

Future-Proofing the CRE Industry

Is Commercial Real Estate's Innovation Curve Moving Fast Enough?



Table of Contents

- Overview 3**
- Executive Summary 4**
- The Rise of CRE Investment 6**
- CRE is Investing in Innovation, But Where? 7**
- The Impact of Data on Decision Making 8**
- Driving Competitive Transformation – The Road Ahead..... 11**
- Future Proofing the Industry..... 14**
- Conclusion 15**

Overview

Once considered an alternative investment, Commercial Real Estate's (CRE) position as a fourth asset class is now established and well-recognized. And while it represents an appealing income and yield opportunity compared to other asset classes, the sheer volume of global capital targeting CRE investment is pushing up valuations and compressing yields. Despite CRE being a less liquid asset class, investors working in today's 'on-demand' culture and raised on a diet of instant access to information on their investments in bonds and equities, increasingly expect data visibility, accuracy and transparency in real time from their CRE investments. Technology is driving change in the industry to meet these expectations, with CRE leaders prioritizing technology and process improvement. But... the big question is: Is the industry investing fast enough in IT innovation and data-specific CRE technology?

In May 2015, leading international research firm IDC was commissioned by **ARGUS Software**, **Voyanta** and **Altus Group** to conduct a global survey to find answers to this question. The objective was to understand the implications of the CRE's shift to the fourth asset class, what it means for the industry, and how it's impacting CRE firms:

- Can CRE firms take advantage of the opportunities presented?
- What do they feel will be their biggest challenges?
- What can the CRE industry do to future-proof itself?
- How can the industry – and individual CRE firms – accelerate the technology innovation curve to take advantage of the unprecedented opportunities available?

Results of the global survey provide a unique look at asset & portfolio management applications and data management in the CRE industry, adoption of data-driven CRE technology innovation and the risks of not innovating quickly enough.

This report is based on the global quantitative survey of 320 CRE C-level and senior executives in front and back office positions at owner operator and owner investor firms, in North America, Europe, Asia Pacific, and Latin America. All firms represented in the survey had assets under management (AUM) ranging from at least US\$100 million up to US\$120 billion at the time of being surveyed, representing an approximate total AUM of over US\$1 trillion. The research survey was conducted by IDC between May to June 2015.

// Is the industry investing fast enough in IT innovation and data-specific CRE technology? //



Executive Summary

The CRE industry has spent billions of dollars future proofing its assets, be it Smart Buildings or obtaining the latest LEED certifications, all in an effort to ensure properties are current and competitive. But, what about the industry itself?

Relatively minimal dollars, in comparison, have been spent on CRE infrastructure and systems to ensure firms continue to capture the significant investment investors are allocating to CRE. If investors judge a firm's data management and reporting systems as archaic or 'out of date,' this could threaten their ability to attract the swathes of institutional capital predicted to be allocated to the CRE industry in the next decade. A key to addressing this is the investment in information management and data transparency to make fast, accurate and well-informed decisions regarding investments.

Protecting CRE's Competitive Position

The CRE industry's rise in investment importance to fourth asset class status has driven a globally competitive market. In this environment, leaders of CRE firms need to prioritize investment in asset & portfolio management technology and process improvements related to analytics and strategic planning to minimize the risk of losing their competitive position. The effect will be to increase investment returns through better decision-making enabled by strong data visibility and benchmarking capabilities. To reduce the risk of losing their competitive position in the global market, leaders of CRE firms need to proactively accelerate their investment in technology innovation.

Key challenges in modernizing asset & portfolio management applications and data management still remain, especially with regards to asset management software applications, investment reporting capabilities and tools for data management. For many CRE firms, the impact of these challenges is exacerbated by spreadsheet-based processes and/or unintegrated function-specific applications that result in data silos. As a result, substantial time and resource is required to aggregate data in order to obtain a portfolio-wide view. This can significantly hamper the timely, effective, data-driven decision making and reporting transparency that investors are increasingly demanding. Additionally, lack of data compromises CRE firms' ability to benchmark performance against the market – an important requirement as CRE competition intensifies.

Recognizing that it is a much less liquid asset class than stocks, bonds and cash, the shift of CRE to a mainstream investment class means investors still want clarity, transparency and real-time data, and the industry's slow adoption of data-driven innovation may not be enough to meet investor expectations. Future proofing the industry requires investment in modern, integrated asset & portfolio management applications and data management. To do this, CRE firms need to thoroughly evaluate their current environment and establish proactive measures to ensure they have the data management infrastructure in place to not only take advantage of opportunities, but also to reduce the risk of losing competitive position. Without sufficient investments in information technology, CRE firms run the risk of being labelled as technology 'have-nots' and will increasingly be eschewed by investors in favor of the 'haves' - firms who can demonstrate robust information and asset management platforms and deliver data to their clients with confidence and speed.

// To reduce the risk of losing their competitive position in the global market, leaders of CRE firms need to proactively accelerate their investment in technology innovation. //

Key Findings in the Research



Nearly one-third of the global CRE industry is still using spreadsheets as their primary tool for asset & portfolio management functions. As a result, there is potentially US\$11 trillion globally of CRE assets managed within inefficient and error-prone spreadsheets.



Three quarters of CRE firms are operating with data silos, as a result of using multiple non-integrated solutions and/or spreadsheets to manage their various asset & portfolio management functions.



Seventy per cent of the firms surveyed feel they either need more data or additional metrics to benchmark their performance against the market.



More than two thirds of the firms surveyed say they would realize a significant impact on investment returns by improving their asset & portfolio management decision making effectiveness.



More than two thirds of the CRE leaders surveyed agree that Big Data has the potential to substantially change the industry; but the biggest barriers to firms using more data are centered on data quality, regulatory/reporting issues, and lack of tools to assist with data capture and analysis.



Seventy-seven per cent of the firms surveyed say they are prioritizing investment in technology and process improvement to support their asset & portfolio decision making.



The Rise of CRE Investment

An Asset Class Now Ready for “Prime Time”

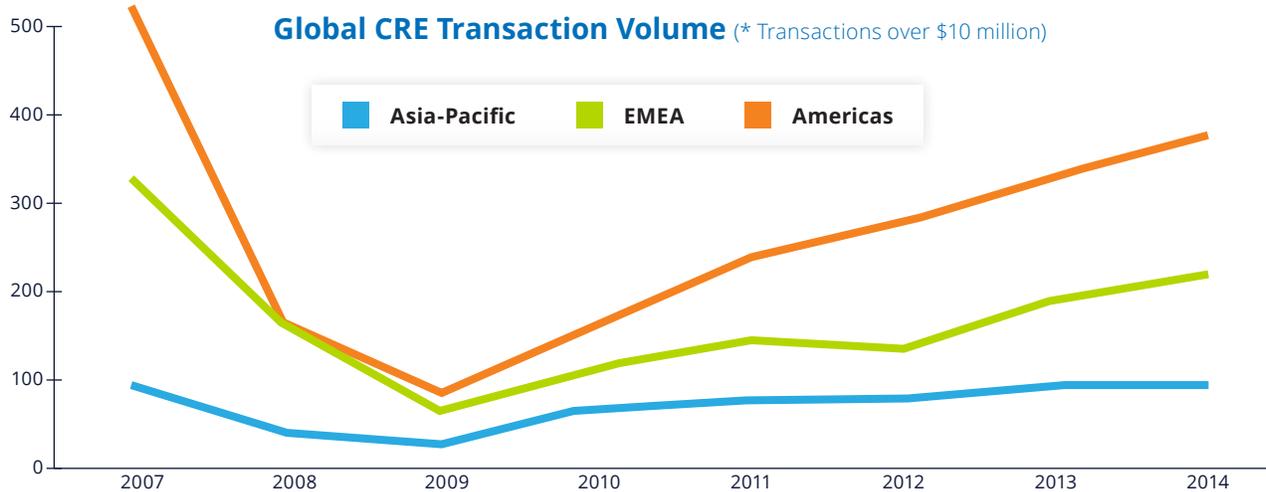
CRE's growth in investment importance over the past two decades has been phenomenal. Recently published research performed by Cornell University's Baker Program in Real Estate has found that global institutional investors increasing allocation to CRE has driven a tipping point where it's now considered the fourth asset class.

“Estimates suggest investment in real estate could eventually stabilize as a 20 per cent allocation in institutional portfolios.”



Near-Record Transaction Volumes amid Global Expansion

As CRE has risen in investment importance, the global scope of CRE investment has also increased. All regions have experienced steady growth in CRE transactions since the 2008 economic slowdown. In fact, U.S. and Europe have now recovered to the extent that 2014 transaction volumes were at near-record levels:



¹Source: Real Capital Analytics, Prudential Real Estate Investors

Global capital flows are now characteristic of CRE. For example, outbound CRE investments by U.S. firms to Europe totaled €41.2 billion in 2014 (just shy of the 2007 peak of €41.5 billion) and outbound CRE investments by Asia-Pacific firms to the U.S. and Europe totaled US\$19.1 billion and US\$17.2 billion. The amount of capital flowing into what has become a fully globalized CRE market is pushing valuations and compressing yields, making it harder to produce adequate returns for shareholders and investors.³

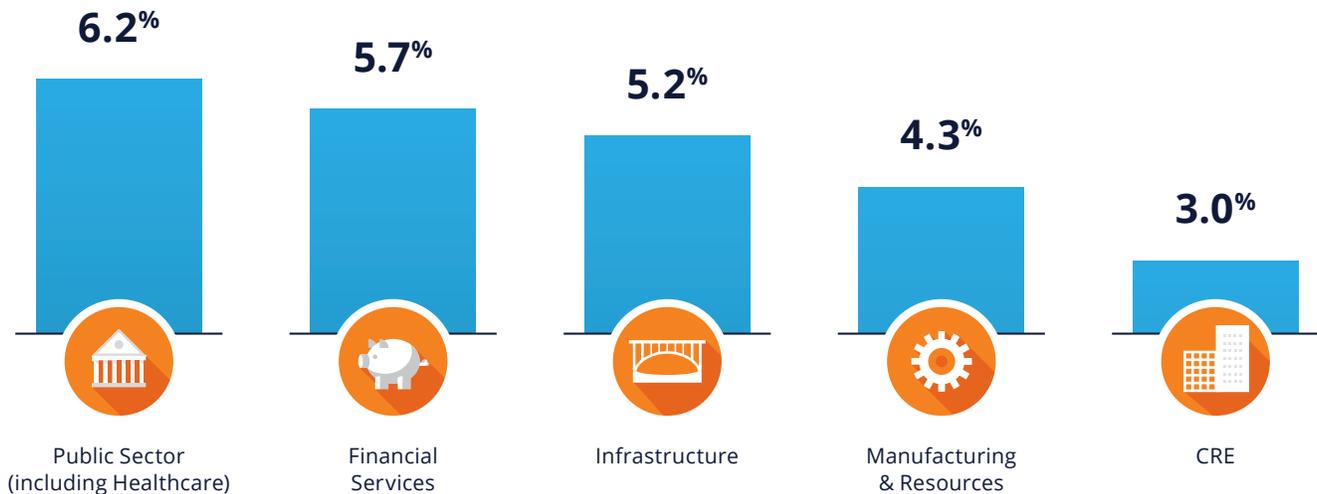
¹Source: *Real Estate Takes Its Place as the Fourth Asset Class*, David Funk, NAIOP Commercial Real Estate Development Association Magazine Spring 2015, Spring 2015 edition.
²Source: *Institutional Real Estate Allocations Monitor*, Funk, D., & Weill, D., Cornell University's Baker Program in Real Estate and Hodes Weill & Associates, LP, September 2014.
³Source: *Real Estate Takes Its Place as the Fourth Asset Class*, David Funk, NAIOP Commercial Real Estate Development Association Magazine Spring 2015, Spring 2015 edition.

CRE is Investing in Innovation, But Where?

CRE IT Investment Spending Lags Other Industries

The spending statistics for global building automation systems and Smart Building technology prove that CRE has budget for technology, but IT spending as a per cent of revenue indicates CRE has room to increase its emphasis on IT.

Global IT Spending as % of Revenue



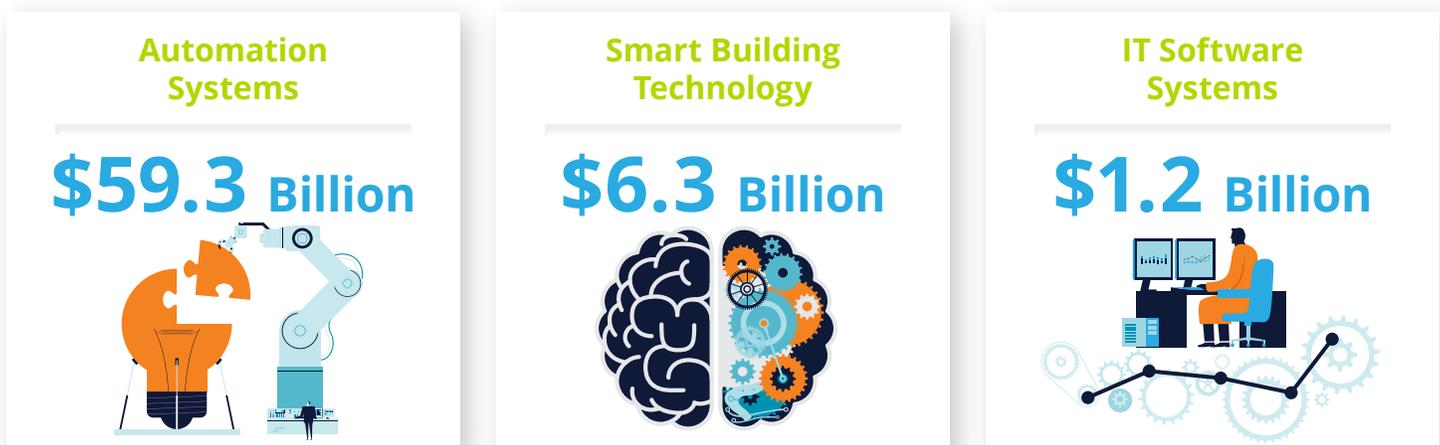
¹Source: Service Innovation: Spending Metrics – IT Spending by Sector, IDC January 2015

Building Efficiency is Biggest Driver of CRE Technology Spending

The CRE industry has spent billions of dollars future proofing its assets, but what about the industry itself?

Technology investment in this area is typically centered on building-level, technology enabled, automated HVAC and lighting systems with future consideration being given to Smart Buildings. While these investments are addressing immediate demand for cost savings and improved tenant retention rates, there exists a disproportionate level of investment for IT systems, including software applications and data management solutions.

CRE Global Spending on Technology (\$US, 2014)



¹Source: Commercial Building Automation Systems, Navigant Research, Q4 2014

²Source: Global Smart Building Technology Spending 2015-2019 Forecast, IDC Energy Insights, March 2015

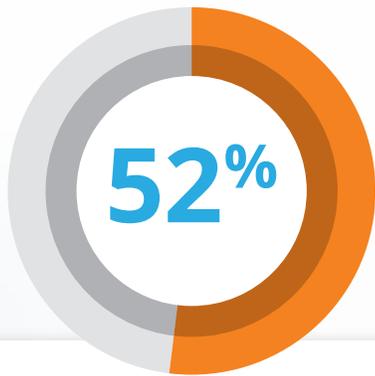
³Source: IDC Market and Industry Estimates, 2015 (licensed software and enterprise applications)

The Impact of Data on Decision Making

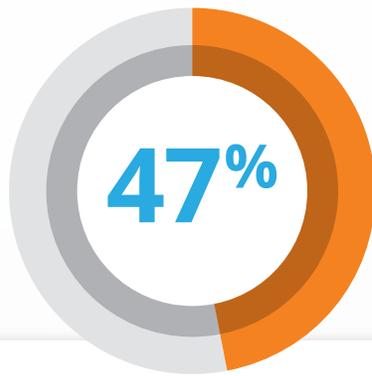
Overwhelmingly, the key challenge that CRE firms face is data veracity – a substantial portion of the industry is still using outdated methods, fraught with human error, to manage their assets and portfolio. The good news, lack of appetite and internal expertise are not the primary challenges. Before we address ways to overcome these data barriers, let's take a closer look at how respondents manage their data today and their future requirements.

Data Barriers to IT Investment

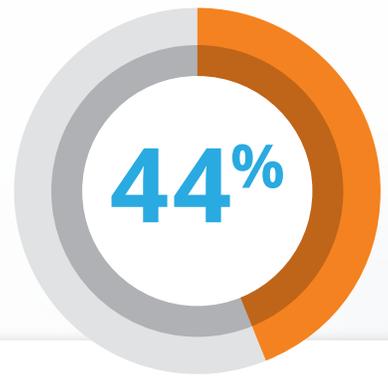
Although respondents in our survey identified the need to collect and use more data, they are still struggling with barriers, including:



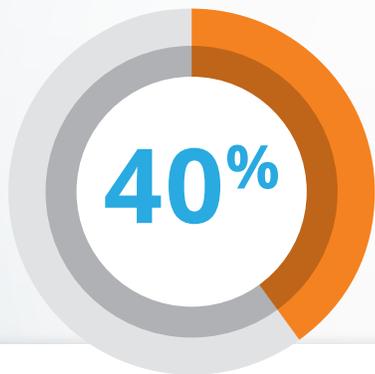
Issues around veracity or accuracy of data



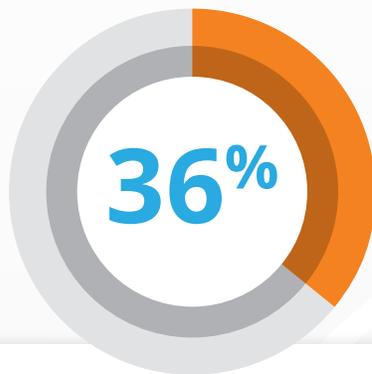
Issues around the regulatory requirements of collection and management of data



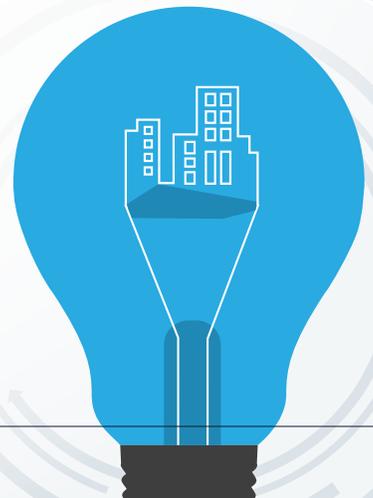
Lack of tools to assist with data capture & analysis



Lack of standardized formats of data



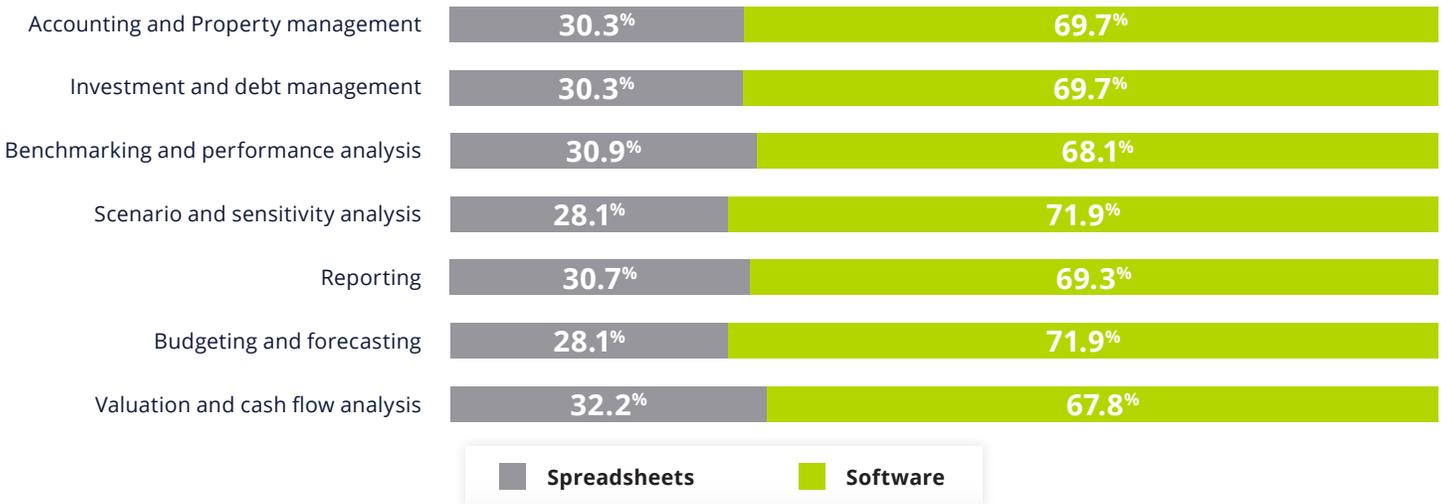
Lack of appetite for IT spending



Spreadsheets and Silos Remain a Challenge

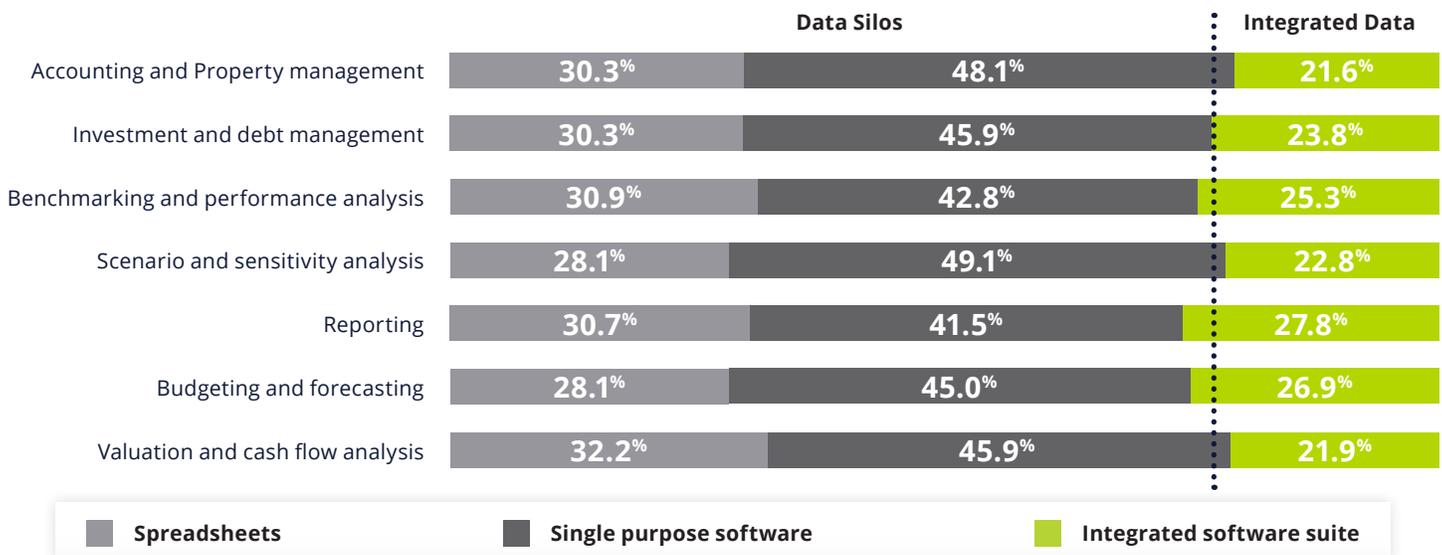
There are an alarming number of businesses still using spreadsheets, leading to delays, errors and contributing to greater data challenges. As a result of these findings, there is potentially up to US\$11 trillion dollars of global CRE assets currently managed within spreadsheets, undoubtedly a risk for investors. Taking a further look into the statistics reveals that much of the software used currently was purchased for a single function and is contributing to the silo effect on information.

Spreadsheet vs. Software Use



The research indicates approximately three quarters of CRE firms are operating with data silos through using non-integrated point solutions and/or spreadsheets to manage their various asset & portfolio management functions. With the majority of CRE firms still using spreadsheets or single-purpose software to handle key asset and portfolio management functions, there is a huge opportunity to modernize the industry's strategic planning and advanced analytics capabilities through better integrated applications. This would go a long way towards improving decision making efficacy and preparing the industry for taking advantage of future market opportunities.

Solutions Used by Function



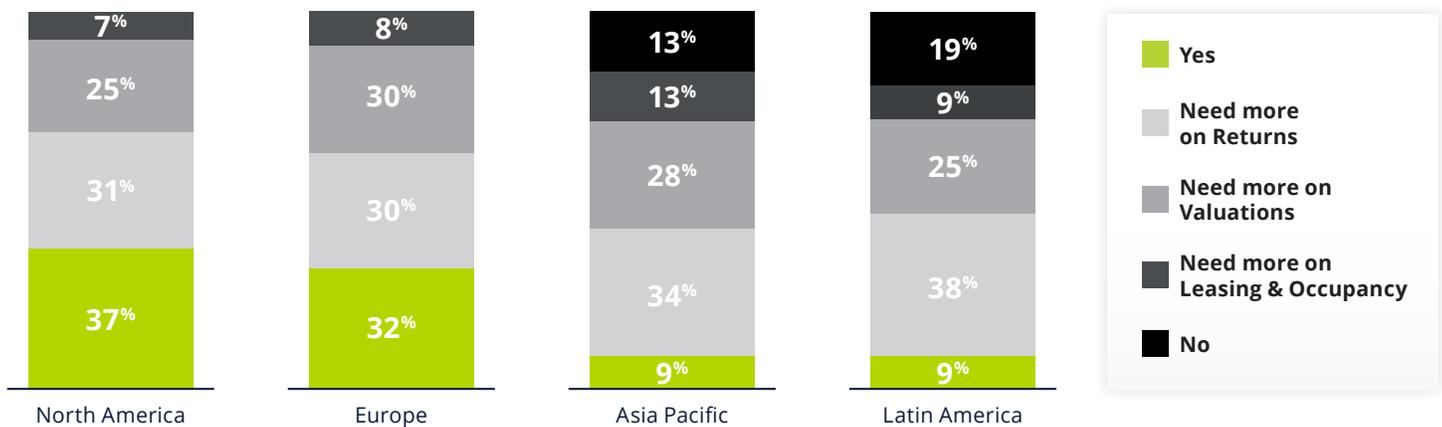
The Impact of Data on Decision Making (cont'd)

Data Gaps in Benchmarking

Another key requirement identified in the study is the need to be able to benchmark performance against the market, not just to drive returns. As the CRE market becomes more competitive, industry leaders have an increasing appetite for more comparative feedback for the performance of their assets.

Globally, seventy per cent of the firms surveyed feel they either need more data or additional metrics. While the markets with greater transparency are leading the way in total available data, there still exist significant gaps in benchmarking data as it relates to returns and valuations. The survey shows that the gaps around these areas ranked similarly in all markets regardless of the total available data on benchmarking.

Do You Have Enough Data To Effectively Benchmark Against The Industry



Market Pressure Driving Additional Reporting Requirements

Internal and external regulatory reporting requirements also influence CRE's need to update its technology and processes. Addressing data management, reporting requirements and regulatory compliance as a symbiotic whole for asset management has been a key issue for several years, as illustrated by the following PwC observation – made three years ago:

“Asset managers are investing more heavily in data management strategies and platforms to improve efficiency, management reporting and compliance reporting and oversight... Rather than simply creating the appearance of integration... firms are realizing that multi-asset class convergence can generate needed... efficiencies.”

Approximately

50%

of the CRE leaders surveyed for this research indicate their need to satisfy a wide range of external and internal reporting requirements has increased over the last 5-8 years (i.e. since the 2008 financial slowdown).

These requirements cover:

- Increased granularity/drilldown into details
- Consistency/standardization of reporting formats
- Comparative reporting/benchmarking
- Increased regulatory reporting requirements
- Increased reporting frequency
- Wider reporting audience
- Reporting accessibility via mobile devices

As the results show, since the onset of the financial crisis it has become imperative for investors to understand the performance of investments in as much detail as possible. With CRE becoming ever increasingly global, investors expect greater reporting transparency. For CRE firms, this means accurate detail, standardized formats and increased consistency.

Driving Competitive Transformation – The Road Ahead

The good news is that there is a strong appetite to invest in technology. Our research indicates the acceptance by CRE leaders that IT plays a critical role in the future of the industry and the prioritization of technology spending to support asset & portfolio management decision making:

71.2% | of the CRE C-level and senior execs surveyed believe “Cloud-based Information Technology” has industry-transforming potential.

68.8% | think “Big Data Technology” has the potential to transform the CRE industry.

76.9% | say investment in technology and process improvement to support their firm’s asset and portfolio decision making is a business priority.

A similar result was obtained in an Economist Intelligence Unit survey: “Three quarters of the asset managers and owners surveyed said they planned to spend more on portfolio optimization tools.”¹

Overcoming Data Challenges

While the results of the research show CRE leaders are aware of the potential for cloud-based IT and Big Data technology to transform the industry, the findings also show potentially US\$11 trillion of CRE assets are currently managed in spreadsheets, with all its inherent risk of inaccuracy and human error. This should give investors cause for concern.

In its 2015 Commercial Real Estate Outlook, Deloitte Financial Services notes technology and data go hand-in-hand – one cannot work without the other – when it comes to realizing data driven innovation opportunities:

“CRE companies are generating a large amount of data through multiple sources – internal and external such as market data, tenant property use through security passes and customer information generated through social media. And capturing, storing, and analyzing large sets of structured and unstructured big data appropriately and in real time can be used to identify business trends and opportunities. While this sounds simple, having the appropriate technology is critical to derive maximum benefits from large sets of data. Particularly until very recently, data commonly resided in multiple, disparate systems – inside and beyond the firewall, which made it difficult to conduct meaningful analysis.”

¹Source: State Street 2013 Data and Analytics Survey conducted by Economist Intelligence Unit

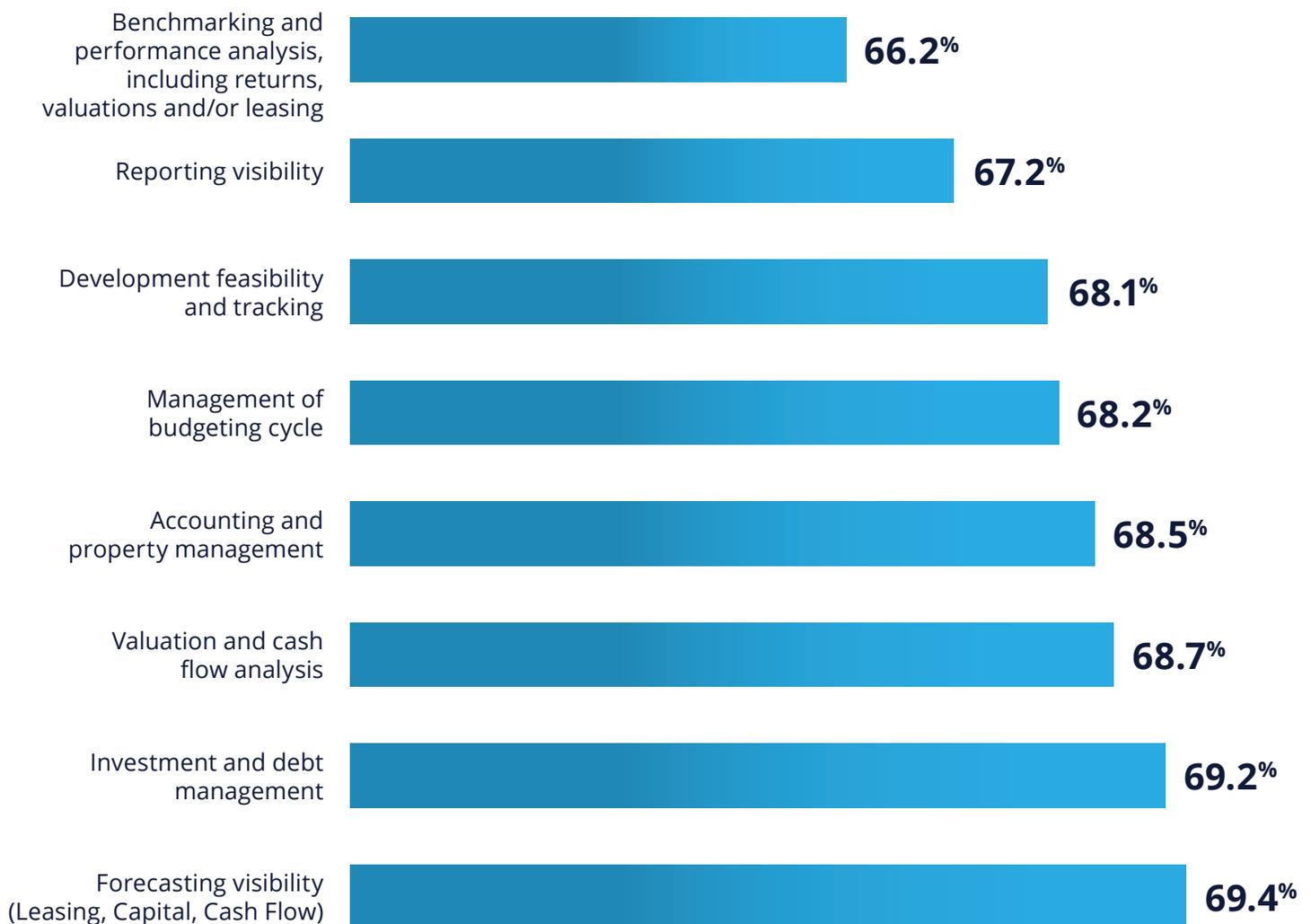
Driving Competitive Transformation – The Road Ahead (cont'd)

Strengthening Decision Making

More than two thirds of the firms surveyed indicate they would realize a significant impact on investment returns by improving their asset & portfolio management decision making effectiveness across the same functional areas. Respondents appear to be making a strong link between modernizing asset & portfolio management technology and processes to deliver more timely and accurate views of the business, and improving asset & portfolio management decision times and quality.

A large majority of survey respondents believe investment returns could be significantly impacted by improving effectiveness in key areas.

In Which Areas Do You Believe Improved Effectiveness Would Significantly Impact Investment Returns?



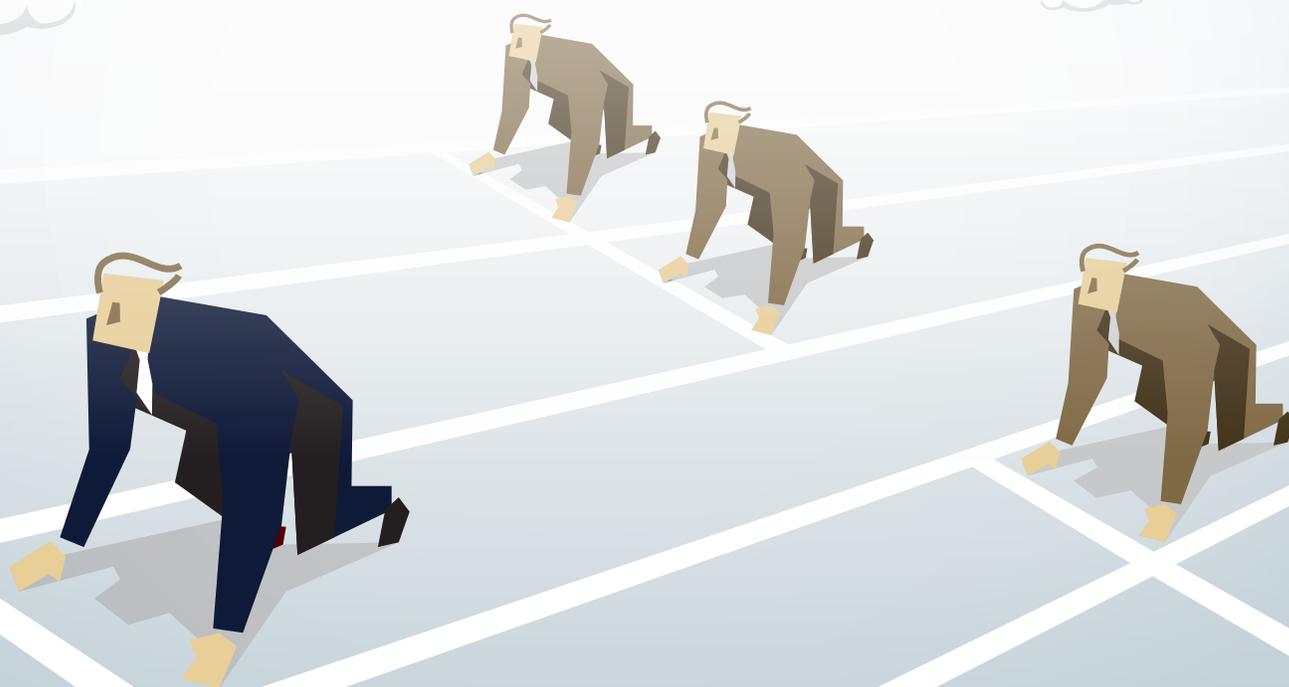
Accelerating Innovation

Despite this study's finding that CRE executives are prioritizing technology and process improvement to support asset & portfolio decision making, there is still a question mark over whether the industry is adopting and implementing new IT applications and data management rapidly enough to mitigate increased risks going forward. Market pressures resulting from the globalization of CRE and volume of capital targeting CRE transactions are leading to a compression of deal times, the globalization of CRE operations, and a requirement to generate both efficiencies and cost savings across firms' asset & portfolio management functions.

Satisfying Shareholder and Investor Demand

Market pressure isn't the only issue for CRE firms going forward. There is also the competitive risk of not being able to satisfy shareholder and investor demand for returns, and losing market position as a result. Not being able to satisfy shareholder, investor and lenders' desire for increased reporting transparency, detail and frequency also poses the risk of losing market position to CRE firms that can satisfy this demand. In addition, compliance and regulatory risk has reached the point that oversights in this area have resulted in multimillion dollar fines and sanctions for financial services firms.

The process automation and improvement that comes hand-in-hand with adopting and implementing a data management infrastructure with integrated asset & portfolio management applications isn't just a means of providing support for improved decision-making efficiency and accuracy; it's also a transformational platform for improving responsiveness to market pressures and reporting and compliance demands. The use of an integrated application platform by small and mid-sized CRE firms to compete internationally is a growing trend and example of how innovation is driving competitive transformation in the industry.



Future Proofing the Industry

Investors raised on a diet of instant access to information on their investments in shares, bonds and equities have little appetite for manual spreadsheet-based calculations and forecasting which require significant manpower to make updates on the latest rates, rents or cap rates. CRE executives must, therefore, meet the needs of these investors who operate with the expectation of on-demand information delivery – they want more data, more often. Otherwise, they could increasingly move their capital to managers with the IT infrastructure to deliver this increased level of reporting requirements. Future proofing of CRE firms requires investment in modern, integrated asset & portfolio management applications and data management. This will allow CRE firms to maximize returns and reduce the risk of losing the competitive position. With so much institutional capital up for grabs over the next decade, firms who adopt best-in-class asset management, data management and reporting practices have a real opportunity to differentiate themselves from the technology ‘have-nots’.

To overcome the challenges and increase the returns that IT investment can bring, CRE firms need to thoroughly evaluate their current environment and establish proactive measures to ensure they have the applications and IT software applications in place.

Recommendations

Based on the results of the survey, we’ve identified three immediate actions that CRE firms should take today:

Internal Analysis

Future-proofing the industry – and individual CRE firms – requires a big enough investment to put the required asset & portfolio management applications plus data management solutions in place. A good first step is to thoroughly analyze your current decision-making applications and data management environment to answer these questions:

- Are your asset & portfolio management functions spread across spreadsheet-based processes and unintegrated applications and programs?
- Does high-level reporting on your business as a whole rely on pulling data from multiple unintegrated sources of business data?
- Would being able to efficiently capture and analyze more and varied data improve your ability to:
 - Make better asset & portfolio management decisions?
 - Perform deeper, more detailed benchmarking of your firm’s performance against the market?

Invest to Compete

To take advantage of new opportunities – and avoid the risks of remaining stagnant – CRE firms must invest sufficiently and quickly in technology to ensure they have the capability to respond to this new industry paradigm of increased institutional allocation to the asset class. They should evaluate whether current and planned software and data specific technology spend is sufficient to enable critical operations fundamental to driving revenue, including:

- Implementation and adoption of an asset & portfolio management platform that encompasses integrated applications and data, automated processes and data flow, and holistic whole enterprise reporting.
- Cost savings that can be realized through improved process optimization and automation .
- Underlying IT and data bottlenecks.

Executive Buy-in

As noted earlier in this report, CRE lags behind other industries in its IT spending. This latency has left many firms with disjointed, manual processes that struggle to keep up with fast moving, global markets. To attain the appropriate budget approvals and maintain commitment for the long term, early executive suite buy-in and sponsorship is critical.

Ensure the executive suite recognizes:

- The level of IT investment in other sectors/industries.
- The opportunities data intelligence and Big Data present for CRE.
- The competitive, compliance, and regulatory risks of operating with a fragmented or siloed data back-end to the business.
- The investment returns and cost savings benefits of operating with modern, integrated asset & portfolio management applications and data management capabilities.

Conclusion

CRE's new position as the fourth asset class has brought with it increased attention, expectations and challenges. Much as the industry has invested substantially to future proof assets, be it through Smart Buildings or LEED certifications, in order to meet the increased expectations of tenants, CRE firms need to invest significantly in modern data management infrastructure to address the demands of today's 'on-demand' investors.

Our research indicates that nearly one third of CRE companies are still using manual spreadsheets as their primary tool for asset & portfolio management functions. Potentially \$11 trillion of assets are being managed in manual spreadsheets with all their inherent risks of human error and inefficiencies. In addition, three quarters of the CRE industry is managing its portfolios in 'data silos.' This unconnected approach to managing data makes it harder to generate top-level oversight of the business in a timely fashion. It can take weeks or months rather than hours or minutes to aggregate the data, apply the sensitivity analysis and reforecast the returns - by which time, the situation has already changed. Having an integrated asset and data management platform allows firms to react quicker to market conditions and make better informed strategic investment decisions.

It's clear that the industry still has some way to go in creating an infrastructure that allows for greater data-driven innovation, but as the results of the survey also show, CRE leaders recognize the transformative impact of technology and that investing in technology and IT processes is a considerable priority.

Firms reaping the rewards of CRE's new position as the fourth asset class will be threatened by the inability to make faster and better data-driven decisions. As the results show, CRE leaders are facing this challenge head on, working to accelerate the innovation curve of technology investments to keep up with the growth curve of CRE.





About Altus Group Limited

Altus Group Limited is a leading provider of independent advisory services, software, and data solutions to the global commercial real estate industry. All of our five core practices – Research, Valuation and Advisory, ARGUS Software, Property Tax Consulting, Cost Consulting and Project Management, and Geomatics – embody and reflect decades of experience, a broad range of expertise, and leading edge technology. Our offerings empower clients to analyze, gain insight and recognize value on their real estate investments. Headquartered in Canada, we have approximately 2,400 employees around the world, with operations in North America, Europe and Asia Pacific. Our clients include some of the world's largest real estate industry participants, spread across a broad variety of sectors.

We are focused on creating sustainable shareholder value that generates long-term returns by targeting organic and accretive growth while providing quarterly dividend payments of \$0.15 per share. Our securities are traded on the TSX under the symbols AIF and AIF.DB.A.

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ARGUS Software®, a wholly owned subsidiary of Altus Group Limited, is the leading provider of software and solutions for analyzing and managing the value of real estate investments worldwide. ARGUS Software has a global client base and has been dedicated to providing solutions to the commercial real estate industry for over 30 years. The ARGUS Software portfolio includes industry-standard products, including ARGUS Enterprise® - the most open and integrated platform for valuation, budgeting and asset management solutions.

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About Voyanta

Voyanta, a subsidiary of Altus Group Limited, has quickly become a market-leading provider of cloud-based data management and analytics software to the global real estate industry. The Voyanta platform provides sophisticated tools to help real estate professionals more effectively capture, validate, analyze and share commercial real estate information from multiple sources.

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About IDC

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