Beyond data: The opportunity for analytics in CRE

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Introducing the JLL CRE Data and Analytics Series

This is the first in a thought leadership series exploring the challenges, opportunities and perceptions of data and analytics within corporate real estate (CRE) worldwide.

In this report, we link CRE teams’ ability to drive competitive business advantage to the effective creation, management and use of data.

In our second publication, we consider how CRE teams can embrace data and analytics to transform data into actionable insights, and how technology supports this process.

Our third piece illustrates how CRE capabilities in data and analytics correspond with their evolution in terms of outsourcing maturity.

Finally—in partnership with leading business and technology research group, Forrester—a global market study explores the depth and potential of data and analytics in the CRE industry. This research provides an unprecedented view into the current state of CRE data and analytics, future opportunities and potential inhibitors to progress.
The immediate need for data and analytics to inform corporate decision making has intensified in recent years.

The past decade brought increased pressure on businesses to optimize performance, comply with regulatory demands, deliver operational efficiencies, and find new opportunities for generating revenue. Seeking new sources of intelligence to address these demands, businesses turned to the expanding volume of structured and unstructured data available from inside and outside their organizations.

At the same time, technological improvements have increased the capacity (and decreased the cost) of data storage and the availability of enhanced tools that support deep analysis. Data can now be processed almost instantaneously—something that is of crucial importance in an era when rapid, real-time decision making is at a premium. Adding to the mix is the power to integrate internal corporate data with external data, such as financial and macroeconomic statistics. With analytics, we can detect hidden correlations and patterns in the data, predict future trends, and deliver previously inaccessible business insights.

While data and analytics are inextricably linked, they have different roles. Our first paper in this series, Data-centric CRE: A competitive imperative, highlighted the importance of robust, high-quality and well-structured data as a foundation for generating knowledge and insight within an organization. Analytics is the application of processes and techniques that turn data into actionable insights that can improve business performance.

The increasingly sophisticated use of analytics has led to powerful shifts in how companies make decisions, innovate, strategize, and, ultimately, edge out the competition. According to a recent Bain & Company study, early adopters of big data analytics have gained a significant lead over other companies (Fig 1). Similarly, 66 percent of respondents to a survey by the MIT Sloan School of Management in 2014 indicated a gain in competitive advantage from data and analytics, up from 37 percent in 2010.

The breadth of CRE activities and the data they generate means there is great potential for analytics-driven insights across the CRE life cycle. As CRE teams focus less on physical space and more on enabling productivity across the enterprise, the insights that analytics enable are all the more enticing. For example, real-time monitoring of space utilization can help companies optimize their real estate footprint, tailor services to employees, and design spaces that match work patterns—thereby improving overall productivity.

Historically, most CRE functions have not been able to capitalize on the analytics opportunity because the prerequisites for accurate and impactful analytics—access to complete, high-quality data sets as well as robust and repeatable processes—are not yet in place. Once these fundamental underpinnings of analytics are established, CRE teams will be able to provide rich, new insights that drive productivity, cost reduction, operational enhancement and competitive advantage for their organizations.

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### Figure 1: Early adopters of data analytics gain a significant lead

- **2x** as likely to be in the top quartile of financial performance within their industries
- **5x** as likely to make decisions much faster than market peers
- **3x** as likely to execute decisions as intended


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The evolution of analytics

Although we associate analytics with technological power and complexity, the concept is not new. In fact, we used analytics long before computers—it was just more time-consuming, less accurate, and focused on understanding the past. Technological advances have exponentially improved our ability to capture and process data while increasing the impact and integration of analytics within the organization (Fig 2). From capturing historical data in tabular reports, to today’s advanced demands for modeling future outcomes, technology has spurred the evolution of analytics into an integral part of business decision making.

The list of analytics techniques is long and constantly evolving (Fig 3 shows a selection). Some techniques emerged in the pre-computing days; others were developed or improved specifically to tackle the large, complex data sets available today. The key is to select the most suitable technique for achieving the desired goal (Fig 4).

For many of the key questions that vex CRE executives, the most relevant analytics techniques are grounded in fundamental mathematical and statistical processes, such as:

- Online analytical processing (OLAP)
- Advanced data visualization
- Predictive modeling and data mining
- Prescriptive modeling, simulation, and optimization

Figure 3. A selection of analytics techniques and processes relevant to CRE

- **Online analytical processing (OLAP)**
  Allows users to quickly execute complex queries and extract analyses from large, multidimensional data sets

- **Advanced data visualization**
  Permits a more compelling display of data using interactive pictures and charts instead of static rows and columns

- **Predictive modeling and data mining**
  Analysis of historical and current data using a variety of techniques to generate a model that can predict future outcomes

- **Prescriptive modeling, simulation, and optimization**
  Not only predicts future outcomes, but also recommends actions to manage them

Source: JLL, Gartner
as regression analysis. Building an algorithm or model to determine the relationship between variables, testing it against historical data, and continuing to test and validate over time to generate statistically significant results still works.

For example, we can model the relationship between employee productivity and various measures implemented to increase it to understand which tactics are most effective. We have always been able to run such an analysis; the difference is that we can now process more data faster to generate more accurate and compelling results.

One notable technique is advanced data visualization, which can help to surface insights (Fig 5). Visualizations in the form of tables or dashboards have long been commonly used. Advanced visualizations use images to help make large, complex data sets—as well as patterns and relationships within them—easier to understand, more interactive and accessible. They can help CRE executives to tell a more compelling story and increase their reach and influence within the organization.

An example of the power of visualization in corporate real estate. In the past, client lease expirations would be displayed in a simple bar chart (top). With advanced data visualization (bottom), it is possible to plot lease expiration volume against predicted real estate market conditions in different geographies, where red indicates landlord favorable markets, green indicates tenant favorable markets, and volume of lease expirations is shown by size of bubbles. Dates can be changed to create a dynamic picture of how both market conditions and expirations are expected to evolve. This can quickly identify locations where there are risks and opportunities for occupiers, and help support better decisions about expiring leases.
Analytics in action

The application of analytics in business usually falls into one of two categories: identifying operational inefficiencies or highlighting strategic opportunities. Many companies still primarily use analytics to unearth improvements in operational efficiency. Technology companies have been at the forefront, exploiting predictive modeling capabilities to drive significant efficiency gains. For example, Google developed analytical models that processed hundreds of millions of data points on the power usage of its servers over a five-year period. This exercise enabled Google to map energy demands and load patterns, predict the energy efficiency of its global data centers to 99.6 percent accuracy, and pinpoint opportunities to slash energy consumption.

In CRE, there is a wide array of opportunities to drive operational efficiencies through analytics, ranging from workplace utilization to portfolio optimization to energy management. Analytics is increasingly used in facility management to improve day-to-day operations and space functionality. For example, with access to detailed data on system and facility performance, predictive analytics can be used to forecast asset failures and create risk-adjusted models. This means replacement decisions can be made before a failure. The benefits can be vast, including reduced operations downtime, more efficient and customized building management systems, and lower operating costs.

This is just the beginning. According to MIT, ‘analytical innovators’ (those at the forefront of using analytics to create a competitive advantage) are now more likely to use data and analytics to generate insights and identify strategic opportunities, rather than focusing solely on operational issues.

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Companies such as eBay, Amazon and Netflix directly influence buying behavior in real time through the use of predictive analytics. By analyzing large sets of historical user data (who buys what, when and where), companies can identify trends in customer buying behaviors and predict future patterns. This insight is then used to develop an enhanced product offering and advertising tailored to customers’ specific habits.

Analytics can have a similar strategic impact in CRE. For example, there is significant opportunity to apply analytics in portfolio and location strategy. To determine
the potential sales opportunity in a particular trade area, retailers rely on the analysis of multiple data sets, including demographics such as per capita income, when making location decisions. The same methodology can be applied to office locations.

Companies can use algorithms to assess how factors such as the quality of amenities (restaurants, childcare, gyms, etc.) and the proximity to transport options make a location attractive to potential employees. Using analytics, we can generate a detailed statistical picture of the surrounding environment. By comparing such an analysis with previous location decisions, as well as benchmarking against indicators such as employee satisfaction scores, a model that underwrites the success of different location choices can be created.

The workplace is another area of opportunity. Many companies are adopting innovative workplace strategies to improve employee and business productivity. However, these companies often lack the data and analysis required to support these strategies and, instead, rely on reduced cost-per-square-foot or increased utilization rates as measures of success. Analytics can be used to combine input from different data streams, correlating new workplace initiatives with value drivers such as employee attraction and retention, client satisfaction, speed to market, or other relevant performance indicators. Although there isn’t a consistent methodology to define employee engagement or worker and workplace productivity today, there is a huge opportunity for analytics to help measure and optimize productivity initiatives.

Such analyses have always been at the heart of CRE activities. However, as opposed to using conventional methods, CRE executives can use sophisticated analytics tools and techniques to extract higher quality and more meaningful insights from the sea of raw data. This ultimately facilitates better informed decisions and reduced risk.

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2 JLL, Forget the workplace...for now, 2014
Getting ready for analytics

Applying analytics to CRE data offers significant opportunities for any organization. Before starting this journey, we have identified three key steps that can maximize the impact of analytics initiatives.

1. **Ask the right questions from the beginning**
   Don’t try to tackle too much, too quickly, or expect too much from analytics. Focus your approach by asking the right questions at the start, such as:
   - What business goals do we need to address through analytics?
   - Which problems, when solved, will have the greatest impact/return on investment?
   - What data (quality and volume) is required?
   - How will this effort be managed, and by whom?

   The answers will allow you to take a holistic approach to analytics and, thus, focus on alignment with business goals to maximize the impact of your efforts. It is important to balance analytics with common sense and logic; there are sound business decisions that do not require analytics. Depending on the desired outcome, analytics projects can demand significant resources, both financial and organizational. Thoughtfully answering these questions will help you avoid spending significant time or money on projects that will not provide the right value to your business, or which your organization does not have the capabilities to support.

   According to a 2014 Deloitte Survey, only 14 percent of companies have in place some forms of program that develop analytics talent. However, more than 60 percent want to build one within the year. This indicates the severity of the skills challenge and the urgency with which companies are trying to close this talent gap.

2. **Recognize your skills challenge**
   Moving from traditional database administration and data warehousing to analytics requires very different resources. Advanced skills are often required. However, data scientists—those who design mathematical models and algorithms that convert huge, fragmented data sets into clear business insight—are in high demand, and recruiting such talent into the organization can be challenging. To address this issue, consider supplementing in-house capabilities by partnering with external providers.

   Look for those providers that have developed and tested CRE analytics tools, and have specialists who can combine external and enterprise data to produce predictive analysis and intelligence. At the same time, train your CRE professionals how to apply analytics to decision making through in-house or external courses. Doing so will equip your CRE team to change their traditional approach to problem solving and proactively use insights to plan and execute real estate strategies.

   **Providing training and embedding an understanding of analytics among all employees will help build an analytics culture. Facebook has famously rolled out boot camps focused on teaching analytics tools to all employees, not just data analysts. The company’s data boot camp teaches employees how to conduct exploratory analysis, come up with hypotheses, and effectively communicate and present their findings.**

3. **Ready your organization**
   Having the right tools and specialists in place is only part of the solution. The real business value of analytics is only truly realized when the whole organization participates. Consider what you can do to help create an ‘analytics culture’. Partner with HR, communications and other key support functions to develop a robust change management process that encourages participation by all employees and collaboration across departments. Work with business leaders to secure the top-down support that is so critical to any internal change initiative, and ensure decision makers know how to leverage analytics-driven insights to guide business strategy.

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3 Deloitte, Global Human Capital Trends, Engaging the 21st-century Workforce, 2014
4 Fortune, What I Learned at Facebook’s Big Data Bootcamp, June 2013
5 IBM, Analytics: A Blueprint for Value, 2013
The emergence of data and analytics has disrupted many industries—a paradigm shift that will be equally disruptive to CRE. We are just beginning to understand how analytics can unlock opportunities for CRE to drive actionable insights and competitive advantage. As we have observed, there is great potential for analytics to identify unrecognized operating efficiencies and to underpin strategic decisions that are rooted in the real estate portfolio, but which affect the whole organization. Analytics also enables new business models, encourages data sharing across silos, promotes increased partnership across support functions and with the core business, and pushes the limits of technology. The key is to work from a solid foundation by starting with the most relevant and high-impact questions and data sets, identifying the most appropriate analytics techniques to address them and building the technical and organizational capabilities required to support the process.
About JLL

JLL is a professional services and investment management firm offering specialised real estate services to clients seeking increased value by owning, occupying and investing in real estate. With annual revenue of $4 billion, JLL operates in 75 countries worldwide. On behalf of its clients, the firm provides management and real estate outsourcing services for a property portfolio of 3 billion square feet and completed $99 billion in sales, acquisitions and finance transactions in 2013. Its investment management business, LaSalle Investment Management, has $47.6 billion of real estate assets under management.

ABOUT JLL CORPORATE SOLUTIONS

A leader in the real estate outsourcing field, JLL’s Corporate Solutions business helps corporations improve productivity in the cost, efficiency and performance of their national, regional or global real estate portfolios by creating outsourcing partnerships to manage and execute a range of corporate real estate services. Our platform of transactions, lease administration, project and facility management services is backed by our expertise in consulting, workplace and portfolio strategy to provide an end-to-end service offering. This service delivery capability helps corporations improve business performance, particularly as companies turn to the outsourcing of their real estate activity as a way to manage expenses and enhance profitability.