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Data Loading:
What Are The Choices?

A More4apps Whitepaper

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Abstract

Regardless of industry, data is vital to business strategy and decision-making. All organizations rely on data for a number of important reasons. These range from human resources management, supply chain and procurement to financial services and projects. But in order for data to be useful, it must be accurate and up to date.

Poor quality data can be costly. According to research group Gartner, the annual cost to business can be between $9.7 million and $14.2 million. This cost can be linked to different areas, including wasted resources and lost sales. Making a commitment to improving data quality can positively impact business top and bottom-line results.

With over 400,000 customers in 175 countries, Oracle works with large and medium-sized organizations worldwide. They are a trusted provider of information management solutions, including Oracle Cloud ERP (or sometimes called Oracle Fusion ERP) and e-Business Suite (EBS).

Oracle's Cloud ERP is accessible from any location via the internet. This Software-as-a-Service (SaaS) platform assists in the automation of back-office functions. This includes human resources management, procurement, customer relationship supply chain, projects and financial management. It is designed to be scaled up as a business grows and develops.

EBS is a powerful tool for managing organizational data. However, its user interface can be inefficient when it comes to entering and updating data.

Despite the many benefits of Cloud ERP and EBS, using the traditional Oracle forms interface for data entry can be very time-consuming. The standard user interface does not cope well with loading data en masse. Importing and extracting information from either system is difficult and time-consuming - and this can be costly.

The Oracle user interface is not built for large data uploads, with records split into several different forms. The data entry operator must traverse up and down form sections as they work through the data entry process, which means extra clicks. Coupled with the complicated layout of the standard Oracle forms, the overall data entry process is prone to errors.

In addition, Oracle's spreadsheet solutions are not really designed for end users. This leads to poor quality data entering the system. This can have a negative impact on reporting, meaning it is difficult to make sound business decisions.

Delays in data processing can lead to bottlenecks. For organizations managing high volumes of transactional data, hold ups in data processing have a major negative impact on production and ultimately the bottom line.

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Organizations can consider three main options to improve the process for mass loading data into EBS or ERP databases.

FREE

Tools provided by Oracle to mass load data - WebADI for EBS, ADFdi and FBDI for Cloud ERP

BUILD

Custom development of data loading tools and scripts - SQL*Loader, APEX and WebADI for EBS, VBCS for Cloud ERP

BUY

Third-party software solutions, which allow the user to integrate Excel spreadsheets with Oracle - Dataloader, More4apps

Organizations want to:

- Reduce the time spent entering and maintaining data
- Improve the quality of data
- Generate fast, insightful reports
- Reduce the need for expensive custom development and support

To achieve these objectives, businesses might consider implementing one of the following solutions.

Potential Solutions for EBS

Solutions included as part of an Oracle license

Web Applications Desktop Integrator (WebADI)

WebADI is included as part of EBS and processing is managed by the server, so there is no need to install any additional software to enable its use.

WebADI offers a combination of ready-packaged and customizable solutions. It helps to make data inputting easier because it enables end users to complete EBS tasks within familiar computer programs like Word and Excel.

Most data administrators have the required knowledge and skills to use Excel, so further training is unlikely to be needed. Collating the information in one Excel spreadsheet prior to Oracle upload means all data can be viewed at a glance. Excel functionality can be used to easily highlight errors and omissions in the data. Users can copy and paste data from existing sources, or auto-populate cells.

System administrators can alter the fields which end users work with on the spreadsheet, creating bespoke layouts for individual users to meet their needs. Advanced users can create their own layouts, including only the fields they need to work in. However, for most users they can't modify the layout.

WebADI allows data to be shared quickly with others for second checking, before it is imported to the Oracle database. Users can download template documents with pre-populated fields according to search criteria.

They can create and update data within the template document, then upload the data to Oracle using the 'upload' option in Excel. Once the request to upload the information has been submitted, the modified data will bulk upload to interface tables.

WebADI includes over 300 seeded templates. Their usefulness is limited, as they are not bespoke to meet the needs of individual organizations. There is an option to access custom developed templates through WebADI, but this option is not well utilized. WebADI does not offer customized Lists of Values (LoVs), and there are no pre-built extensions to help the user customize what they want the integrator to do. The look and feel between each template is not consistent. Overall, WebADI lacks the functionality that is needed by the majority of businesses.

WebADI is protected by the security features of EBS. When a user downloads or uploads data from Excel, they do so having logged in with their EBS username and password. This will need to have been assigned with a valid responsibility. System administrators can impose restrictions on individual users or responsibilities. For example, the system administrator might restrict data validation to one responsibility, but add a requirement that the data upload must be carried out by a user with a different responsibility.

The WebADI setup process requires a high level of interaction between the developer and the end user. Creation of the custom data loaders will require the expertise of a developer, but the actual data loading can be carried out by the end user. This means the user has control over when the data is uploaded. They will also receive the results of the upload and be responsible for making the required amendments.

Some customers report issues when using WebADI for large data uploads. It is highly susceptible to needing patches. However, applying patches is not always straightforward and it can be a time-consuming process, which needs technical input to ensure data in custom table layouts is not lost.

WebADI is a useful tool when:

- Larger quantities of data need to be created or updated
- Data has already been inputted to an existing Excel spreadsheet
- Users need to be able to work with the data offline, before syncing it with the server once they are back online
- Users need to review data sets and make alterations or amendments. WebADI has the functionality to download the data that qualifies the condition into Excel.

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WebADI - at a glance

Pros	Cons
Included as part of the Oracle License - so there is no additional cost to use this solution. There is no requirement for an additional license	Convoluted development and design process
Offers some pre-built or ready-packaged support integrators	Designed to fix single row or master-child relationship, one header and optional multiple child records. Unlikely to be suitable for users who want to upload more complex data sets.
Existing data loaders are kept in the repository	Requires regular maintenance and patching. For example, whenever there is a new version of Oracle or Excel, patching will be necessary. May also lose work or have to redevelop templates as a consequence of these updates
Minimal training required as data administrators are likely to be familiar with Excel	Setup and maintenance requires a high level of technical expertise. IT consulting team or internal IT development will need to be involved
Useful for mass data update transactions	Knowledge transfer can be an issue if a developer leaves or stops working with the organization
Organizations already using EBS can apply patches and start using WebADI immediately	Wrapper packages are needed for custom templates
Real time data validation	LoVs are difficult to build
	Difficult to meet the expectations of every stakeholder in the process due to conflicting priorities
	Internal development and testing will be needed
	Challenging to debug
	Basic user interface; not very user-friendly
	Limited download functionality - mainly used for uploading data
	WebADI data loading in EBS R11i is not supported for organizations using Excel 2016 or above. This means they would need to buy or build an additional solution
	Very sensitive to updates, causing loaders to fail and suddenly not work
	WebADI support for 12.1.X is being reduced significantly

Potential Solutions for EBS

Custom Development Options for EBS

Overview

Developed in the late 80s, EBS was originally called Oracle Applications, so skilled developers who worked on early implementations are unlikely to still be available. Those at the older end of the workforce have probably retired, whereas those at the younger end of the spectrum may have trained in newer technology.

As there are limited resources, available developers with the right experience will demand premium prices. In addition to higher IT costs, organizations must also consider the cost of additional maintenance. When Oracle patches or upgrades are released, development or redevelopment will be necessary.

Developers are likely to be inundated with requests for custom coding and scripts, leaving them little time for other tasks. The burden of loading data to Oracle leaves them with less time to make use of their specialist skills and expertise.

SQL* Loader with supporting PL/SQL scripts can handle millions of data lines. However, they take time to build and need high level, ongoing maintenance, which requires the knowledge and experience of skilled developers.

Custom development of SQL loaders and scrips is highly technical, taking time to build and needing high-level ongoing maintenance.

Customer development (like SQL Loader) is unaudited and insecure.

It doesn't easily support parent/child data loading. It can be difficult to scope since there are many hand-offs between developers and end users. There can be many back-and-forth stages, too, all of which add more time to the overall process.

All of this leads to significant delays in data processing, as the developer will have different priorities to the end user. Custom data loaders offer limited functionality and rely on highly technical resources to import data into Oracle.

Custom development - at a glance

Pros	Cons
Total control to develop a custom solution which will fully meet the needs of the organization	Difficult to scope - many parties need to be involved, and their expectations and priorities will be different too
Able to cope with massive data loads	Requires a high level of internal development and testing
Can support both fixed format and variable data files	Highly specialized technical resources are needed to import data
Data loading at the end of the process is very fast	Setup process can be slow due to many hand-offs and back-and-forth interactions
Owned by the business	Risk of knowledge loss if IT staff leave or consultants stop working with the organization
	Likely to be affected by Oracle upgrades and patches - this means more development and redevelopment will be needed
	Unable to support parent/child data loading
	Insecure and unaudited
	Increased risk of "bad" data due to lack of user interaction

Other ERP Cloud Software Solutions

File-Based Data Import (FBDI) - for Cloud ERP

FBDI is best suited to migration tasks. However, it can be useful for creating or updating to existing Cloud ERP data. That said, there are inconsistencies in functionality between the different FBDI templates.

The templates are designed to suit technical users rather than being geared towards end users with responsibility for data entry. In many cases, it is easier to use the standard Oracle interface to input the data.

There is no easy way to populate data sets using FBDI. For data loads with more than one section of data, the user has to link different worksheets. In most cases, the feedback mechanism for errors is via a .pdf report, which does not allow the end user to resolve data issues easily. Changes to the spreadsheet have to be carried out manually and the end user must reconcile the report with data from the error report. It is not possible to pre-validate data prior to loading it with FBDI.

This option is suitable for large and static data loads requiring migration. Using FBDI effectively requires the expertise of an IT consultant or high-level technical user.

FBDI - at a glance

Pros	Cons
✓ Included as part of the Oracle License - so there is no additional cost to use these solutions. There is no requirement for an additional license.	! Separate sheet for each level of data. Not user-friendly for end users (i.e. those responsible for data entry).
✓ Useful for migration loads with a large and static data set	! Functionality is not consistent between templates, meaning limited usability
✓ Useful for IT consultants or technical users	! Uploads are not in real-time
✓ Protected by the security features of Cloud ERP	! Difficult feedback mechanism - manual changes to the spreadsheet are needed after data issues have been identified. Errors are shown as a .PDF report
✓ Large number of templates	

Other ERP Cloud Software Solutions

Application Development Framework Desktop Integration (ADFdi) for Cloud ERP

ADFdi end user spreadsheet templates are limited in number, as are the seeded templates offered by Oracle. Capability and functionality is compromised as users can only open one field at a time. It is not possible to view all of the information and LoVs for an entire section of data.

It is more user-friendly than FBDI, but it can only be used for a limited number of processes.

ADFdi runs almost at real-time, however in most cases there is an import process running as a separate request. Feedback is returned following completion of the import process. Significant retesting is required to keep ADFdi running as it should.

ADFdi - at a glance

Pros	Cons
✓ Included as part of the Oracle License - so there is no additional cost to use these solutions. There is no requirement for an additional license.	! Limited seeded templates
✓ Useful for IT consultants or technical users	! Limited end user interface
✓ Runs close to real-time	! Functionality is not consistent between templates, meaning limited usability
✓ Improved user-friendliness when compared to FBDI	! Significant re-testing and patching is required
✓ Protected by the security features of Cloud ERP	! Can only be used for a limited number of business processes
	! Not designed for migration loads with a large and static data set
	! Often lacking download features

Third Party Software for EBS & Cloud ERP

Another option is to use a third-party software solution, such as More4apps EBS Toolbox and ERP Cloud. This route allows organizations to unlock the full potential of Oracle EBS and Cloud ERP, by making it more accessible.

More4apps solutions allow users to integrate familiar Excel spreadsheets directly with Oracle. This means they can efficiently load accurate data into their databases. As a result, the ERP system is a robust, single source of data.

More4apps has been a trusted Oracle partner for over 20 years. With 20,000 global users, they are a market leader in Oracle spreadsheet loading tools. More4apps specialize in software products that have been designed to help Oracle end users upload and download data .

Each More4apps product centers around the familiar interface of Microsoft Excel. For ERP Cloud More4apps use Oracle's public Web APIs as the secure portal into the ERP.

With EBS they have created a web service which customers install on their mid-tier to support connectivity and integration. Both these solutions mean fast and easy training for users, coupled with peace of mind for IT managers.

More4apps offers more than 45 powerful tools and solutions for EBS and Cloud ERP. These easy-to-use products transform the way in which data is imported and exported. Designed with the end user in mind, they save time, reduce data errors and improve business performance.

More4apps strives to ensure their software is compatible with the latest versions of Microsoft and Oracle. The products are quick to install and easy to use. A well-regarded End User support team is available to support technical or functional issues relating to More4apps products or Oracle systems.

More4apps offers solutions that allow data owners to carry out mass uploads and updates easily and accurately. This helps to return ownership and control of the data to its business owner, rather than having to be reliant on the IT team.

There is no need for any specialist IT programming to enable an organization to use the EBS Toolbox or ERP Cloud Toolbox. The software can be used to quickly create fully functional data loaders, a task which can often take days using WebADI.

More4apps EBS Toolbox and ERP Cloud Toolbox provide a web-based training session for every customer's nominated in-house expert. This is offered at no additional cost. If further training is required, this can be arranged either in person or over the web on a time and materials basis.

EBS Toolbox for E-Business Suite & **ERP Cloud Toolbox** for ERP Cloud

More4apps offers a selection of End User products for data loading onto EBS and ERP Cloud. These pre-built integrations are designed to seamlessly load data from Excel into Oracle.

The end user maintains ownership of the entire data loading process. There is no need for them to be familiar with the data interface mechanism, as More4apps products seamlessly connect and integrate with Oracle EBS and Oracle Cloud ERP.

In one example for Cloud ERP, three simple purchase orders with 20 lines took 45 minutes to create using the standard Oracle forms. The same task took 45 minutes using FBDI, but only 5 minutes using the More4apps ERP Cloud Toolbox Procurement Module tools.

These values do not take the error/feedback loop process or the improvement in data quality when uploading from a spreadsheet into account. Including these would show the process with ERP Cloud Toolbox to be even faster.

Reducing **45** *min* *to* **5**

More4apps Solutions - at a glance

Pros	Cons
Designed to meet the needs of the end user responsible for data loading. Empowers end user to mass load data without depending on specialist IT resources	Not designed to be a complex reporting tool
Works straight 'out of the box'. Free from development and internal support	Does not come 'free" with Oracle (but saves you time and money in the long run)
Improved accuracy, as data validation takes place prior to uploading	
Tested and supported by More4apps	
Consistently enhanced and improved by More4apps	
Uses Oracle APIs and/or open interfaces (EBS) and webservices (Cloud ERP)	
Same EBS product works in EBS 11i, R12.1 and R12.2	
Controlled, predictable cost - organizations can budget for annual support costs and need for any additional resources	
Increases productivity, reducing data-entry time and associated costs.	
Fast implementation	
No client installation required by the end user. 30 minute installation by a DBA (EBS).	
Consistent look and feel in Excel makes the products easy to use	
Compatible with Oracle support	
Realtime data validation	
Lower upfront costs than custom development	
Scalable to grow with the organization	
Options to subscribe or purchase outright (EBS only)	

Application Interface Wizard (EBS)

For bespoke business needs, a developer tool is available from More4apps. This can be easily adapted for a multitude of specialist uses within the EBS system.

More4apps Application Interface Wizard integrates Microsoft Excel with Oracle. It empowers developers to create customized Excel integration solutions, to improve business productivity. This Excel-based development platform can be used to create, update, delete and download data.

Developers create the loaders and the data load is actioned by the end user. Development is more straightforward than other options, as it can be carried out in Excel. For example, debugging and creating LoVs is simpler using Excel. It is user-friendly, with a clean design. This means the development of data loaders is completed quickly, so the end user can start working on the data entry.

Pros	Cons
Developers can easily build many different loaders for end users	Development requires technical expertise
The development tool platform is supported by More4apps	May be affected by Oracle changes and patches
The template library is standardized and can be shared between departments across the organization	Difficult to deliver expectations to all parties involved in the process
Transfer of knowledge is easier as all development is carried out in Excel	Some internal development and testing will be required
More4apps embedded PL/SQL at run time for complex validation and to reduce custom database objects	
Supports DBMS_OUTPUT	
Supports copy code to Toad/SQL Developer to help understand API	
Supports attachments	
Handles multilevel PL/SQL packages	
Easy to implement Flexfields	
User form with all data elements per section	
Flexible sheet design, allowing users to move columns as necessary	
Embedded downloader makes data updates easy	

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Conclusion

Organizations face constant pressure to reduce costs and increase revenue. Saving money in operational areas is key, and the IT budget is no exception. Business leaders may choose to move tasks away from the remit of the IT department, or look for more cost-effective technology solutions - however these must not compromize the integrity of the ERP or incur excessive time or cost to implement.

While each of the available data loading solutions has its own merits, More4apps offers easy-to-use solutions that are focused on improving the end user experience. End users know their data better than anyone else, empowering them is key to great data quality entered in a timely manner. At the same time, they reduce the burden on skilled IT staff, freeing up their time to be spent on more technical work. Finally, they maintain data quality and accuracy, ensuring reports are fit-for-purpose and appropriate for using within the decision making process.

Investing in the More4apps EBS Toolbox or ERP Cloud Toolbox offers many benefits to key business stakeholders:

Senior Management benefits:

- Decision making is supported by highly reliable, accurate data
- Improved efficiency within the data entry team, meaning reduced costs in terms of headcount
- Faster processing times for important business operating procedures
- Improved return on investment from Oracle

Management benefits:

- Reduces the amount of time spent on routine data processing, releasing more time for other important work to be completed
- Improves accuracy and offers the ability to easily detect and resolve data quality issues and errors
- Improves audit trail
- Allows employees to spend more time analyzing data and taking appropriate action, rather than being focussed only on data entry

IT Team benefits:

- Releases IT specialist's time to provide support with more technical tasks
- Enables stakeholders to better utilize Oracle systems, meaning fewer queries to IT Team
- Positively impacts data quality, governance and security
- Improves audit quality across the organization

End User benefits:

- Enables users to complete their data inputting work more quickly and easily, using a familiar program.
- Removes the need to work with Oracle forms which are not user-friendly or designed for mass data entry
- Easier to detect and amend errors or omissions in the data

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