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OVERVIEW

Businesses today face enormous market pressure to compete and recognize business opportunities and potential threats. Businesses also face regulatory challenges and the pressure to improve profits and reduce operating costs. To respond to these challenges, businesses require the ability to make informed decisions in an ever-compressing time frame. Business Intelligence (BI) Applications have evolved as a means for businesses to ably respond against these forces. The question for a business then becomes, “Do we build our own BI application, or do we purchase one instead?”

This white paper explores the decision criteria used in a build vs. buy scenario when considering the Oracle BI Applications. The major benefits of the BI Applications will be discussed in the framework of an overall buy vs. build argument.

BUILD OR BUY

There is the old axiom “Buy to standardize, build to compete”, meaning you buy to automate every-day or commodity-like processes and build when your core processes provide differentiation for your company. In the real world, this is not as definite to apply. There are several build or buy decision criteria an organization considers: ROI, total cost of ownership, time to market/deploy, resource capability and skill sets, infrastructure and other technical aspects (e.g. scalability, security, ease of future development), quality of the product and user training/adoptability for each option. Additionally, for buy options, vendor stability, expertise and service ability are also considered. Other important considerations that influence the build or buy decision are the organization’s strategic vision and whether the solution, for example the BI application, fits into the organization’s technology stack.

Some experts state that the build option is often more expensive in the long run compared to a buy solution. One consultant also estimates that the term of the project conservatively extends 30 to 50 percent longer or more in an internally provided solution. There are many specific reasons as to why this is the case, but most of them boil down to the basic fact that much of the work has already been completed before your project even begins. Generally speaking, and all things considered equal, the primary criteria an organization uses to ultimately opt for a bought BI application instead of building one in-house are the shorter implementation times and quicker return on investment. One reason for this, which will be explored in more detail, is that it is a very lengthy process to build a BI application given all the required components. Some other reasons offered for the buy option are the domain expertise provided by the vendor that is leveraged by the organization, integration capability with existing systems, the scalability of the BI App solution and a higher adoption rate by the business user community.
Before a conclusion can be reached as to whether an organization decides whether to build or buy a BI Application, we will next explore what a BI Application is, why an organization should consider the Oracle pre-built BI applications, and finally dispel some misconceptions about BI as it pertains to the buy decision.

WHAT IS A BI APPLICATION?

One common definition for BI is that it is a broad category of applications and technologies for gathering, storing, analyzing, and providing access to data to help enterprise users make better business decisions. A wide array of users are supported by enterprise BI, from the tactical level (employee monitoring inventory levels), operational level (manager tracking actual results to plan), strategic level (executives analyzing key performance indicators or KPIs), external customers, suppliers or partners, data analysts, product managers, partner managers, etc. For each of these targeted communities, a wide array of tools exist to identify insights and make more informed and more reliable decisions.

A BI application may be thought of as a subset of a larger enterprise BI environment that serves a particular focused purpose. A purpose may be defined by user communities, tool/analysis functionality, or business process. Typically these applications are planned and executed as separate projects from other applications due to natural boundaries.

Sometimes BI applications are very isolated, having been built with platforms and tools that are quite different that other tools in the organization. A common example is Financial Planning Applications, which use specialized tools for a certain set of users, commonly with a different data store. Users who do other financial reporting and analysis would use a different BI application due to their differing needs.

Another common example of isolated BI Applications are the analysis and reporting capabilities that come bundled in or as an additional component of packaged transactional systems. Nearly every packaged application vendor has some prebuilt reporting and analysis functionality that draws directly from their own particular data model. These BI Applications, although they do solve an immediate problem and have varying degrees of success, are limited in what they can achieve. They are nearly always highly focused, relying heavily on the source system data model to which they are tied, and have limited capability for expansion. For those organizations who are committed to real BI with a robust and aggressive architecture for handling their BI needs, these one-off isolated BI Applications are seen at best as outliers or exceptions, or at worst as problems to their enterprise BI vision.
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BI applications are not limited to standalone systems however. From a large scale, pervasive BI perspective, a BI application may be simply a module that fits into the overall framework. No one today will espouse the thought that one BI tool fits all needs; however it is important to make sure they are integrated and their limits defined so as to have a clear and consistent enterprise wide BI message. In such a world, a BI application may be merely a subject area of a much larger BI system that uses a particular tool. Your information is integrated across your major data sources, but the usage is tailored to a particular user community.

WHAT IS IN A BI APPLICATION?
As BI applications are ideally portions of your overall BI infrastructure or minimally standalone systems linked to a single source system, they will contain all of the same basic moving parts that you would have to build on your own, plus a few extra. A basic BI application goes far beyond “industry standard data models”, and includes all necessary ETL code, data models, BI tool Metadata, and pre-built reporting content. More advanced BI applications may even include change data capture or integrations with other information consumers such as front end applications, portals, advanced data services, or even other BI tools.

When it comes to purchasing a pre-built BI application, you should expect all of these components to be present and fully integrated. There should be unified installation and migration procedures, significant documentation, plus the ability to smoothly handle upgrades and patches. Oracle’s BI Applications contain all components professionally created by an engineering team at the direction of not only technical experts, but also industry and functional experts.

SEE FIGURE 1 ON FOLLOWING PAGE
Figure 1 overviews many of the major pieces of the Oracle BI Applications. Looking at the sections, particularly the ETL section, one can begin to understand some of the major tasks that are needed to make a fully functioning data warehouse and set of BI applications. Many of the items shown above require significant infrastructure to design and build; infrastructure that is not directly related to a given project’s needs, but is necessary to build and maintain a robust, modern data warehouse.

Although offering other packed reporting/BI solutions in the past, Oracle is focusing on its main BI application offering, named “Oracle BI Applications”. This large and highly robust set of BI Applications includes nearly 50 modules such as Financial Analytics, Marketing Analytics, Partner Analytics, Service Analytics, and Sales Analytics.

As will be discussed in a closing section, the Oracle BI Applications go far beyond a basic BI Application. These Applications first off are designed to grow significantly beyond the pre-packaged source applications from which they are designed, and in fact are fully multi-source aware. The argument will be made later on in this White Paper that the Oracle BI Applications can be considered as starter Enterprise Data Warehouses, something which is unique within the BI Applications marketplace.
WHY CONSIDER THE ORACLE PRE-BUILT BI APPLICATIONS?

When justifying packaged BI Applications, the argument generally centers on the reduced effort, time to market and risk compared to a custom build. In addition to discussing this argument in greater detail, a case is made for additional functionality and capabilities that come with the Oracle BI Apps that you would be unlikely to reproduce yourself.

TIME TO VALUE

The first and most powerful argument for buy vs. build has to do with the amount of time, effort and cost involved to deploy a functioning system and begin demonstrating real value. With the BI Applications, Oracle Engineering has completed a vast amount of work for you, requiring significantly less effort to deploy them.

The effort saved covers not only a wide array of components but also their seamless integration. It includes many of the things that a large scale data warehouse and BI system would need to do, from start to finish. The concrete benefits of Oracle’s BI Apps are the many components and tasks that have been completely or mostly built that will minimize the effort on your part. These include:

- Starting Requirements Analysis
- Naming Standards Defined and utilized
- Source System Analysis in preparation for design
- Change Data Capture Design and common code routines, including modifications to the source applications to assist
- Extract, Transform and Loading (ETL) design and coding
- ETL orchestration / Architectural Foundation (sequencing, record tracking, restarts, index management)
- Generic integrations to non-supported data sources
- Robust Target data model rigorously adhering to dimensional modeling best practices
- BI tool configuration – pre built MetaData (mappings, performance enhancements, security)
- Pre-Built Reports and Dashboards with security model applied
- Pre-Built Alerts / Delivers / iBots
- Security Administration tool
- Real-Time integration with Siebel CRM for real-time transactional reporting
- Significant internal and customer Testing
- Deployment Bundling

The above items are what are typically needed as part of a DW/BI deployment. These tasks need to be considered as you begin to plan a new data warehouse or data mart in order to make a fully functioning system. It may be possible to
have a system that does not employ many of these items, but this system will fail to scale or require significant rework to do so.

One common example of this is ETL Orchestration. Extract, Transform and Load (ETL) mappings are much more involved than scheduling a series of source to target mappings. Necessary items such as process dependency checking, multiple schedule coordination (e.g., Daily and Weekly ETLs), restarting of a failed process, parallelization, change data capture, and integration with index management are all items that you will have to design, build, test and determine how to monitor and manage. These processes are already incorporated into the pre-built BI Applications and do not need to be replicated by you. Within the BI Applications, this function is captured in a separate tool and repository called the Data warehouse Administration Console (DAC).

Each of these tasks takes a significant amount of time to deploy, and each carries significant risk. Multiply this risk by your team’s ability and experience levels in each area, and you understand why many BI / DW projects fail, die after a short while, cost significantly more than planned, or take much longer than planned.

The graphic image above depicts the reality of deploying BI Applications. It is entirely possible to fully deploy one or two modules of the Oracle BI Applications in as little as 12 weeks, assuming some moderate level of customization. Typical industry estimates range from 6 to 12 months or longer for a single subject area in a data warehouse, and that will be without all of the management
features that come pre-made in the packed solution from Oracle.

It is a relatively straight line of effort and therefore time-to-value based on the quantity and degree of customization of your source data. In a non-realistic example where a 100% non-customized supported source system is used, a fully functioning BI Application with all necessary components can be up and running in only a few days, with software installation and ETL execution time requiring nearly all of the effort.

Customizations of the inputs (the packaged source applications) and the outputs (the reports, metrics and dashboards) will incrementally add effort to a BI Apps project. However, many of the possible types of customizations are known and can be accurately assessed and handled in a pre-defined manner. In other words, many types of customizations already have a solution. Examples of customizations, ranging from simple to more complex:

- New dimensional field or repurposed field
- New simple metric
- Altered hierarchy
- New report
- New dashboard w/ new multiple new reports
- New source tables for existing objects
- New dimension table
- Aggregate table addition
- Additional data source using Universal Adapters
- New fact table
- New subject areas within a pre-mapped source
- New data source not using Universal Adapters
- Complete new system

It is important to remember however that these customizations have different impacts on different aspects of the pre-built application stack. For example, adding a new metric has zero impact on infrastructure design and build, while adding a new source system does.

The Oracle BI Applications contain prebuilt, fully functioning capabilities for several modules within Oracle’s suite of packaged applications, including multiple versions of Oracle EBS, PeopleSoft, and Siebel CRM. There are provisions made in the design and prebuilt code for linking into other data sources more easily, such as Call Center switch data. Additionally, Universal Adapters in the ETL modules allow easy access to other data sources of whatever format.
ENHANCED FUNCTIONALITY
In addition to the very strong Time-to-Value argument, there will be functionality and benefits that would be difficult or impossible for you to reproduce on your own. Although perhaps not the main driver in the selection process, some of them may prove useful to your needs. Additionally, although some of these may seem more advanced, that may only be due to your current situation and expectations; after a period of successful deployment, users may begin to start asking for these features. A sample of some of the benefits that will be impossible for you to reproduce, or due to their lower priorities you may not be willing to include:

- Functional and industry experts and industry best practices input into functionality, ranging from metrics to dashboards
- Simple UI integration with source applications – enable BI as an object inside your packaged systems. (Although you can do this, it is commonly viewed as a ‘nice to have’ feature that is rarely undertaken)
- Benefits of industry leading experts for architecture and design
- Benefits of a vast testing and certification process covering numerous deployments across a large number of customers and platforms
- Designed to be fully upgradeable with new features, data sets and technologies
- Oracle provides a full BI Application technical support staff with access to development engineers
- Relative availability of experienced resources working with the BI Applications
- Pre-built 3rd party integrations

Furthermore, these applications are significantly documented and supported via numerous channels, including many consultants and contractors.

IMPORTANT INTEGRATION CHARACTERISTICS OF THE ORACLE BI APPLICATIONS
As previously stated, one important criterion to consider in whether to buy a BI application is whether the packaged product will integrate with your existing system(s). For example, in order to support the business users in their daily activity, Oracle BI Applications, and the supporting technology platform, Oracle BI Enterprise Edition, integrate with primary transactional applications, like Siebel CRM or Oracle E-Business Suite (EBS), on several aspects:
USER INTERFACE INTEGRATION
Because of the 100% web-based and standards based architecture (SOAP) of the OBIEE platform it is very easy to integrate the OBI Presentation Services with a web based application like Siebel CRM or EBS. Siebel CRM up to version 8.0 uses its own Portal Framework and SOAP based integration technology to integrate the Siebel CRM screen, views and applets with dashboards and reports respectively, giving the end user the perception of using one application only. The Siebel Portal Framework takes care of the Single-Sign-On requirement, presenting a seamless user experience.

Action Links are another example of User Interface integration. This JavaScript based technology enables the user to drill down from an OBIEE request or dashboard to a transactional application view including the record of focus. A typical flow in sales force automation for example is: pipeline management -> drill down on a problem stage -> obtain a list of opportunities in this stage including expected revenue and probability of close -> drill down to the specific opportunity in the transactional application including all activities, account information, account service requests, quotes, proposals and sales team at hand. Several of these action links are pre-built into the reports.

SECURITY INTEGRATION
Besides the often critical requirement of single sign on and authentication, an important and time saving characteristic of the BI Applications is the integration with the base application security and visibility rules. Typically large organizations have the requirement to secure company information and transactional data based on not only the user's role or responsibility (Sales Rep or Sales Manager) in the organization but also on his or her position (CFO Division Consumer Electronics vs. CFO Medical Systems). Based on the user's responsibility, he should have access to certain analytical content, i.e. dashboards, reports, alerts, subscriptions etc. Based on the user's position, he should have access to certain areas of the database, e.g. the data belonging to division A or B, team 1 or 2.

The point is that this access control business rules are administered in the transactional application. A prepackaged BI Application must integrate with these business rules without duplicating these rules to the BI repository. This integration becomes critical in a volatile organization where user change role and/or position frequently.
It should be no surprise that the complexity of your BI system goes up with each application and data source you have in your organization. For organizations with two or more of these systems, the pre-built functionality and integrations with in make a very compelling case, as much of the difficult work has already been pre-built and tested. One integration item to note: not included is the very difficult task of record by record integration when a logical entity resides in more than one system with no linking information.

However, even with one of these systems the BI Applications still provide tremendous value. In such a scenario, it is rare that Oracle EBS for example, runs 100% of your business – some business processes lie outside in different systems. Even for such external systems, significantly less work is required to include that data into the BI Applications environment. The Universal Adapter feature removes much of the difficult work by creating a generic structure to which data is extracted from your other sources. From this starting point, the datasource is treated as another data source, including a full loading pipeline.

In cases where a substantial portion of your business does exist on a single packaged application, the benefits of the BI Applications hold even more value. In such cases, the more desired BI functionality from that source data, the more the prebuilt routines can be leveraged. In other words, using two BI Application modules (e.g., Financial Analytics and Order Management Analytics) leverages the pre-built application’s benefits even more than one BI Application module.

Due to the BI Application market’s relative immaturity, a number of arguments and misconceptions have sprung up. By grouping the Oracle BI Applications with other BI Applications from other vendors, an inaccurate picture of their capabilities is commonly assumed. This next section addresses some of the common misconceptions from the BI Applications world with regards to Oracle BI Applications.

**THEY ONLY WORK WITH THE PRE-BUILT DATA SOURCES:**
The Oracle BI Applications are fully designed to add new data sources with less effort than in a pure build scenario. Using a “publish-subscribe” model, data is extracted from any source application that maps to existing objects in the BI Apps. After the extraction, a feature called Universal Adapter pick up this data and continue transforming and loading it into the target BI Application as if it were sourced from a fully supported Oracle ERP.

**ORACLE LIMITS US TO THE APPLICATIONS PURCHASED:**
The BI Applications are built on a 100% open platform; there is nothing that cannot be extended. Do you have a reporting need on some data that is not
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associated with the BI Application that you purchased? Then simply develop the mappings as you normally would, and plug them into the robust infrastructure as another work stream.

The key point to understand is that you are not locked into just the code that you have purchased. In fact, one could purchase a BI Application, delete all of the BI Application specific code, and use the platform and infrastructure to build a 100% custom data warehouse. That bears repeating: you can use the platform as simply a pre-built infrastructure and do whatever you want with it. At a minimum, you will have a robust ETL infrastructure with orchestration.

In real-world projects, most BI Apps deployments bring in other data from other sources whether the data is from some other ERP, external data, spreadsheets, or custom developed internal applications. If flexibility is a primary concern, you can fully consider the BI Apps as a starting point, with the ultimate direction determined by non BI App content and needs.

APPLICATION VENDOR’S BI APPLICATIONS ARE LIGHTWEIGHT

This is true for many of them. In fact it was true of Oracle’s own offerings before Oracle BI Apps 7.9 came along. However, the BI Apps that Oracle now offers are far from lightweight. These applications are built using industry best practices on relational platforms that scale as large as the database can handle. One consultant states that he has been involved with a multi Terabyte implementation of the BI Apps on the TeraData, DB2 and Oracle platforms.

Unlike other prepackaged BI applications from other vendors, Oracle’s uses the same design techniques, tools and platforms that you would use if you were starting from scratch. If you feel comfortable with relational databases, Dimensional Models and Informatica, then you can feel comfortable about the BI Apps. Whatever you can do with those tools by yourself in a Build scenario you can also do with Oracle’s BI Apps in the Buy scenario. Additionally, Oracle adds some functionality missing from Informatica, namely ETL Orchestration (in the form of the DataWarehouse Administration Console – the “DAC”).

As an example of the complexity that you can build into your BI Apps system if needed, consider a global organization with two different types of ERPs (one supported with pre-built functionality and one not), each physically located in six data centers around the world. Additionally, there is more customer data residing in smaller applications residing throughout. All 12 instances of the ERPs need to be smoothly integrated into one datawarehouse, even overcoming potential data issues such as records appearing randomly on more than one ERP, linking records across ERPs, and a very complex security model. Although far from trivial, this exact scenario has been performed using the BI
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Apps with appropriate extensions and customizations to handle the additional logic. Many of the customer’s needs were very different from the pre-built code and configuration, but the BI Apps were able to adjust to handle extremely complex requirements.

With regards to the flexibility of the BI Apps, a point that hits upon the advantages of Relational OLAP vs. MultiDimensional OLAP (Cubes) deserves discussion, as many packed application reporting modules use cube technology. Adding new dimensionality to perform metric analysis in the BI Apps is a relatively simple exercise of adding a new dimension to an existing fact table, a fact table which most likely already handles dozens of very rich dimensions. Cube based systems generally do not operate in this manner; there are limits to how many dimensional attributes you can add to a cube before it bogs down and something else has to be removed. This is not the case with an enterprise capable ROLAP engine like OBI EE.

Finally, using the enterprise scaleable capabilities of OBI EE, the OBI Apps are extremely broad focused. When CRM heralded the 360 degree view of the customer, this mantra was carried over to the first iterations of what is now the BI Apps. 360 degree view means breadth and depth, and wide and deep analysis capabilities are enabled by the OBI EE platform and were taken advantage of in the BI Apps. In practical terms, this allows analysis of a variety of different metrics, each from different sources and different processes to be analyzed simultaneously. This is a capability that is severely lacking in most other BI applications due to technology platform constraints or weakness of their application. This capability exists in the OBI EE platform allowing the BI Apps to deliver real BI as opposed to a “Just a Bunch of Reports”.

Keep in mind that a BI application, the generic term, can require a variety of different tools to support their specific needs. The one aspect of OBI that other tools lack is a true open access platform to its server via an ODBC or JDBC driver. This allows other tools that are needed to support other BI Applications not suitable for OBI EE to leverage the hard work and infrastructure within the prebuilt apps. In fact, before the current versions of Siebel Marketing, a separate marketing engine sat on top of the pre-packaged BI system. Doing so allowed a single infrastructure (a single Data Mart, ETL, Security and logical abstraction) to be used in an identical fashion by both a segmentation engine and for reporting and analysis. This type of leverage substantially reduces overall effort, as one deployment of the BI Apps is being used for two different tasks.
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THE PERCEIVED CONS FOR A BUY DECISION

The most common reasons associated in not considering Buy decision are cost, applicability to your specific business requirements, and flexibility to meet future needs outside of purchased functionality.

COST

The discussion on cost is typically based on high capital costs associated with the software and infrastructure, with some lesser costs coming from implementation. A license for a BI App dashboard is significantly more expensive than a base license for an empty Oracle Dashboard. But this is an apples to apple pie discussion; one is raw materials the other is a finished product.

To make a better comparison, consider the real costs of building not a comparable system, but a less powerful, flexible, feature rich and scaleable system that meets your exact needs. Do not forget to add in the commonly overlooked infrastructure components that you will need to have. The apple metaphor breaks down, but maybe one considers comparing a house vs. raw materials and tools. If you were to build a house by yourself, would it be as good as a house made by experts? Would it have all of the features, advanced materials and advanced engineering that the construction company and architect would build into it? Thus, even comparing your homemade house to a pre-built house is not really a fair comparison, as you will have a significantly better house if you buy one.

In most common cases, when you add everything up you’ll find that the cost of the BI Applications and associated licenses is far less than it would take you to build such things on your own. When you factor in labor costs to customize the application based on your specific environment and requirements, the equation ratio changes only slightly. Factoring in the cost of the difficulty in doing it on your own, from missed functionality to delayed timelines, to non-extensible architectures only increases the costs to build. Finally, the time to value has to be included to be fair; a deployment pushed off by three months may have a significant financial impact to other aspects of your business outside of IT.

ABILITY TO ADDRESS YOUR CURRENT AND FUTURE REQUIREMENTS

Obviously there is great variability in requirements for each BI/DW need, even within the same industry. However, when discussing analytical capabilities out of your packed application, the range of possibilities is greatly reduced. There are three main categories where your requirements may differ from the BI Applications:

Your packaged application is heavily customized: If this is the case, there is still tremendous benefit to the BI applications, even though you do have to modify them accordingly. The infrastructure is still used, and in reality
most of your data objects will be unmodified or lightly modified, requiring little to no customization during the build of your BI Applications.

**Your Reporting and Analysis requirements are different than what is provided:** This can be open ended to some extent, but what does that boil down to? The BI Applications bring data objects over on a transaction by transaction level, so that all appropriate information is available in the BI Applications Data Warehouse. As this data is being extracted, adjustments can be made to it to alter its structure to support a different set of analysis needs with a relatively low amount of effort. Any gaps in the pre-built reports and Dashboards can be quickly overcome with minimal effort. In fact, many implementations do not use the pre-built reports and dashboards at all; instead creating their own customized content on top of the already substantial code stack that has been leveraged. Changing the reporting content, in comparison with the much larger efforts of other portions of the project, is akin to repainting the house a different color.

**Additional data or complex metrics:** If much of your need comes from outside the pre-built ERP mappings, you will have to determine if they map to the same objects that exist in the BI Apps (e.g., Customer, Employee, Order, Partner, etc). If so, you will be able to use the Universal Adapters functionality and leverage 2/3rds of the existing infrastructure. If not, and there are substantial amounts that are not, then the benefit is not as great. However, do not overlook the infrastructural components that the whole BI Apps package brings with it. Complex metrics will usually be created with a combination or ERP & non-ERP data, and can be plugged into the existing large scoped data model with little more than incremental effort.

In summary, if OBI EE and/or Informatica can do it, then so can the BI Applications. The BI Applications just get you there faster, with less risk, higher quality designs and code, and are ready to be upgraded. If you need to build it on the back end, it can be done using the tools included in the BI Apps stack, albeit with greater effort and risk. The flexibility exists to include specific point solutions such as a name and address scrubber can be integrated into the overall loading process to extend functionality.

**CONCLUSION**

There is real business value for an organization to deploy a packaged BI Application solution. The question of whether to build or buy this application depends on several criteria. Given the cost, time-to-market, complexity and other factors involved to implement a robust and scalable BI Application solution that will meet current and future needs, the posit is to purchase a pre-built BI Application. Oracle’s pre-built BI Application affords a business the wherewithal to deploy and maintain a BI solution that will meet current and future business needs.
Metricsphere is a worldwide strategic Oracle partner for Oracle BI Applications and Technology. Metricsphere is the recognized Oracle BI Enterprise Edition consulting specialist with more than five years experience and more than 120 successful projects worldwide. Metricsphere is the preferred training delivery partner for Oracle BI Certification in Europe. Leveraging years of experience deploying both BI Apps and 100% custom solutions, Metricsphere has built up a comprehensive library of best practices, fixed price services, training curriculum and the Metricsphere Oracle BI Implementation Methodology.

Metricsphere has a total solutions approach to Business Intelligence. Our customers can benefit from:

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- Metrics for BPM solutions
- User training
- Database marketing

We deliver what the customer needs.

**CONTACT US**

**US Office:**
Metricsphere LLC.
6080 Center Drive #635
Los Angeles, CA 90045
United States
Tel: +1 310 242 6866
Fax: +1 310 496 3045

**Amsterdam Office:**
Metricsphere BV
Zuidplein 36
1077 XV Amsterdam
The Netherlands
Tel: +31 (0)20 799 7987
Fax: +31 (0)20 799 7801

**London Office:**
Metricsphere
400 Thames Valley Park Dr.
Reading RG6 1PT
United Kingdom
Tel: +44 (0)118 9653 480
Fax: +44 (0)118 9353 484

For general inquiries, Email: info@metricsphere.com

For sales inquiries, Email: sales@metricsphere.com