(REVIEW ARTICLE)

Challenges and Solutions in Migrating Legacy Procurement Systems to Oracle Fusion

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Abstract

Organizations planning to migrate their enterprise resource planning (ERP) systems may face organizational obstacles as they implement the change from legacy procurement systems to Oracle Fusion. This paper discusses the technical, operational, and strategic challenges of migrating from a legacy procurement system to Oracle Fusion, particularly around master data management, integration, data governance, and user adoption. This essay states the reasons why organizations can overcome these obstacles by taking advantage of Oracle Fusion's cloud-native architecture that comprises built-in analytics and bespoke modules, using rational thought, analysis, and case studies. It is also applicable in determining how to optimize the process on the Fusion ecosystem intercompany and industry application. The review gives a rough idea of the practical tools and methods that may be used to support the transition process from legacy to Oracle Fusion Procurement and introduces the outcomes of the new literature.

Keywords: Oracle Fusion; Legacy System Migration; Procurement Transformation; ERP Cloud Integration

1. Introduction

Most organizations have been adopting the digital transformation phenomenon in an attempt to modernize old enterprise systems. The migration process is another challenging and important step due to the complexity of migrating old procurement solutions to the cloud and Oracle Fusion. Oracle Fusion Procurement (a part of the broader Oracle Fusion Cloud ERP) combines sourcing, buying, supplier assessments, and purchase contracts within a single platform and is additionally AI-empowered [1].

Relocation of the previous procurement systems to Oracle Fusion, however, is accompanied by a number of complexities, including data consistency, configuration differences, integration complexities, and user adoption challenges. This is a review paper, and it investigates the complicated stance that comes along with such migrations and further categorizes the resolutions to these issues in terms of recent research and methodical approaches to execution.

2. Legacy Procurement Systems: Challenges in Migration

Old procurement systems are usually fragmented and are not integrated with current enterprise applications. These systems may be built on legacy technologies that are not as interoperable and are therefore challenging to integrate with new cloud structures such as Oracle Fusion. Our main concern, the primary concern, is the successful full transfer of the new master data.

Siloed applications within organizations have a large number of suppliers, products, and purchase order data, and a part of the transfer should be based on evaluating the master data that are in some of those legacy systems within that

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list and is tagged as opposed to corrupt so that there are no errors or additional inefficiencies experienced in the new repository.

It is also challenging for organizations to coordinate standardized data formats, or simply as a result of a data mix from the legacy systems, data, and systems. As Oracle Fusion states, it can migrate and ingest data into some sort of standardized and structured data so that it can be efficiently processed. We know that defective, if not corrupt, tender data works against the procurement from cascading limitations and defects, somewhat when in reference to government tender documents that establish qualified suppliers. To return this conversation around, you have some formalized plan on taking this and compiling and verifying again for your intended project to have robust multi-user, multi-engagement/review capabilities.

The Oracle Fusion procurement tool has advanced capabilities compared to any existing legacy systems, and none of the procedural logic from the legacy systems can be replicated. The inability to replicate procedural logic will create additional obstacles to migration. Furthermore, since the Oracle Fusion procurement tool is based on preconfigured business processes (although adaptable), legacy business processes may not have support [2].

This will lead the organization to determine if they will adapt their process or if there will be external extensions and APIs based on Oracle Fusion. Change management and user training will be another major issue of migration due to legacy users in the organization who may not be as excited about the new workflows and user interface, and as a result, during migration they may be just as engaged in gathering information as their counterparts, and any appropriate training and stakeholder engagement will promote user acceptance while reducing resistance to change [2].

3. Data Quality and Cleansing

Data quality is the greatest risk to a migration project. The existing legacy procurement systems will have significant quantities of obsolete/outdated/inaccurate (ROA) data, and any ROA data that is inaccurate will be brought into Oracle Fusion and further deteriorate the fidelity of the system when moving to the go-live state.

The migration should only be performed once data has been cleansed and data is functioning as intended without errors [3]. Cleaning in advance and anticipating execution processes (mass data migration) will take a minimum of 30 percent of the total project lifecycle, if not longer. The organization must also ensure that vendor files, payment terms, tax data, purchasing files, etc. have also been set correctly if they did not copy over from the migration report.

Organizations are also highly encouraged to use profiling tools that will generate reports of any anomalies, inconsistencies, duplicated data, and characteristics that led to poor data quality. The point of these tools is to improve the quality of the converted data as it pertains to the reporting and/or analytic accuracy after a successful migration [3].

4. Comparative Structural Differences Between Legacy and Fusion Systems

The previous systems like Oracle E-Business Suite (EBS) or even home-built ERP systems are more likely to be monolithic compared to Oracle Fusion, which is based on service-oriented architecture (SOA). Such structural differences simply mean that the data and process flow during migration will have to be re-architected. Oracle Fusion is more advanced with inbuilt analytics, role-based dashboards, and real-time decision-making tools that the previous systems did not have. Among the most critical problems is transforming classical workflows to fit the modularized architecture of Fusion [4].

Besides that, Oracle Fusion employs a centralized approach in supplier management submodules: Supplier Qualification Management and Supplier Portal. On the contrary, the supplier data in legacy systems is stored in uncentralized databases that will most likely contain similar or outdated data. In comparing Oracle EBS R12 and Oracle Fusion specifically, it can be observed that the re-engineering of strategic business processes is not just a technical problem but a critical aspect of the transition to Fusion [4].

Table 1 Comparison of Key Features between Oracle EBS R12 and Oracle Fusion Procurement

Feature	Oracle EBS R12	Oracle Fusion Procurement
Architecture	Monolithic	Cloud-native SOA
Supplier Management	Decentralized	Centralized Supplier Portal
User Interface	Forms-based	Modern Web UI
Reporting	Limited Standard Reports	Embedded BI and Real-Time Analytics
Customization	Extensive Custom Code	Configurable with Limited Customization
Integration XML Gateway (proprietary Oracle framework, limited REST support) REST and SOAP Web Services	Integration XML Gateway (proprietary Oracle framework, limited REST support) REST and SOAP Web Services	Integration XML Gateway (proprietary Oracle framework, limited REST support) REST and SOAP Web Services

Source: Adapted from [4]

5. Integration Complexity and Middleware Dependencies

The description of how old systems were changed to Oracle Fusion does not necessarily imply a process of simply transferring data anymore; it is a complete revamping of the system and integration with third-party systems. Examples include procurement systems that are usually interconnected with subsystems such as financial accounting systems, warehouse management systems, and human capital management systems. Right now, geography complicates the integration process when organizations utilize an ERP in multiple countries and in multiple geographies. But under the situation [5], the software Oracle Integration Cloud (OIC) or some other third-party ETL software would be part of the overall design for migration.

There is some concern about the data synchronization use of the integration, as was the case with the previous systems. The integration was in batches and jobs where the synchronization and finalization work took enough time in order to correspond with the scheduled nighttime. However, Oracle Fusion does provide for the transfer of data in real time, which does change the paradigm and includes within the immediate repositioning of the integration architecture.

Another complicating factor is that the security and data controls are also unique to each of the software's security and data control systems, and each did not follow each position's security and data control [5].

In this context, your migration plan should also incorporate methodologies for message queue blocking testing, message queue validation, and message queue token auth. It may also require integration with the Fusion switch, which may require you to be aware of Oracle's release cadence, which may change APIs and possibly the data schema underneath. Consequently, controls should be monitored and regression tested each time for integration integrity [5].

6. Structured Lifecycle Approach for Cloud Migration

A lifecycle method is a tested strategy for more effectively addressing the complexity associated with the transition to the cloud for procurement services. The full cycle includes, in order and includes relevant tasks and control points, an assess phase, planning phase, mapping, configuration, testing, and implementation phase, and post-go-live support. Each phase identifies specific tasks and control points intended to enhance the successful transition of services from legacy systems to Oracle Fusion [6].

In the assess phase, the current state of the procurement system is assessed to help understand key gaps, dependencies, and risk areas. In the planning phase, a roadmap to migrate the data, resources required, and timeframes are addressed. The mapping process helps prepare and analyze the data cleansing and the data validation process. The configuration phase is related to developing the Fusion system configurations to align the system with the organization's procurement policies [6].

Testing will undeniably be the largest and most time-consuming task effort. Functional testing will ensure that purchasing processes work correctly for the purchase requisition process, purchase orders, supplier contracts, and

invoice matching. Integration testing will verify that upstream and downstream systems can interact in real time. Finally, the post-go-live phase will involve continuous monitoring of the system, performance tuning, and responding to feedback from users [6].
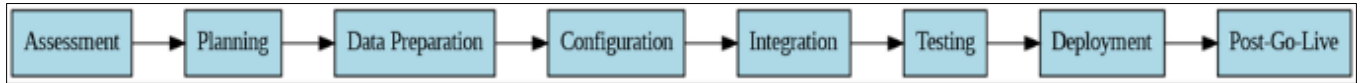
Source: Adapted from [6]

Figure 1 Lifecycle Approach for Oracle Fusion Procurement Migration

7. ETL-Driven Strategies and Agile Environments

ETL, which is Data Extraction, Transformation, and Loading, is a significant sub-part of procurement system migration. Therefore, in agile organizations, the methodology will be to test small "batches" of ETL systems and test a small amount of data first and expand the ETL challenge over time. This aligns synonymously with Oracle Fusion due to the modular structure of the architecture; the processes were also designed to error-test as soon as possible with as little rework as possible. There will also be audit/data integrity requirements from the current ERP systems that need to be followed in the ETL process.

Oracle migrations using ETL tools include Oracle Data Integrator (ODI), Informatica, and Oracle migration scripts. These tools are coded to handle specific purchase order data items, including supplier catalogs, purchase orders, contracts, and vendor performance measures. The agile approach supports incremental loading and validation of information, offering better control over data quality and user acceptance testing [7].

8. Governance, Data Integrity, and Master Data Management

Without data governance and master data management (MDM), the migrations of the procurement system are not successfully established. Oracle Fusion Product Data Hub (PDH) is proposed to provide one system for managing the most appreciated procurement data in the form of suppliers, categories, contracts, and items. The master data is usually replicated in various modules and departments in traditional systems, which brings about inconsistency of the data, duplication, and inefficiencies. This data needs to migrate, whereby such pieces of information need to be gathered into a single structure so that Oracle PDH can access it without encountering a problem [8].

Another considerable challenge of the data governance process is the use of data integrity rules that are compliant with the data models designed by Fusion. In a single instance Fusion there are hierarchies of data and field-level checks required, which are not present in older systems. To transform the legacy information into the schema of Fusion without affecting the quality of the data, the transformation logics must be accurate, and they will have to be tested during a few cycles. The organizations that will validate the data ownership, the stewardship functions, and the control policies will be formulated by the organization that has an interest in ensuring that the accuracy of the information will be guaranteed in the long-term following the migration [8].

Moreover, automated tools will be deployed to equalize information across geographies, particularly in the case of multinational organizations. These systems are capable of recreating records, providing some level of consistency in names, and also erasing data conflicts, which are occurrences that are high in procurement modules. The alternative Oracle Fusion offers is to enrich the data with third-party data suppliers; as such, the companies would be capable of enriching their supplier master with known data. All operational risks are mitigated by these governance controls, which enhance reporting and compliance performance [8].

9. Intercompany Procurement and Process Efficiency

Oracle Fusion ERP also provides intercompany procurement facilities that are capable of handling many of the limitations that were present in legacy systems. The international business dealings among businesses especially among subsidiaries in internal sourcing are bound to have various problems, including discrepancies in invoicing, delays in approvals, and the way taxes are managed. Most likely, the operations are handled within traditional systems in a manual or semi-manual format and are therefore inefficient and not scrutinized in reconciliation [9].

With the help of Fusion and its intercompany mechanism, which is rule-based and simplifies the procurement operations of business units, these issues are resolved without violating local regulatory and tax policies. Such operations are supposed to be shifted onto Fusion, and this can only be achieved by learning the existing intercompany agreements, business processes, and tax structure flows. The central issue concerning this case is that the logic of the process must be reengineered to be operationalized within the paradigm of Fusion Global Procurement, which offers a shared services architecture in requisitioning and purchasing data operations [9].

The entities must install centralized procurement contracts and coordinate the transactions automatically by making decisions based on the same catalog and definitions of the items used by the various business units. Besides that, Fusion has contributed to the optimization of expense allocation and reporting in organizations due to the adoption of automated cost accounting and tax engines. These settings are to be tested in a sandbox environment that should be implemented with reasonable financial performance and efficiency in reality [9].
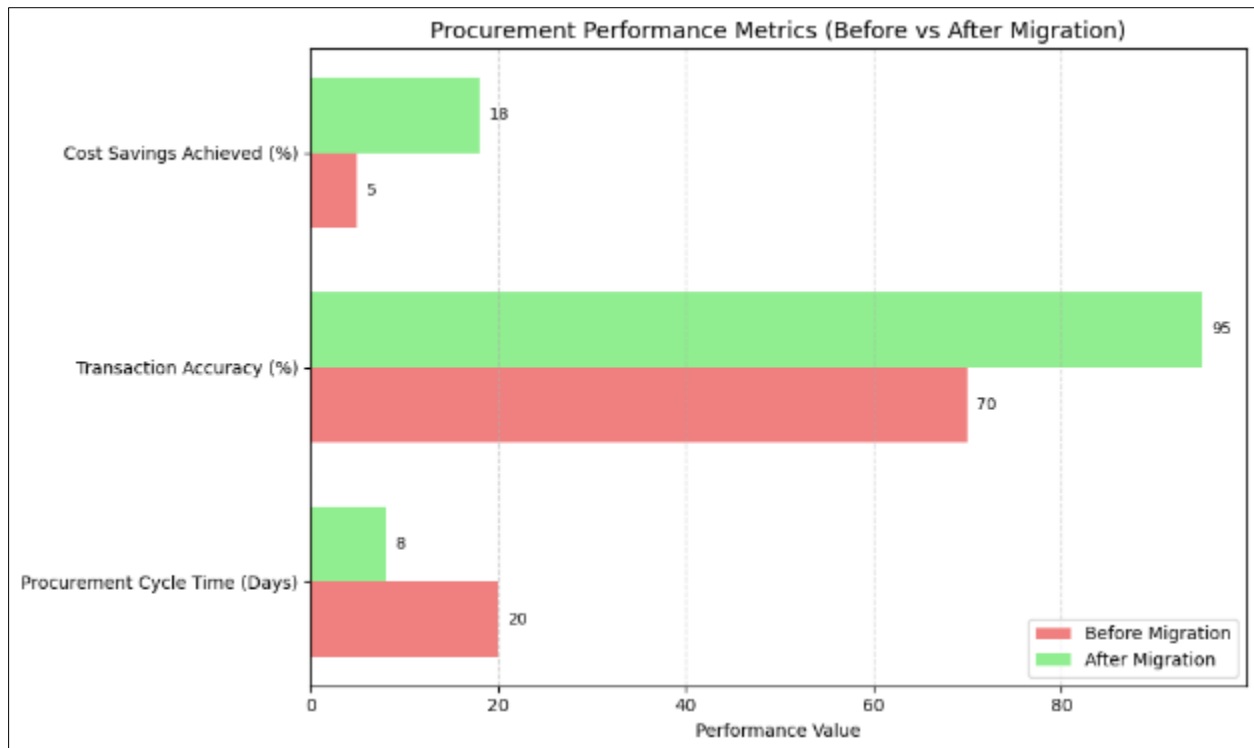
Source: Adapted from [9]

Figure 2 Efficiency Improvement in Intercompany Procurement Post-Migration to Oracle Fusion

The graph demonstrates significant improvements in procurement cycle time, cost savings, and transaction accuracy after migrating intercompany processes to Oracle Fusion.

10. Industry-Specific Applications and Customization Challenges

Another mix also provided by Oracle Fusion is the sector-specific manufacturing mix, retail mix, and health and government service mix. One of these includes custom procurement procedures, compliance schemes, and supplier registration departments. The migration of legacy systems to Fusion has been accompanied by a change in perspective in terms of migration, the consciousness of the vertical templates, and whether they would be functional in the current process in the industry [10].

One of the challenges is industries that have highly customized procurement practices. In this regard, the features of the relationships with suppliers, such as multi-level contracts and location-based contracts, will be characteristic of the construction industry as a project-based procurement. They can be fed with legacy system custom modules or spreadsheets. The box may not necessarily be replicated in the standardized modules in Fusion for such complex processes. It will be based on Application Composer, Visual Builder, or Oracle PaaS (Platform as a Service) tools to capitalize on the possibilities of Fusion [10].

Another serious issue is compliance with regulations. Industries possess a number of procurement legislations and certifications. To provide compliance, Fusion has segregated controls, audit trails, and electronic approvals. The company migration must ensure that the old workflows involving the qualification of suppliers, bids, and awarding of contracts are re-engineered independently so that they do not interfere with company control even as the company moves to Fusion and adheres to the law [10].

With such massive support for the industry, even in the future, customization will not be able to influence the sustainability of business in Fusion. Excessive customization is accompanied by complexity in upgrades and technical debt. Therefore, solution architects tend to propose a configuration-first style, where customization would not occur unless the business requirements are extremely unique [10].

11. Post-Migration Considerations and Optimization Strategies

Upon the migration being achieved into Oracle Fusion Procurement, attention is to be paid to optimization. One of the major problems after migration is performance tuning. Since Fusion cloud infrastructure will be cloud-based, the performance issues can be lower but still dependent on the amount of data or time lag in integration, time lag in documenting a transaction, or time lag in the approval response. The problems can be divided into those associated with incorrectly drawn workflows, a significant amount of old data to be loaded, or a long and tiresome approval process.

To solve this, companies must adopt a performance monitoring application, which performs an analysis of system logs, transaction history, and response time. It is possible to make refinements to the approval chains, batch processing jobs, and notification settings using these metrics. In order to sustain such processes, Oracle offers products such as Oracle Transactional Business Intelligence (OTBI) and Application Performance Monitoring (APM) [2].

Another optimization feature that would be desirable is 24/7 training and support. The issue of navigating new functionalities may continue to arise for users even after a successful go-live. Role-based training material, interactive support manuals, and the availability of a help desk support team are important for long-term adoption and to avoid dependency on IT teams for routine activities.

Other than this, the post-migration stage should also include frequent supplier record and catalog accuracy audits and compliance reporting. Procurement leaders can also access the embedded analytics and dashboards in Oracle Fusion and extract actionable insights and inefficiencies. This can be implemented during the renegotiation of contracts, sourcing of suppliers, and sourcing techniques.

12. Conclusion

The migration process of the old systems' procurement process to Oracle Fusion is associated with technical issues, strategic issues, and operational issues. These include information non-congruency, integration problems, architectural incongruity, and user resistance. In turn, these can be addressed using logical solutions and recent migration policies. Oracle Fusion is a cloud-based procurement solution that is fully integrated and enables automation, real-time analytics, and compliance to shine. With information regulation applications, ETL engines, migration lifecycle patterns, and industry-specific environments, organizations will be able to have a managed entry into immense productivity enhancements and a strong foundation for future computerization.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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