses.
- **Easier to find developers** - For more modern technologies such as Oracle APEX, HTML5, Javascript.
- **Next generation technology features** - Systems provide out of the box features to fulfill changing business requirements.
- **Rapid responsive development** - Fully responsive and mobile-ready applications that runs on any device, with rapid development.

Cons:

- **Prolonged Planning Time** - In order for organizations to fully migrate their application, it is crucial to have an in-depth knowledge of the existing functional processes.
- **Original system developers are usually unavailable** - Making reverse engineering the Forms business logic difficult.

- **High cost** – The migration and redevelopment process could end up costing millions of dollars over several years for large and complex systems.
- **Error prone** - As it is highly difficult to reverse engineer, Forms migration requires a vast amount of QA and can be error prone.
- **Data synchronization challenges** - Developers will need to keep the new application and the old one synchronized during the migration process, since business functions may not yet exist on your new application.
- **Lengthy time to market** - The process may be long, as many organizations only release their new application upon completing the whole process.

This stage is right for you if...

- You are an organization that has had significant changes to your business processes and are seeing escalating costs related to support, development and testing of updates to your Forms.
- You have low user adoption and poor satisfaction due to legacy user interface throughout
- Your system is in Forms 6i and you do not want to spend the money to purchase new Oracle Forms licenses, making the cost to migrate less of a factor
- You are struggling to hire and retain Forms developers.
- Your corporate strategy is dictating a migration off of legacy.

All the above options are viable, either as separate options or as a phased strategy, the most suitable one for your organization will probably depend on your budget, business needs, resources, and preferences.

Regardless of what decision you are going to make, AuraPlayer and Insum experts would be happy to help you meet your own business goals and achieve a successful transition to the web and mobile world. Feel free to contact us here for further information.

ABOUT AURAPLAYER

AuraPlayer is a cutting-edge technology company dedicated to breathing new life into Oracle technologies. AuraPlayer is a worldwide authority on Oracle Forms, migration, modernization, upgrades anddevelopment boasting several leading experts in Forms with over three decades ofexperience. AuraPlayer's solution is a unique, patented technology that automatically generates mobile applications and automations from existing back-office desktop applications, allowing customers to begin their digital transformations while leveraging existing investments.

ABOUT INSUM

Insum develops highly specialized innovative application solutions using Oracle Application Express (APEX), a Rapid Application Development tool included with Oracle database. With offices in Canada, the United States and Peru, Insum is currently the largest consulting firm specializing in Oracle APEX. Its internationally recognized team of experts develops custom application solutions to answer the needs of its broad client base of public and private sector organizations, including financial, government, and higher learning institutions as well as numerous Fortune 500 companies.