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Self-service analytics
for everyone

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Find the right analysis
for your needs



Julie Shevlin

Barry Mostert

Special Edition

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Special Edition

**by Julie Shevlin and
Barry Mostert**

**for
dummies®**
A Wiley Brand

Oracle® Analytics For Dummies®, Special Edition

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Development Editor: Kelly Ewing

Editorial Manager: Rev Mengle

Project Editor: Kelly Ewing

Business Development

Associate Publisher: Katie Mohr

Representative: Karen Hattan

Table of Contents

Introduction	1
About This Book	2
Icons Used in This Book	3
CHAPTER 1: Encountering Analytics Challenges	5
Shifting the Landscape of Business Analytics	6
Decoding the Former Methods of Data Analysis	7
Handling Bottlenecks and Roadblocks in Data Access, Aggregation, and Analysis	10
CHAPTER 2: Learning About Augmented Analytics	15
Explaining Augmented Analytics and the Role of Machine Learning and Artificial Intelligence	16
Discovering Data Visualization	21
Preparing and Enriching Data	28
Enhancing the Mobile Experience	32
CHAPTER 3: Choosing the Right Analytics Solution	35
Speeding Up with Self-Service Analytics	37
Focusing Your Efforts with Centralized Analytics	38
Enjoying a Scalable Cloud-Based Solution	40
Supporting Various Data Sources	41
Exploring Different Business Scenarios	43
Empowering Your Enterprise Reporting	44

CHAPTER 4: Exploring Ten or So Business

Benefits of Augmented Analytics	45
Describing the Value in IT	46
Enabling Proactive Marketing Campaigns	47
Improving Financial Reporting Efficiency	48
Enabling Proactive Sales	49
Improving Human Capital Management (HCM)	50
Recruiting and Keeping Your Talent	51
Increasing Supply-Chain Efficiency	51
Optimizing Procurement	53

Introduction

Business Intelligence (BI). Business Analytics. The Cloud. On-Premises. Artificial intelligence (AI). Machine learning (ML). Self-service analytics. Augmented Analytics. All of these concepts are important to understand.

Augmented analytics includes embedding AI, often in the form of machine learning and natural language processing (NLP), into traditional analytics. It is vastly different from traditional analytics or Business Intelligence (BI) tools because these AI technologies are always working in the background to continuously learn and enhance results. And as you might imagine, using technologies like AI and ML, takes the analytics game to an entirely new level.

Now that AI and ML are incorporated into analytics along with other state-of-the-art features, the average, non-technical businessperson has access to richer insights that allow them to make decisions that are quicker and even more informed than ever before.

With the right analytics solution, you can be sure that you're working from a single source of truth. In other words, everyone in the company is working from the same data sets, ensuring the cleanest and most up-to-date numbers available. You can present this data in visuals that tell a clear — and complete — story to your audience and make business decisions that you know are

the most informed possible, leading to better, quicker results.

Data analysis isn't just about collecting data from IT or your department and figuring out what the numbers are trying to tell you. Now you're able to easily access important data from across various departments within the company. You're also able to access everything from research to third-party data from suppliers. You can then gain intelligent insights using built-in algorithms that get smarter and more helpful as time goes on, and the machine uses the data to train and optimize its performance. (That's the machine learning.) And with AI, mundane tasks are automated, improving efficiencies and accelerating time from data to insights to decisions. This approach, known as Augmented Analytics, is reinventing the capabilities of traditional analytics and business intelligence solutions.

About This Book

Oracle Analytics For Dummies discusses how the state-of-the-art AI and ML-based analytics solution from Oracle can take your business intelligence to the next level. Gone are the days of piecing together disparate pieces of data from unconnected data sources. Now you have access to the holistic picture your data presents. This next generation of business intelligence is a game-changer.

Icons Used in This Book

Throughout this book are icons that highlight key points:



REMEMBER

The information marked by this icon is important enough to emphasize. In other words, don't forget it!



TIP

Look for this icon when you want a few tricks of the trade when it comes to successful event marketing.



WARNING

Be careful. When you see this icon, you're being warned about potential mistakes or issues.

IN THIS CHAPTER

- » Discovering artificial intelligence and machine learning
- » Understanding existing methods of data analysis
- » Dealing with data silos
- » Facing roadblocks and bottlenecks in business intelligence

Chapter 1

Encountering Analytics Challenges

Data drives almost every business decision today, making it more important than ever to provide decision-makers with fast, easy access to data and analytics. Business stakeholders need to be able to rapidly access — and analyze — data to ensure they're making the most informed decisions possible.

The most common (and prevalent) methods of analyzing and utilizing data can generate numerous problems and challenges. Important business processes and decisions are at the mercy of things like human error, out-of-date data, and bottlenecks caused by other departments.

Shifting the Landscape of Business Analytics

It's not uncommon for businesses to be working from old and/or incomplete data sets. Maybe it's a case of not knowing how poor the data is. Or maybe the data they have access to isn't perfect, but "it's good enough."

Whatever the case is, they're doing themselves a disservice by not taking advantage of the opportunity to get the entire — and clear — picture of the business landscape through the rich and powerful data available from key internal departmental and third-party data sources.

Companies now recognize that they're sitting on gold-mines of data. And if that data is analyzed correctly and completely using techniques such as AI and ML, they can uncover new insights and drive more impactful decisions, delivering a competitive advantage.

This powerful shift fundamentally changes how data analytics is approached. Instead of focusing the analysis on answering a number of predefined questions, the

analysis is now led by the data. And questions are derived based on the patterns and deviations found in the data. With this approach, you'll find yourself discovering entirely new questions to ask, which in turn will not only help you uncover hidden opportunities, but view opportunities and challenges from new angles.

Decoding the Former Methods of Data Analysis

The following sections describe the data analysis methods that just about every company used at one point or another — and possibly still is.

While nothing is inherently wrong with thinking about and looking at data in these ways, much more powerful methods not only have the ability to achieve the same results, but add new significant value to the analysis and the outcome.

Thinking in outcomes versus data and tools

Many times, companies approach business intelligence systems merely by concentrating solely on using existing data analytics processes and toolsets. The problem with that approach is that it not only limits the potentially new, revolutionary findings that can be achieved, but it

also assumes that yesterday's toolsets will help solve tomorrow's problems.



WARNING

It's important to recognize that if you're stuck with bad quality data, you must manage expectations on what can be achieved. Some data can be repaired and sometimes corrected, but mostly it is still just bad quality data. Data from external companies or third parties, such as partners, suppliers, social media, and research companies, may provide a better context for insights. However, without establishing an end-to-end solution and unified system, that process may be totally manual — laborious, time-consuming, and exposed to human errors, such as copy-and-paste mistakes.

That's why it's so important for companies to approach business intelligence from the standpoint of starting with the business need and expected outcome and letting that steer which data to pick and which tools to use, instead of approaching it the other way around and being constrained by a limited or bad quality data set and insufficient tools.

Lacking department-specific business analytics

Your marketing team needs data sets that differ from those needed by the recruiting team. Your logistics

department has its specific data that is different than the data required by the sales team. Furthermore, all these different types of data may be in different databases and accessible only by certain departments, despite some overlap in responsibilities.



WARNING

Data shouldn't be looked at as a one-size-fits-all thing. Different departments have different objectives, and the data that they need to access and analyze should reflect those different objectives. If it doesn't, the department(s) in question may not be making the best decisions possible.

Ignoring Key Performance Indicators (KPIs)

A result of having faulty (or messy) data is the fact that since it can't be "trusted," setting Key Performance Indicators (KPIs) is kind of a moot point because there's no way to ensure that they're *truly* being met. And what are business goals without knowing if you're even meeting (or exceeding) them?

Furthermore, how can you course-correct when it's unclear where the corrections or adjustments need to be made? If you're unable to define KPIs and trust the data you utilize to measure the success, then you're flying blind. Saying there's a good chance you're not making the best business decisions you can is an understatement.



It's easier to course-correct on the spot when you have the most current data available as opposed to being reactive and unknowingly allowing issues to get out of hand.

Handling Bottlenecks and Roadblocks in Data Access, Aggregation, and Analysis

Basically, there's no way to truly know whether the decisions you're making are the best ones if you don't have actionable insights from data that can be completely trusted. As a result, there's a very good chance you're missing out on important value that could be created.

The following sections describe what happens in an organization when there are bottlenecks and roadblocks in data access, aggregation, and analysis.

Lacking real-time access to data

It's a common occurrence every day in businesses all over the world. A person or group needs access to specific data on the spot — for whatever reason — and it's not forthcoming. Faster time to insights is key for business success!

This situation may happen for a plethora of reasons. While individuals and other departments may play a role in the fact that there's a lack of real-time access to the data, chances are very good that they're not standing in the way for nefarious reasons. The fact of the matter is, everyone has their own responsibilities to uphold, and those commitments usually take precedence over routine data requests.

Another issue with a lack of real-time access to data is that sometimes decisions need to be made on the fly, with very little room for error. One small mistake due to old data can have very serious repercussions. Or maybe a decision is made late or not at all, which may impact the company in more ways than just loss of profit. Values like reputation and trust, for example, are sometimes equally important to maintain and may be seriously damaged if a company makes a severe mistake based on faulty data.

Facing data silos, disparate data sources, and spreadsheet mayhem

If you take a peek into people's computers in various lines of business, across industries, in all corners of the world, chances are very high that they'll have at least one spreadsheet that they regularly access and work from. With more and more companies utilizing shared network drives, that number grows exponentially now when

coworkers can share documents more easily. However, regardless of shared drives, people still have a tendency to send spreadsheets to people in email or instant messaging tools. And needless to say, the *spreadsheet mayhem* is a real thing and has real repercussions.

Common scenarios include team members changing a spreadsheet without correctly labeling the content changes or saving it with the correct filename, which, of course, leads to version control issues. Teams are in spreadsheet hell. Activities like integrating multiple spreadsheets into pivot tables and having to do analysis on pivot tables with data from different parts of the company using different dates means that everything can become unruly — and incorrect — in no time.



REMEMBER

That's what happens when there are disparate data sources and no governance. Without a single source of truth, people don't know where and when the data is pulled. If five different people are working with data from five different sources, chances are good that the results are going to differ, possibly leading to incorrect or, at best, uninformed decisions.

There's a lot of talk about needing to “break down the silos” in companies. Departments have their own initiatives, and oftentimes, they end up working independent of other departments, despite other stakeholders being involved.

It's no wonder that data silos are the result of departmental silos. It goes back to the lack of a single source of truth. When different groups pull and work from data, any changes they make may affect other departments. If other stakeholder departments aren't aware of these changes, they aren't able to properly do their jobs, through no fault of their own. It's a vicious cycle.

Managing the challenges with accessing, aggregating, and analyzing data

It's rare to encounter a company that has only one system that stores data for the entire company to access. After all, the sales team collects certain types of data that may be of no use to the recruiting team and vice versa. Different departments have different needs that result in various systems being introduced into the data and analytics mix.

In a perfect world, every business process-related system on the market today would seamlessly and flawlessly work together. There would be no issues with downloading and importing data into one or connecting data from multiple sources into one location in order for analysis to take place.

Unfortunately, this world isn't perfect, and there will always be systems out there that simply don't "play nice with others." While it's an inconvenience, that solution provides exactly what the company in question needs, so

they look past the limitations and “just deal with it.” (Again!)

Not only is this severely limiting the aggregation and analysis of a company’s data, but it can be very expensive if the solution in question has limitations that can be corrected only with the purchase of an entirely different solution. It becomes expensive and very unruly after a while.



TIP

Early on, take the time to understand the current situation properly. Many companies tend to jump on the first solution that comes along, but that rarely solves more than parts of the problem. Taking the time to really identify and understand your main roadblocks toward achieving your business goals should be your main focus when getting started.

For example, if your company aspires to become a truly data-driven organization, you need to make sure that your data can be trusted (single source of truth); that it’s available and timely; and that the outcome of the analysis, the insights, are accepted and actually used for decision-making and for driving transformation.



REMEMBER

Focusing on the overall business goal and breaking down the challenges hindering success, one by one, will make it easier to get the right focus from start and thereby set the right foundation for your company’s data and analytics investment going forward.

IN THIS CHAPTER

- » Diving into Augmented Analytics
- » Exploring data visualization
- » Taking advantage of data enrichment
- » Accessing data on the go with mobile

Chapter 2

Learning About Augmented Analytics

Today's business intelligence calls for more than just your run-of-the-mill analytics abilities. In today's ever-changing business landscape, it's imperative that you have access to the right data at the right time in order to make the most informed business decisions possible on the spot.

What makes Augmented Analytics so powerful is the embedded Artificial Intelligence and Machine Learning capabilities that enable accelerated analysis and smart recommendations.

In this chapter, you discover what Augmented Analytics from Oracle is and all the features and benefits that come with it. We take you through things like data visualization capabilities as well as data enrichment, where the technology offers recommendations to add new data fields or new data to add and include in the analysis, for deeper insights. Finally, you dive into the robust mobile features that will keep you connected to your data, regardless of which step in the analytical process you are on.

Explaining Augmented Analytics and the Role of Machine Learning and Artificial Intelligence

According to International Data Corporation (IDC), companies will be storing more than 100 trillion gigabytes by 2025. That's ten times the amount of data created just a few years ago. As a result, companies are finding themselves struggling to keep up.



REMEMBER

Data is everywhere. It's generated by all types of connected devices, including traditional ones, such as mobile phones, computers, and tablets, to everything from connected cars, smart home devices, and soon entire smart cities. It offers you a point of sale, by different groups like customers and suppliers, and is captured both in-house in various on-premises solutions, as well as in the cloud.

The fact of the matter is that in most cases, modern business data processing and analytical capabilities just aren't able to handle it all. As a result, companies are making business decisions based on only the data they have or that they are able to make sense of, which is limited at best and incomplete/out of date at worst. This approach doesn't only open up for mistakes to be made, but also means lost opportunities to grow the business.

Artificial Intelligence (AI) and Machine Learning (ML) techniques help you optimize your analysis and support faster time to insights, which ultimately leads to quicker decision-making. With faster decision-making, your company has a better chance at reaching desired market windows, hence staying more competitive over time. AI/ML support automation of routine tasks and help uncover deviations or hidden patterns in the data, which could be used to predict an event in the future or prevent an undesired event from ever happening.

Figure 2-1 shows the relationship between AI-powered analytics and business value.

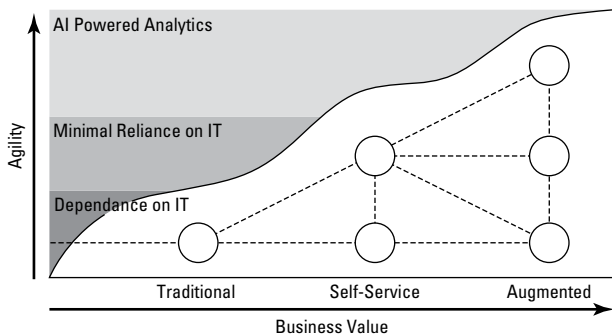


FIGURE 2-1: AI-powered analytics versus business value.

Augmented Analytics includes embedded Artificial Intelligence (AI) and Machine Learning (ML) to drive intelligent and trustworthy insights on key data. In Chapter 1, we talk about all the challenges that today's businesses face when it comes to ensuring and protecting data integrity. Augmented Analytics is how you can facilitate this for your business.

Improving and facilitating analytic tasks

A vital starting point for your analytics endeavors is to know your business objective and secure the data needed to run your analytics. However, the data you're using also needs to have sufficient quality to be trustworthy and generate reliable results to act on. Even if you start off by having good quality data available, how do you maintain

quality over time, as many company stakeholders are using it across the business?



REMEMBER

With the right solution, a single source of truth is possible. Such a solution must provide a unified view of all available data from internal and external sources to ensure that all departments in the company are working from the same data to avoid discrepancies.

Utilizing AI to drive business decisions

Although techniques like AI will help you analyze smarter, automate workflows better, and empower your company staff, you need to consider other important capabilities. AI capabilities for data preparation, visualization, intelligent predictions, and mobile access are also vital to have in place. All these capabilities allow you to, in a data driven and explorative way, quickly gain the insights you need to make more informed business decisions, underpinned by data that is reliable and timely.



REMEMBER

Augmented Analytics is all about augmenting and automating the human capabilities in your company with techniques such as AI/ML to secure better quality in the analytical process. And when the AI technology is embedded in the solution, you don't need to be a data scientist to leverage its advantages.

The five components of Oracle's Augmented Analytics, shown in Figure 2-2, are

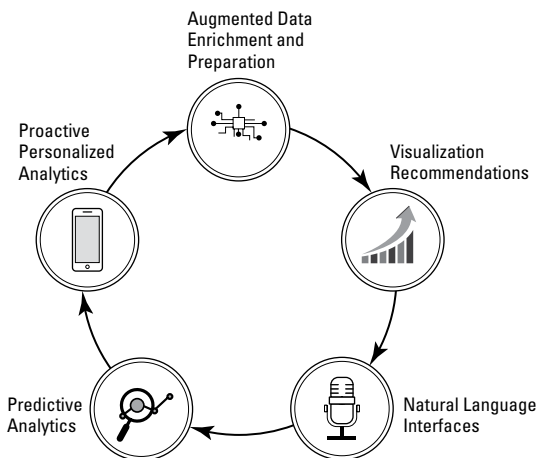


FIGURE 2-2: The five components of Oracle's Augmented Analytics.

- » **Data Enrichment and Preparation:** Uses machine learning to recommend new data sets to include in your analysis.
- » **Visualization Recommendations:** Instantly get chart recommendations that are based on data results.

- » **Natural Language Interfaces:** Provides natural language processing for natural voiced-based queries as well as natural language generation to explain the data in text format.
- » **Predictive Analytics:** Includes one-click forecasting, which supports the trending and clustering of data.
- » **Proactive Personalized Analytics:** Located within the mobile application, analyzes different factors, such as your location, to determine what to present to you based on where you are and translates speech to text for voice-based queries and alerts you when new data is available.

Discovering Data Visualization

Picture this: You have a data set in front of you, and you have to explain the story the data is telling you to a group of executives. You know that using visuals would help people better understand the data, but you can't figure out the best chart or graph type to use that would capture the entire idea. While this example is oversimplified, the idea is the same: Sometimes it's challenging to find the perfect way to illustrate the story the data is telling.

This situation is where the idea of data visualization comes into play. *Data visualization* is the technique used to create visuals to explore data, illustrate findings, and explain results.

Learning about data visualization

Organizations are much more data-driven than in the past. Gone are the days when important business decisions were made without having a clear picture of the entire business environment.

In data visualization, the system autogenerates a view of the data set, which helps you display and identify patterns or deviations in the data that may have been hidden. In other words, using data visualization techniques helps you identify drivers of the results, factors that influence behavior, and anomalies where the data is showing things that don't mesh with the expected results.

You can use these insights as a starting point for further analysis and discovery so that you can find the right answer quickly. Furthermore, in Augmented Analytics from Oracle, data visualization capabilities include automated chart recommendations to find the perfect visual for your data results. The chart recommendation depends on the nature of the data set you're using.



REMEMBER

Over time, as you become more knowledgeable about the data and how it performs, ML capabilities built into the system will allow you to identify and learn which data patterns are causing problems. This will in turn enable you to understand what is likely to occur before it happens. From a management perspective, you can become proactive and take preventive measures, rather than being reactive and having to solve the problem after the fact.

Avoiding bias

While more and more companies are starting to recognize the importance of utilizing data in even the most routine, day-to-day decisions, there are still some limitations to how they go about it. A vital part to consider when investing in a data-driven approach in your company regards how to avoid unconscious bias to influence your important business decisions. *Bias* can be described as a tendency to lean in a certain direction, either in favor of or against a particular thing, without realizing how it actually impacts analytical results.

One example of bias is *confirmation bias*. This type of bias occurs when the person performing the data analysis wants to prove a predetermined assumption and therefore discards everything in the analysis that could prove the assumption wrong.

Another example is *selection bias*. This common bias occurs when data is selected subjectively, increasing the risk of data not fully representing the intended scope being analyzed.

It is important to always be aware of bias and how it could influence your results, ensuring that apples-to-apples analyses are going on. Although bias is difficult to completely eliminate, it can be handled by using techniques like Machine Learning to help recommend which data sets are representative for a certain analysis.



REMEMBER

As humans, we naturally bring our experiences to the table in virtually all decisions we make — business decisions included. There's nothing inherently wrong with that fact, but there's no room for human bias when it comes to making informed business decisions.

Having access to data

At the beginning of this section, we touch on an issue that people in all lines of business all over the world encounter all the time: how to visualize complex problems, opportunities, or challenges using data in a way that it's understandable to the target audience and at the same time does not require specialized skills by the user.

Data visualization must be easy and support data exploration by the business user to support flexibility and speed. After all, what is the point of acquiring the latest

data to work with if you have to wait for another department to assist you in creating sophisticated charts and graphs? And even then, it's important that the capability be user-friendly, meaning (among other things) that your average user doesn't need to know how to code in order to get the most out of the tool.

IT departments are swamped these days. They're responsible for everything from user on-boarding to equipment tracking to security and implementation of new software (and hardware) platforms. It's no wonder that providing users with access to data can sometimes be at the end of their to-do lists.

That's why users having access to the data they need without IT intervention is fundamental. Throughout this chapter, we discuss the importance of having access to real-time data in order to make on-the-fly, informed business decisions. Delays in getting the applicable data can cost the company resources — both current and future.

Figure 2-3 shows an example of an automated data visualization project showing product sales by region. The charts update in real time as the data changes.

But it's not just about being able to make sense of the data. Users also have to be able to act on it quickly to make business decisions that may have (hopefully positive!) far-reaching effects.

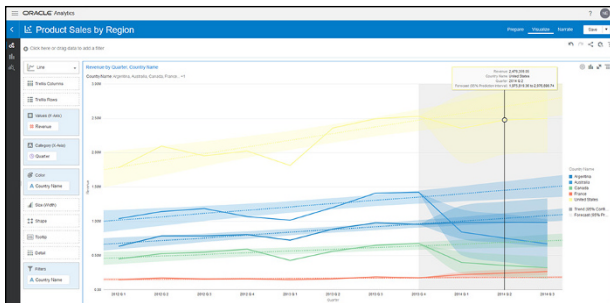


FIGURE 2-3: Sophisticated charts automatically created based on real-time data.

Discussing predictive and advanced analytics

Predictive analytics have traditionally required the expertise of data scientists who create sophisticated models and algorithms for you. Depending on resources, you may have to wait quite a while for them to get to your request. When you're utilizing time-sensitive data, you can't afford to wait.

Some of the most important functions in data analysis can now be done with one click, ensuring important insights are delivered to decision-makers quickly. These features are perfect for things like predicting customer behavior, identifying cross/up-sell opportunities, and anticipating future product demand.

The following list describes the predictive features and their uses:

- » **Forecasting** uses historical data to make informed predictions that determine the direction of future trends. Businesses utilize forecasting to determine how to allocate their budgets or plan for anticipated expenses for an upcoming period of time.
- » **Trending** gives actionable insight into recently observed trend data and is based on the idea that what has happened in the past is a good indicator of what will happen in the future.
- » **Clustering** is the grouping together of a collection of objects on the basis of similarities and differences between them. It allows you to see patterns where you may not have been able to before.
- » An **outlier** is a data point that is significantly different from other observations. Outliers are deviations from previously identified patterns. When you find outliers, it's a good practice to pursue their origins to ensure nothing is wrong with the data.

Automatically creating narratives from visual charts

Natural language generation (NLG) is where the machine interprets the visual data into easy-to-understand, natural

language text. In other words, the computer uses words to explain what is happening graphically. This is where machine learning comes into play. Over time, the system will become “smarter” and the output more sophisticated.

Furthermore, when the data changes, the report doesn’t need to be rewritten because data updates are immediately reflected in the narration. Another benefit is that the generation of narratives on output increases productivity for many roles in the business because users can customize the narrative to the audience that is receiving the information.

Preparing and Enriching Data

It’s common in today’s business world for users to export their data sets from corporate systems and modify that data using common spreadsheet programs. Unfortunately, this approach leaves a lot of room for human error and it is extremely difficult (if not impossible) to maintain control over these files. In other words, there is never a single source of truth.

Another challenge is that many data enhancements, whether they’re to prepare or enrich the data, require coding skills to program and run scripts. This isn’t the case with Oracle Analytics. With self-service data preparation, nontechnical users can connect to the data they want and prepare it quickly and on-the-fly, all without the intervention of the IT department.

Driving recommendations with AI and Machine Learning

You used to be limited to the data that you had direct access to. It wasn't uncommon to be working with data sets that were incomplete, insufficient, or even incorrect at times.

By using ML models to provide data preparation recommendations that suggest enrichments and transformations to data, you can avoid a lot of the earlier data quality and data preparation problems.

Benefits of ML-driven data preparation support include the ability to

- » Enhance data without coding skills
- » Easily search for key words across all available data
- » Share and trace business data transformations
- » Use various and relevant data sources as input
- » Reduce risk and save time without having to use Excel

Capabilities like *smart fields* automatically enhance the data set with additional reporting fields that make the most sense. For example, if you're working with a data set that has a City column, the system will make recommendations based on it, such as adding the specific postal code area that particular city is in.

Figure 2-4 shows example recommendations made on a data set. The recommendations capability enables business users to blend data from a data warehouse or other corporate applications, as well as add their own internal data sources.

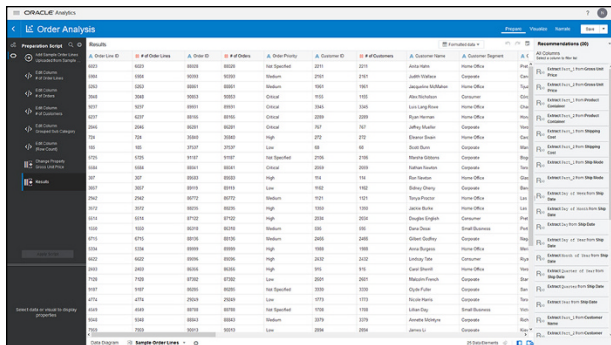


FIGURE 2-4: Smart recommendations are on the right side of this data set.

Tracing business data

Throughout this book, we talk about the importance of a single source of truth. The idea is that regardless of who accesses the data (within their permissions level) and where they access it from, the data is going to be the same for everyone.

A challenge of having multiple people accessing data is that sometimes mistakes can corrupt the entire data set.

Or maybe no mistakes occurred, but instead you had surprising insights that you want to follow up with a coworker. With Oracle Analytics, you can quickly determine where and when specific changes were made and who made them.



REMEMBER

As with any application, ensure team members are only given the appropriate access permissions for their job function to prevent any mishaps.

Taking advantage of automated data corrections and data healing

Data healing is a term used to describe the functionality where the system detects and fixes a data or spreadsheet column that came in as the wrong data type. It informs users of invalid data, such as inconsistent formats and possible misspellings, based on reference knowledge and proposes corrections with single-click recommendations.

For example, if data was imported and it was eight numbers, the system can analyze the context and make the appropriate changes, such as converting it into the date format of MM-DD-YYYY.

Now imagine that change being made in multiple columns in data sets with tens of thousands of entries (or more!). Needless to say, it's quite the timesaver. This capability is only possible because of embedded machine learning capabilities.

Enhancing the Mobile Experience

According to Pew Research Center, 81 percent of Americans own a smartphone, up from 35 percent just eight years ago. With so many people utilizing mobile devices, it's no wonder that more and more people are conducting business via their cell phones.

After all, business doesn't stop just because you're not at your desk. It's important to be able to access the information you need, when you need it. And when you're talking analytics, it's even more important that the information be the most up to date.

Exploring Natural Language Processing

One of the core capabilities of Augmented Analytics is *natural language processing* (NLP). NLP allows for speech recognition or voice queries when using mobile devices, but also allows you to search by typing natural text instead of a query language like SQL.

For example, if you want to analyze phone revenue in Germany for a specific data range, you can just type *Revenue for Germany for phones for 2012 to 2014* instead of needing to know SQL and the names of the fields in the

databases (for example, Sales Rev__ EMEA AND phone__ product and years__ 2012 + years 2014).

Facilitating collaboration and data sharing

Collaboration between colleagues is important even when you're on the road. The analytics app learns who you like to share and collaborate with, making future collaboration with them seamless. Since everyone is working from the same data set, you can make public comments, create private discussions, and even share insights via third-party apps.

Intelligent Assistants with proactive analytics

Augmented Analytics will get you the right data at the right time, and it's all up to date. It's no different with the mobile app. Thanks to machine learning, the app learns what data you're the most interested in and serves you the latest view of your key metrics. Figure 2-5 shows recommended charts based on data that has been interacted with in the past.

This feature can be triggered by a schedule you set or geo-location. So, if you cross a geo-fence on your way to your destination, your data is automatically refreshed in real time. Furthermore, you'll get alerts whenever your data is updated.

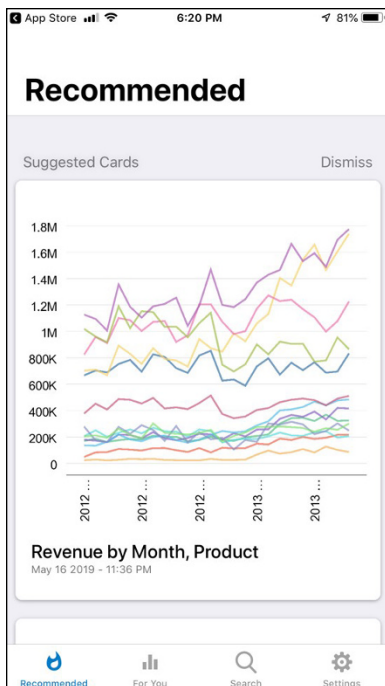


FIGURE 2-5: The app shows charts based on data previously interacted with.

IN THIS CHAPTER

- » Discovering the benefits of self-service capabilities
- » Enhancing your efficiency with centralized analytics
- » Exploring the value of scalable cloud analytics
- » Managing many different data sources
- » Experimenting with various business scenarios
- » Taking business reporting to the next level

Chapter 3

Choosing the Right Analytics Solution

A number of business analytics solutions on the market today promise to make your life easier. While they can provide access to data sets and

have built-in reporting capabilities, those features are often run-of-the mill features.

Today's business landscape requires next-generation data analysis and visualization capabilities in a solution that offers the most up-to-date data sets in easy-to-understand formats so that anyone can make informed business decisions in the moment that they need to.

In this chapter, we go through the features of cloud analytics and why these capabilities are important factors to consider as part of your analytics investment and when choosing the right analytics solution.

Additionally, this chapter address how to move from traditional data analysis to self-service analytics and how this is freeing up your IT team to do other important tasks. The self-service support allows you to access the data whenever you need it, without the intervention of others. But it also includes built-in analytics support for driving the analysis forward yourself, without having to code or build statistical models from scratch.

Augmented Analytics (AA) includes embedded Artificial intelligence (AI) and machine learning (ML) to drive intelligent and trustworthy insights on data. By augmenting your analysis with techniques such as AI and ML, you are moving beyond traditional, human-driven analytics, adding new dimensions and value to your analytical results.

Some of the most helpful functions in data analysis can now be done with one click, ensuring important insights are delivered to decision-makers quickly. These features are explained in this chapter.

Speeding Up with Self-Service Analytics

Do more, faster. With self-service analytics, you no longer have to rely on the IT department to access, prepare, and analyze and collaborate on the data you need to work with. You can do it all yourself, which means quicker insights.

Make the most informed decisions whenever and wherever you need to, utilizing helpful features, such as data visualization, where you can explain the results of your analysis using things like automated chart recommendations.

Self-service is more than just access to visualizations, however. Self-service analytics helps your business stay nimble with faster time to insights.

Some key features for self-service analytics include

- » Data preparation for the business user
- » Data visualization for self-service visual analytics
- » Collaboration for shareable and traceable analyses

Furthermore, chances are that your average business user isn't a covert data scientist, and they're not developing algorithms and custom coding analytics tools in their free time.

You shouldn't have to be a data scientist or experienced statistician to analyze complex data and create stunning visualizations that clearly tell the story. Although most data scientists think that the value is in building models from scratch, the benefits are many of using analytics solutions with prebuilt and embedded algorithms and models that are ready to be used at any time.

That doesn't mean there shouldn't be an option to import customized models, however. If your company utilizes a specialized model, Oracle Analytics allows you to import it, to be utilized right alongside the embedded ones.

Focusing Your Efforts with Centralized Analytics

It's not uncommon for companies to have solutions that keep the organization's data secure — yet still accessible to the appropriate people — and a different solution to ensure that everyone who does need access to data is able to get the most up-to-date analytics available. But that doesn't have to be the case.

Centralized analytics allows you to keep all the important behind-the-scenes functions that used to be handled by disparate systems, all within one, all-encompassing solution, implemented on-premises or in the cloud.

Enterprise security

Keeping data secure at all times is, of course, key and must be part of the solution design from start. Oracle Analytics solution protects customers' sensitive data through integrated security solutions and high levels of machine learning based automation. Automation with ML is important since it decreases the administrative security workload for the users, as well as minimizes the risk of human error.

Single source of truth

Having a single source of truth is one of the top reasons why companies utilize business intelligence solutions. It's so easy for the chain of command of spreadsheets and other data documents to get lost and for figures to be edited, and as a result, the data is no longer the cleanest and most recent available.

When you can't trust the data you're working from, you should not be making any business decisions, let alone ones that could cost your company money.

You can be sure the data you're working from is the most up to date and problem-free, because everyone accesses

the data from the same centralized location. Oracle Analytics offers a unified, consolidated view of data across the organization.

Enjoying a Scalable Cloud-Based Solution

Companies are constantly growing, and they need an analytics solution that grows with them. In a time when financial resources are at a premium, it's important that the system they utilize be one that will continue to serve them, regardless of how much they grow over time.

Cloud deployment is one option with Oracle Analytics and with it comes the ability to quickly scale up (or down) as your business needs evolve and the elimination of worries surrounding running out of space.

If your business isn't ready for a cloud-based solution, Oracle Analytics's on-premise deployments are just as robust and can be customized to fit your growing needs.

Finally, Oracle Analytics offers a hybrid cloud-based solution that doesn't have to be either completely on-prem or completely in the cloud.

With growth comes changing resource needs. When you started out, maybe the company had only 200 employees of which half needed access to the data. You had no need

to restrict any data access either, as everyone needed access to everything.

As time goes on, however, and teams grow in size, there will be employees who don't need access to all the company's data. When you pair an analytics system with governance, restricting their access to only certain data sets is quick and easy. Rapid setup capabilities let organizations immediately create environments for efficient deployment with an agile approach.

Have you merged with another large corporation and now have an immense amount of data to manage? With a cloud-based solution, you can just rapidly scale in the cloud to meet growing needs.

Supporting Various Data Sources

Chances are, your data is going to come from various sources. Companies often hesitate when utilizing new analytics programs because not all solutions connect to other data sources, severely limiting your ability to work with rich data sets.

For example, we all have data in different applications, such as CRM, HR, finance, and supply-chain systems. Each system has its own reporting capabilities. While you can pull the reports, analyzing all this data holistically is

difficult. After all, even if you have two sets of data right in front of you, it's difficult — if not impossible — to get a unified view across all the data without merging it. Figure 3-1 shows the key elements of choosing the right analytics solution.

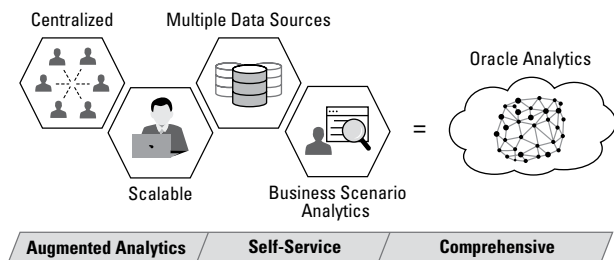


FIGURE 3-1: Elements of the right analytics solution.

However, if you move out of the report view and focus on the data instead, Oracle Analytics allows you to analyze across all data sources using existing connectors, giving you the big picture of the business performance. All of this is done in real time, through existing connectors, which allows you to

- » Improve strategic decision-making by leveraging both the historical state of your business as well as the current state

- » Leverage machine learning to uncover new business opportunities with access to hidden patterns
- » Optimize business processes with improved productivity and efficiency

Exploring Different Business Scenarios

One of the most useful capabilities of Oracle Analytics is the ability to simulate different complicated business scenarios to ensure that you're making the best, most informed decision you can make using the most current data available.

Oracle Essbase takes complex financial modeling and turns it into easy-to-understand, fully visualized what-if scenarios. It brings together available data sets from across the business and creates a multidimensional business model with a single click.

It supports what-if analysis for varying conditions to forecast business performance levels. You can collaborate in the data analysis, including modeling multiple assumptions and their effect on the business.

It's not just for complex data analysis, however. Oracle Essbase is a solution for generating basic workflows as well.

Empowering Your Enterprise Reporting

In businesses today, it's no longer enough to present data utilizing your run-of-the-mill suite of office productivity tools. Sure, those are sufficient, but not if you really want to impress your audience and present the data in a visual form that will not only look highly professional but makes it easy for everyone to understand and follow.

The data has a story to tell and the enterprise reporting capabilities with the report designer built into Oracle Analytics allows you to do just that.

You can quickly and easily prepare customized role-based analytic reports with an intuitive drag-and-drop graphical report design tool. Key personnel will always have consistent access to the latest information because you can automatically schedule report execution and delivery in a mass production environment.

- » Making the most of connected business functions
- » Determining how different departments benefit analytics

Chapter 4

Exploring Ten or So Business Benefits of Augmented Analytics

Every business function in a company benefits from taking data-driven decisions. Whether it's for budgeting, campaign planning, or human capital, data gives you a fact-based view of the business landscape.

A data-driven approach also helps pinpoint areas that need more attention, positive or negative.

However, you must be able to trust the data used for decision-making. Staying on top of your data management procedures to ensure data quality is crucial, but so is having access to fresh, relevant, and representative data. It's important that the data can be accessed in real time and that it's handled in a way that it ensures a single source of truth. In other words, it's imperative that every department — every business function — draws from the same pool of data.

In this chapter, you learn about ten or so business functions that benefit from utilizing Augmented Analytics in today's dynamic and connected businesses.

Describing the Value in IT

Like other departments in a company, IT departments also have limited resources. So, how do you avoid that the IT department becomes a bottleneck? The answer is Augmented Analytics along with self-service capabilities. This approach allows departments who would traditionally lean on the IT department for data to access and manipulate data on their own. This is an efficient way to make data and analysis easily available to more users, but it also increases efficiency in the analysis and drives shorter lead-times.



WARNING

However, when the human element is introduced into data analysis and manipulation, there are many opportunities for errors and anomalies.

By automating routine data management steps and unifying the data into a single centralized data storage, accuracy and consistency can more easily be maintained. This facilitates cutting down on the intervention needed from the IT department and enables the IT department to maintain focus on its own analytics efforts in prioritized areas, as well as free up time for IT innovation.

Enabling Proactive Marketing Campaigns

Data is the secret to any marketing department's success. When you have relevant data supporting your real-time analytics, you can gain better clarity for your own marketing campaigns and also support your customers in a relevant way.

With Machine Learning and Artificial Intelligence capabilities embedded in your analytics solution, marketing campaigns can be automatically personalized to fit customer preferences. This will help you understand your customers better.

These capabilities also allow you to perform predictive analysis resulting in proactive marketing campaigns. With live streams of data and ML support embedded, you can engage with customers in real time and perform analysis at the same time, for example, in a social media setting. It will help you optimize customer conversions, more easily measure ROI, and enable you to stretch your marketing budget even further.

Improving Financial Reporting Efficiency



TIP

By letting the data guide you to new insights, instead of just blindly following your reporting templates, you can turn insights into dynamic financial reporting that offers a wider context to your data-driven decisions.

By using an Augmented Analytics solution with embedded ML functionality and automated actions, you will also reduce the risk of influencing financial results due to human bias. An important aspect to consider is that connecting and structuring your various types of data in a common data storage will increase your financial reporting efficiency and provide a better base for accurate models.



REMEMBER

In most companies, the data types that are needed are residing in different databases and applications across the organization. Consolidating the company's data will help facilitate that you're always working from a single source of truth.

Enabling Proactive Sales

Break down the sales cycle and take an in-depth look at all the different variables that come into play when consumers make purchases. To understand the driving force behind a purchase, you need to analyze the data and look for patterns of behavior.

For example, when you think about your customers, you must study them from a customer lifetime value perspective. You should ask questions such as the following:

- » Why is this customer attracted by my products or services?
- » What are their buying patterns?
- » How can I increase sales to a certain type or group of customers with similar purchasing patterns?
- » Who are my top customers?

- » How can I make them stay loyal and avoid churn?
- » How do I set the right price?

When you have access to a self-service based analytics solution with real-time sales data, you can analyze price sensitivity and understand how to utilize dynamic pricing based on what the data is telling you. It is possible to explore various price models and test price sensitivity very efficiently.

Depending on your sales model and how closely you work with your customers, you may get an immediate response on your dynamic price model and therefore be able to easily adapt to the customer response.

Improving Human Capital Management (HCM)

More and more Human Capital Management (HCM) leaders are starting to use data more strategically to try to better understand how their decisions affect the daily business.

It is clear that when HCM leaders are supported by data visualizations and predictive modeling capabilities, they become empowered to identify elements that can impact their overall budget. This includes payroll metrics for insights on elements such as benefits, overtime, and absenteeism.

Recruiting and Keeping Your Talent

Predictive analytics allows you to anticipate workforce needs to ensure your goals align with business needs. The result is, of course, to determine the right skills that support your long-term objectives.

Are your attrition rates higher than usual? To answer that question, you have to ask yourself whether you're using the right sources of data. For example, tapping into insights from employee sentiment analysis, as well as data from the company on-boarding experience is vital for gaining a better understanding of what is going on. The right data can help shed light on why attrition rates are going up and better understand what isn't working in your recruitment efforts. After all, it's more cost-effective to keep an employee you already have than to continually find new ones to replace them.

Increasing Supply-Chain Efficiency

The supply chain is made up of numerous independent pieces that have direct and indirect impacts on each other. By using data and analytics to gain better control over your supply chain, you're able to make more

informed decisions and get a better understanding of process inefficiencies.



REMEMBER

It's not a question of using data sometimes, but establishing a data-driven organization allows your organization to optimize supply-chain performance on a continuous basis. By integrating data from across the enterprise, you will allow executives, managers, and employees to make more informed and actionable decisions every day.

Other important supply-chain benefits are increased visibility into the complete supply-chain process, including areas such as

- » Procurement and spend analysis
- » Supplier performance and payable analysis
- » Inventory analysis

Problems arise, however, if important data becomes (and remains) siloed and inaccessible to employees and managers. Making the data available and reliable is key to driving well informed and fact-based decisions in your company.

With an Augmented Analytics solution, it becomes easier to consolidate data sources. You can add various predictive analytics applications as needed to assist you in

performing real-time status optimized orders, increasing sales, and gaining control of payments coming in.

Optimizing Procurement

Procurement management has countless moving parts that all need to sync up in order for processes to continue to run smoothly.

A good analytics solution provides visibility into spending across departments with access to real-time data so that budgets can be stretched. It consolidates data sources to assess inventory levels, predict product fulfillment needs, and identify potential backlog issues.

The solution offers deeper visibility into every aspect of sourcing and procurement analytics and helps organizations gain a better understanding of how the spending looks. It supports identification of areas for improved efficiency, as well as oversight into aspects like spending by category and account.

When data management is improved, it also translates into timely, compliant, and proactive contract management. Streamlined visualizations of data and findings also make it easier to spot trends and share insights with a variety of stakeholders, increasing the chance of making a bigger impact overall.

Augmented Analytics

Empower
Business with AI
and Data-Driven
Insights

oracle.com/analytics

ORACLE

Use AI to analyze data and make decisions faster

As companies collect massive amounts of data, the need to analyze, interpret, and make data-driven decisions is critical for success. *Oracle Analytics For Dummies* introduces you to the next generation of analytics using Artificial Intelligence (AI) called Augmented Analytics. AI automates both data discovery and data analysis. Augmented Analytics includes always on, always learning AI technologies that present the right information, to the right people, at the right time on any device.

Inside...

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Julie Shevlin is Sr Director, Product Marketing, Analytics and Big Data at Oracle Corporation. **Barry Mostert** is Sr Director, Product Marketing, Analytics at Oracle Corporation

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