BIG DATA AND REAL ESTATE: ADAPTING TO THE NEW INFORMATION ECONOMY

EXECUTIVE REPORT

CENTER FOR CALIFORNIA REAL ESTATE

PREFACE

Four leading experts on big data and the future of information technology were convened by the CALIFORNIA ASSOCIATION OF REALTORS® (C.A.R.) in August 2015 as part of the third installment of the Center for California Real Estate's 2015 Roundtable Series. The Center is an effort by C.A.R. to bring together experts for substantive conversations on a variety of issues of growing importance to the real estate industry, and insights and analysis from the discussion are presented in this executive report.

C.A.R. Chief Technology Officer Josh Sharfman led an engaging discussion among the panelists, and C.A.R. was grateful to be joined by the following participants for the event: Marty Frame, President of Realtors Property Resource® (RPR®); John Kelly, Managing Director of Berkeley Research Group; Sharran Srivatsaa, President and Chief Innovation Officer of Teles Properties, Inc., and Ryan Marshall, Chief Executive Officer of Benutech, Inc.

The panel discussed big data in the context of client acquisition, lifetime value, and servicing clients, among other topics, as well as providing a basic overview of how big data is relevant to the real estate industry. They provided analysis of how real estate professionals can utilize big data to gain a competitive advantage at a time when the usability of data science continues to grow across the industry. The panel asserted that big data is here to stay, and the burden falls upon practitioners to understand how this seemingly abstract topic has practical applications to their field due to the wide-ranging implications of this knowledge transformation.

•PARTICIPANTS

• JOSH SHARFMAN, Ph.D.

Chief Technology Officer, CALIFORNIA ASSOCIATION OF REALTORS®

Josh Sharfman is Chief Technology Officer of the CALIFORNIA ASSOCIATION OF REALTORS® (C.A.R.), a statewide trade organization with 175,000 members dedicated to the advancement of professionalism in real estate. He has been with the association for over 25 years, first as a consultant, then as an outside board member of the association's Real Estate Business Services (REBS) subsidiary, and now as the association's chief technology officer.

Prior to joining C.A.R. full time, he led product development for a variety of privately held and public companies, including Legal Research Network Digital Lava, ParcPlace-Digitalk, Dassault Systemes USA, CADAM Inc., and the CAM Center at the Hughes Aircraft Company. He holds a bachelor's degree in computer engineering from UCLA, a master's degree in engineering management from USC, and a Ph.D. in business from Capella.

• MARTY FRAME

President, Realtors Property Resource® (RPR®)

Marty Frame is the President of Realtors Property Resource® (RPR®), which is an exclusive online real estate database of the National Association of REALTORS® that provides members with the analytical power to help their clients make better informed decisions while increasing efficiency in the marketplace. In Frame's capacity at RPR®, he is responsible for the company's product strategies and business operations. Prior to RPR®, he was the general manager of Cyberhomes.com for Fidelity National Financial and Lender Processing Services, and the Chief Technology Officer of realtor.com® for Move, Inc.

• SHARRAN SRIVATSAA

President and Chief Innovation Officer, Teles Properties, Inc.

Sharran Srivatsaa serves as the President and Chief Innovation Officer of Teles Properties, Inc. Srivatsaa works to build the most advanced agent service platform in the industry, as well as Teles's corporate growth strategy, client advisory, and firm-wide operations. He is also a principal of an angel investment firm that develops "real estate enabling technology" companies.

Previously, Srivatsaa was at Goldman Sachs and Credit Suisse where he worked closely with management teams of fast-growing businesses around the country on investment advisory and corporate strategy. He also has considerable experience working at technology companies, such as Lightera (acquired by CIENA) and Obopay, a fast-growth mobile payments company.

He earned a B.A. in computer science and math from Luther College, and an MBA with honors from Vanderbilt University.

JOHN KELLY

Managing Director, Berkeley Research Group

John Kelly leads Berkeley Research Group's Predictive Analytics practice, which leverages the firm's experts' econometrics and data science capabilities to help marketing, sales, and operational leadership make better strategic decisions through the advantages of predictive analytics.

Kelly joins BRG from management consulting firm Ferrazzi Greenlight, where he served as managing partner and led the firm's consulting practice. As a content expert, he contributed to national bestsellers, "Never Eat Alone" and "Who's Got Your Back," as well as several thought-leading articles related to strategic account management. He is also an entrepreneur, having applied the deep-space exploration teams and technologies from NASA's Jet Propulsion Lab to co-found two Pasadena-based technology firms and an incubator. He earned an MBA from the University of California, Los Angeles.

RYAN MARSHALL

Chief Executive Officer, Benutech, Inc.

Ryan Marshall is Chief Executive Officer of Benutech, Inc. It was founded in 2011 with the goal of changing the real estate industry through the creation and implementation of the most advanced and intuitive technological platforms in the industry. When Marshall first entered the real estate field in Southern California, within three years he had gone from an 18-year-old living in his car to one of the top agents in the region, and he attributes his success to using data to direct his efforts toward the most effective targets.

In 1998, he co-founded the net branching mortgage lender DirectLender.com. As its CEO, he built DirectLender.com into one of the largest companies of its type in the country. In 2003, he branched out into the mortgage banking side of the business, opening IRES Funding. When the real estate market crashed, he returned to real estate and his specialized brokerage was the first larger-scale testing ground for his data-driven approach.

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Author/Researcher:
Jeannette Brown, Communications Specialist

Editor: Anne Framroze, Vice President

BACKGROUND

The Center for California Real Estate (CCRE) is an institute founded by the CALIFORNIA ASSOCIATION OF REALTORS® (C.A.R.) dedicated to intellectual engagement in the field of real estate. Its mission is to advance industry knowledge and innovation with an emphasis on convening key experts and influence-makers. CCRE reflects C.A.R.'s increasing role in shaping the future of the industry by advancing innovative policy solutions and active dialogue with experts and industry stakeholders. The Association works in conjunction with 120 local associations of REALTORS® throughout the state, as well as with the National Association of REALTORS®. Serving nearly 175,000 members statewide, C.A.R. provides a wide array of products and services to meet its diverse member needs. Additional background on CCRE and C.A.R. can be found at centerforcaliforniarealestate.org.

PART I. BIG DATA AND REAL ESTATE

"Data is democratic. We've democratized data, the access to data, and there's an expectation that it be free."

- Josh Sharfman

As the adoption of technology permeates every aspect of the real estate industry, practitioners have seen their traditional role as gatekeepers of information transformed by consumers' ubiquitous access to information, as enabled by the Internet. While the divide between the industry as the sole possessor of information and the consumer has been blurred by technology, more recently the industry has been forced again to adapt to yet another knowledge paradigm—one involving big data. For this reason, the phrase "with knowledge comes power, and with power comes responsibility" is perhaps particularly apt for the industry, as the responsibility to adapt successfully by understanding the full implications of pervasive big data information is a burden that falls squarely on the shoulders of real estate professionals who will have to proactively shape their roles to this reality in order to remain at the center of the transaction.

As the effects of the information economy continue to ripple across industries, including real estate, it's clear that the information economy is upon us; however, it's less clear how to accurately analyze and utilize this information for a competitive advantage. Consequently, C.A.R. convened four experts to lend their expertise on this topic and discuss the applicability of big data to the real estate industry, as well as the future direction of the burgeoning field of data science. For REALTORS® seeking to increase their value proposition and enhance relationships with clients, the panel explained why it's important to embrace big data, how it's changing their role in relation to clients, and how it can benefit them strategically now and in the long run.

"The amount of data available on overall consumer behavior is actually a lot more exciting to us than what is actually available in the real estate space."

- Sharran Srivatsaa

REALTORS® unfamiliar with the subject of big data may question why something so seemingly abstract would have real-world applications to their businesses. But the panel emphasized that big data is not just another tech fad. It's here to stay and shaping the world around us every day, from the pricing we see when purchasing items to storylines in our favorite TV shows. Josh Sharfman, Chief Technology Officer of C.A.R., posited that now and in the future, successful REALTORS® will have to navigate an environment in which data is far more widespread and their role as service providers will have to reflect this change, which is to say their value to clients will be in the interpretation and use of this information. Just as REALTORS® adapted their roles when they were no longer the sole gatekeepers of real estate information, the prevalence of big data will mean that REALTORS® need to position themselves to ensure they have the skills, local knowledge, and experience to interpret data effectively.

In order to envision the potential payoff of being proactive about big data, Sharfman offered a framework for REALTORS® by invoking the strategic value of a very targeted approach, akin to the high-magnification scope of a sniper, which he explained as follows:

"I would use information derived from data sources to choose my targets wisely so that I spend my metaphoric limited time, or limited ammunition, and apply it to the highest value targets that would provide the potential for the greatest return, coupled with an understanding of what my skills are and trying to choose the targets that I know will resonate with my skills, style, and mode of operation. This will result in not only a good experience for my client, but a pleasant experience for the REALTOR® because all of my strengths will resonate with that particular client, and there will not be a dissonance,

or a mismatch, between who I am and what that client needs."

In order for the real estate industry to be proactive about incorporating big data, Sharfman began the panel by asking the discussants to first address the basics, by laying the groundwork for a common understanding of what big data means in the context of real estate. John Kelly, Managing Director of Predictive Analytics at Berkeley Research Group, offered a concise definition, stating, "It's enough data – both number of sources, and length or volume of that data – so that you can tease out real patterns that provide you insights that make it worth paying for that data in the first place. Simple as that."

Marty Frame, President of Realtors Property Resource® (RPR®), added that the real estate industry in particular experiences so many disparate sources of information when it comes to big data, not to mention a preponderance of data options that have applications to the industry, so the real challenge, Frame pointed out, is weaving together these disparate sources of information to capture the whole picture. He stated, "We have an enormous amount of data at our disposal, and it's available in a lot of places. So both as practitioners, as professionals, but also as consumers, there's no shortage of information available to you, whether it's quality information or not. […] But none of it really makes sense together, so how do [you] put it together."

As Chief Executive Officer of Benutech, Inc., a firm that specializes in data solutions and technology platforms for the real estate industry, Ryan Marshall noted that he is primarily focused on property, consumer, and professional-specific items and how such data blends together. Marshall added, "We're looking for any and all information as it relates to any one of those three

President and Chief Innovation Officer of Teles Properties, Sharran Srivatsaa, discusses consumer behavior and big data.

> **"Companies are exploiting your willingness to be on a site at no cost to you in exchange for being able to pick up information about your behavior and correlate it to other datasets that they have. Maybe anonymously, but across your different real estate experiences on the web, and they build a profile of you."**
>
> *- Marty Frame*

data models. [And] how often those elements or those attributes change is important to us. That's what we consider 'big data.'"

Sharran Srivatsaa, President and Chief Innovation Officer of Teles Properties, Inc., focused his remarks on the consumer in relation to big data, stating, "The amount of data available on overall consumer behavior is actually a lot more exciting to us than what is actually available in the real estate space," adding that his firm is interested in how it can overlay consumer behavior with its operations, whereas traditionally big data in real estate has concentrated on agents and property details.

Sharfman proceeded to ask the panel to explain the importance of the ability to understand the relationships between different elements of big data, as well as the lens through which those elements and the relationships are viewed. He prodded the panel to think of its overall relevance to the industry. Frame noted that an emphasis on what is of value and beneficial to the user is how big

data has catered to the real estate sector, adding, "It's really being able to monetize those different data elements and making it applicable to the person who wants to buy it."

Kelly agreed that such relevance is of great value, and added that information can be far more encompassing when data information goes beyond just numerical figures, as valuable insights can be gleaned from information that – when provided a structure – can "talk to the rest of the data." Ultimately, this can be correlated to find a relationship of value that goes beyond the mere surface. For example, he cited quantifying the types of pictures/images that give a listing a better chance of selling on a website.

Srivatsaa returned the panel's attention to consumers in his remarks, noting that achieving the type of relevance espoused by other panelists requires cognizance of the barrage of information that consumers receive on a daily basis, so practitioners have to ensure their information in particular is received. Tailoring your messages so that they are not just "noise" to the consumer takes a strategic, thoughtful approach to marketing. Srivatsaa noted that it can affect one's bottom line if the messaging is "heard loud and clear," and more importantly, "When data becomes insightful or actionable, we can call it information." He emphasized the profitability and quality of information based on the degree to which it is actionable and insightful.

However, in order to achieve actionable and quality information, Frame stated that deriving relevant value and

interpreting relationships between data is complicated by the prevalence of sources and questionable accuracy of data in real estate. That is to say understanding the valuable relationships within data stems from being able to synthesize from various sources, but the meaning derived from that synthesis will be misguided if the data sources are wrong. He added that in real estate, a majority of investment must concentrate first on getting the right data in order to obtain the relevant insights that will be of value. This is a problem because, according to Frame, in many cases data are being used for purposes that were never intended, and he cited the following example:

> *"Tax assessment data was never intended to create a source for populating a listing. Assessment data was never intended to be displayed on a consumer website to represent authoritative current information about your home. A lot of California assessment data doesn't get updated but every three years. It's meant for taxation and not for understanding properties. And yet a lot of businesses in real estate have built models around attempting to synthesize assessment information into property information, which it's really not. It's taxation information. Yet, it's one of the building blocks that we have to work with."*

In light of the panel's discussion regarding the monetization of data and the value in paying for actionable and accurate insights, Sharfman asked panelists to consider the costs that are involved in deriving value from data sets, and how these costs run counter to the common assumption that data is free. Sharfman queried, "Data is democratic. We've democratized data, the access to data, and there's an expectation that it be free. How do you reconcile the two concepts?"

Marshall responded that there are certainly costs involved in the functions his firm Benutech, Inc. performs, as the company accrues costs when gathering data and putting it into a usable and understandable form. Frame also noted that the assumption data is free is incorrect, and one could even consider the loss of privacy or interaction with advertisements as a cost involved. He added, "Companies are exploiting your willingness to be on a site at no cost to you in exchange for being able to pick up information about your behavior and correlate it to other datasets that they have. Maybe anonymously, but across your different real estate experiences on the web, and they build a profile of you."

The roundtable panelists comment on the future of data in the real estate industry.

Sharfman agreed that the acquisition cost of data is not zero, and Kelly opined that if data does not tell a story, it is not of value, and data indeed should have a cost if one is able to draw information and relationships from data sets in a way that might demonstrate, for example, the percentage at which someone is likely to be a live listing if they exhibit "x" number of qualities in the data.

Srivatsaa commented that at Teles Properties, Inc., his team is mindful about the justification for paying for data. In his view, "When data meets reason, it is intelligence, and [that's when] we pay for it." He went on to describe distilling reason from data, stating, "If data doesn't meet reason anywhere, we're going to scrub it till it does. So we either call it 'sweat equity' to distill the reason [ourselves], or 'check equity' to actually pay for the reason. Otherwise, without reason, it has no intelligence for us in any way." Figuring out how to use the intelligence gleaned from data is another challenge, as it can be difficult to always know what one is paying for if data is being mined for various undetermined insights, thereby making it hard to justify the costs.

Understanding the sources of data in the industry can contribute to a more informed cost-benefit analysis, as well as an overview of the data sets available for deriving value, so Sharfman moved the discussion to commentary on data sources in real estate.

B. SOURCES OF DATA

While the panel provided an introductory view of big data in the context of real estate, Sharfman next directed panelists to discuss the collection points of data. Marshall began by citing public records data and the need to be immersed in legal opinions to retrieve useful data, stating, "We deal with private data that's not protected. So anything on a public domain that doesn't prevent us from clicking through or agreeing to any particular terms, we'll scrape, put into a database, and run modeling based off of that." As an example, he pointed to court websites.

Kelly posited that behavioral data may be one of the most interesting sources of data to work with because it deals with predicting how people will behave given certain observable patterns. He stated, "The best, least offensive area to find this data is on website click-through rates.

So if you're on your listing, and you know the IP address of the individual that's clicking through that site, you can see where they're spending time, and on which particular properties. Once you have that relationship, it's helpful to know right away which property seemed to interest the user the most." Kelly added that prior transactional data can be considered behavioral data as well, and it is valuable to know which individuals are more likely to become clients.

Marshall pointed to examples of behavioral data that his firm deals with, as neighborhood statistics allow him to determine turnover ratios. He added, "We'll also determine areas where you're more likely to have a move-up buyer, and from what areas."

Srivatsaa highlighted the benefits of extrapolating consumer behavior from a data set like luxury car drivers and overlaying that data on his own data in order to gain an understanding of what the client base is likely to do, such as whether a certain brand or car model has some determining characteristics relative to the real estate industry. "We love the extrapolation of data because no one else is doing that, and you might get some insights from that," Srivatsaa said. He added that practitioners need to understand consumer behavior in relation to how a segment interacts with advertisements and media, because an advertisement for a luxury vehicle should be similar to an advertisement for a luxury house in the type of message it conveys to the buyer.

More importantly, Srivatsaa discussed the ways in which data sources can be used as a "gut check" to determine whether one's own data can be enhanced or is lacking in comparison to another data set that is producing different conclusions. He stated, "Comparing two sets of data sources and using that as a value proposition has been a really great, insightful need for us." Essentially, looking for the story that ties together data sets – particularly proprietary and external data – raises one's value proposition by being able to provide conclusions and a message that no one else can, according to Srivatsaa. His comments on value proposition ultimately are a reflection of being proactive with big data to experience its benefits, and how to be proactive comprised the panel's next discussion points. •

PART II. BEING PROACTIVE WITH DATA

"If you're sifting for the transactional-oriented consumer, they're not in one place. They're in many, many different places, and you don't have a 360-degree view of what they're trying to accomplish."

- Marty Frame

Beyond the panel's discussion of data sources, being able to develop insights from those sources so that the processing of data can attract a potential transactor occupied the thoughts of the panel as they commented on client acquisition. In addition to retention or attraction of clients is the ability to find transactors and lure them with an enhanced value proposition. Sharfman noted that to be proactive with data in real estate, one can look to common life events like marriage and divorce, and the next layer is "something that could indicate a shift in pattern or situation, such as the youngest child in the home has now matriculated from high school and is going to college." Sharfman pushed participants to think beyond these levels to also consider positive and negative correlations with other attributes that are not directly related to real estate, but may be indirectly related to the field, such as the length of residency.

Frame began by contextualizing the realities of client acquisition via real estate websites. Big data is applied to the behavioral components of websites, but does this traffic more accurately reflect consumers in general as opposed to potential real estate transactors? According to Frame, the industry has a bad habit of applying a transactional model to an audience that's not interested in transacting. He noted real estate professionals need to keep the following in mind:

> *"It becomes very challenging to look at website traffic, for example, and the artifacts that it produces, and come up with a meaningful set of inferences that will lead you to someone who wants to do business with you and that you want to do business with because the vast majority is not there to do business. They're just there to look at real estate. […] If you're sifting for the transactional-oriented consumer, they're not in one place. They're in many, many different places, and you don't have a 360-degree view of what they're trying to accomplish."*

As for Sharfman's points about mining the layers of consumer behavior for potential transactors, Frame noted that these can be characterized as attitudinal or positional shifts, and they can be very helpful for client acquisition. He pointed to another useful example, such as targeting those who have no loan balance or relatively little payoff balance remaining because they might be open to opportunity. "They've got tenure. They've got equity, and they might be motivated to move. That's a better door for me to knock on than somebody who just moved here or has a high balance," Frame stated.

Srivatsaa led the panel to take a big-picture look at big data and its ability to attract clients by asking the panel to consider the life cycle that big data goes through in a given industry, such as real estate. In describing that life cycle, he noted, "The first thing that happens when there's a lot of data availability, as in real estate, is it kick-starts a ton of lead generation ideas." Converting those leads is the second stage in the cycle, and in his view, the third stage is delighting the consumer through the transaction experience. Srivatsaa believes that real estate is still in the process of delivering this stage of the cycle, and the fourth is generating lifetime value.

He stated, "The final part is how to generate lifetime value from that client. I think we're still in the infancy of everyone

being so excited about the lead generation component of what big data can bring that no one's realizing all the money's in conversion. Then there's the experience of delighting, and there's a lifetime value. So whoever stays ahead of that curve is going to win."

But Kelly pointed out that there is a disconnect between having a life-time oriented business and the realities of serving a small segment of customers who are actually going to be transactors in a given year. Kelly stated the following:

> *"When I find [a transactor], or they find me, my business is oriented around serving them, it's around customer service, as opposed to developing that lifetime relationship […] an exchange of value that actually captivates and creates a relationship that's appropriate to somebody who you're not oriented toward doing business with today. Those models are hard to develop in a culture that's oriented towards selling something."*

These comments led Sharfman to question whether big data can help address this disconnect by contributing toward "implementing, achieving, and succeeding with the lifetime value proposition." Frame began by stressing the importance of understanding consumer expectations and behavior over an arc of time that is beyond the near term. For instance, he noted many consumers simply look at real estate to give themselves a sense of the market, but they are not transaction-oriented, so the practitioner has to understand that in the short term their value is to merely present information and be a resource. Simply put, it takes patience to reach transactional value when it comes to the behavior of a majority of consumers, and right now there's "an enormous amount of media attention that gets paid to real estate without a lot of transactional value."

Srivatsaa pointed out a social media experiment conducted by Teles Properties, Inc., that revealed building a relationship of "lifetime value" with a consumer can be easily achieved through a considered and thoughtful approach to messaging. In the experiment, consumers were carefully given a chance to know an agent, his volunteer interests, his team, and once this familiarity was established, that step was followed by getting the consumer to trust the agent. This was done by linking to service reviews in order to slowly position the agent,

"Our core target is lead aggregation. We want to know who's going to sell next, and who's going to buy next, and why. That's primarily what our objective is. Tell the story."

- Ryan Marshall

which was done over the course of four weeks. He stated, "Give, give, give, and then ask. I think you can build good lifetime value by just having a thoughtful process of having a relationship with you. It's actually not hard at all, if you're just somewhat thoughtful about it."

B. CORE BENEFICIARIES

In light of the value proposition that big data can provide, Sharfman outlined three core groups – consumers, real estate professionals, and the providers and purveyors of big data – and asked the panel to analyze the benefits that accrue to each of these different constituencies. Kelly began by discussing the benefits that big data can create for consumers, namely a greater chance that an agent will be able to provide relevance, efficiency, and effectiveness in the service he or she provides. He added it's of value to buyers or sellers if they get the right agent earlier in the process who presents the necessary information the way they like to receive it, informed by big data. More importantly, when the agent can use information to be more anticipatory of the client's needs, then the transaction can be performed faster.

Marshall commented on how he has provided geographic information system (GIS) data to serve real estate professionals, particularly those in the Gen X/Gen Y demographic. By laying on hundreds of different data elements or attributes, he is able to predict who is going to move where and provide statistical analysis. He added, "Our core target is lead aggregation. We want to know who's going to sell next, and who's going to buy next, and why. That's primarily what our objective is. Tell the story."

Frame offered a different take by pointing out that the industry has not focused enough on addressing the inefficiencies, and therefore the loss of benefits, of the

inventory system, meaning "the method of how we organize and present property inventory, both to ourselves as practitioners and to the consumers." He suggested there is an opportunity to merge the industry's disparate sources of information due to big data and therefore create a more comprehensive and accurate system that benefits all three major constituencies. "We haven't fundamentally reorganized the way that housing inventory is stored and managed and then ultimately presented to the consumer," Frame stated. He summed up the state of affairs, as follows:

> *"Listings exist in an MLS. Property information exists with the government. There's no system that intrinsically takes that information, plus all the other sources of property information, and creates one property identity repository that people can begin to leverage. There are opportunities to do that, to power our MLS inventory and all kinds of public applications, too. Everything from fire departments to the Red Cross and everybody else who needs property information—all of which are struggling to reconcile the information they have and wishing they could do things differently."*

In discussing the three core groups outlined by Sharfman, Srivatsaa also highlighted an opportunity for improvement. He argued there can be better linkage between these groups by addressing an information gap that exists in relation to big data—a gap that can only be bridged by education. He opined, "The producers and the purveyors of the data have the most tremendous responsibility in this value chain." Education is needed to bridge the gap between the creators of data and real estate agents, whereas design is more important to link consumers and agents, according to Srivatsaa.

He continued, "I don't think most real estate professionals, or the real estate community, have the ability to convey the

Chief Executive Officer of Benutech, Inc., Ryan Marshall, shares his thoughts on making the most of big data.

right messaging because I think it's lost in design. When I say 'design,' I'm talking about how the data is designed and presented—a dashboard, an infographic." Srivatsaa added that if the producers and purveyors of the data think about how consumers are going to ultimately receive the information, then they can do a better job of managing, manipulating, and handling the data, particularly when they are mindful of the education and design that will be involved in getting the message out there.

Frame further contextualized these remarks by noting that consumers are not monolithic, and the types of presentation options matter, since not all people process information in the same way. For instance, some may be intimidated by more visual representations while others primarily want to read lots of figures. Thus, segmentation is important for deriving benefits from the data. He made a larger point about how big data are frequently discussed in terms denoting emotion and story, including the panel's own remarks, which runs counter to the perception and

reality of data being purely logical and numerical. He emphasized that deriving value and benefits will accrue far more to those who understand how to get people to emote with data, stating, "That's why there's a great market for individuals who can visualize data and know how to manipulate it in a way to get people to say, 'I ought to do something about that.'"

To connect these comments back to real estate agents, Sharfman asked where the REALTOR® stands in relation to this mix of challenges and opportunities. Kelly stated the burden falls on REALTORS® to understand how the consumer processes information and to deliver it in that fashion because they are facilitating one of the biggest transactions and decisions the consumer will ever make. By knowing how to accommodate the client, Kelly added, "You increase your likeability, your relationship, and therefore trust; and you become the trusted advisor you're supposed to be."

Based on the comments of the panelists, Sharfman summarized that it would be fair to characterize REALTORS® as the choreographers of big data in servicing clients, since they "muster all of the other resources and coordinate the activities of all of the other resources so that you have a very simple point of contact." This point was met with consensus by the panel, with Frame adding that REALTORS® "need to be able to package the information, get it to [clients] the way they want, and be of service. [Ultimately,] it's a customer service business."

He cited an example of an agent who touted the benefits of the information that Realtors Property Resource® generates for users, but the agent noted that the information proved to be much more effective if he bothered to slightly

> **"I don't think most real estate professionals, or the real estate community, have the ability to convey the right messaging because I think it's lost in design. When I say 'design,' I'm talking about how the data is designed and presented."**
>
> *- Sharran Srivatsaa*

John Kelly, who leads Berkeley Research Group's Predictive Analytics practice, gives his view of how REALTORS® should adapt.

personalize it and give off the impression of content that took a lot of time to create. Frame described this example as the REALTOR® adding his value to the information in order to reap the benefits of big data.

Srivatsaa reiterated his commitment to education as a means to address the points raised by the panel, positing that the profession needs to provide the right training early on in an agent's career so that it is "baked into the ethos of what the real estate professional does, and they'd be more open to learning those tools." He added that it's important to humanize the sale and the problem an agent is facing in meeting the needs of a client, and if education is advanced in the real estate space, then that will be a step toward de-commoditizing the profession.

Kelly provided additional advice for agents looking to position themselves advantageously with clients, stating, "The lesson is you can be more effective as a listener than just as a broadcaster of information. Where [the client] connects to the data is where the agent belongs, as a further sensor. That data tells you what people's styles are, and that's as important as any of this in this mix. So think of yourself as much a data sensor as you are a broadcaster of that information."

While the panel provided advice for how big data can be incorporated in the profession, change is not always embraced in industries, so Sharfman next had the panel address impediments to adoption of big data as a useful tool. ●

"The lesson is you can be more effective as a listener than just as a broadcaster of information. Where [the client] connects to the data is where the agent belongs, as a further sensor. That data tells you what people's styles are, and that's as important as any of this in this mix. So think of yourself as much a data sensor as you are a broadcaster of that information."

- John Kelly

PART III. IMPEDIMENTS TO EMBRACING BIG DATA

> "I don't think we train our real estate professionals to be better communicators around the data conversation. So then they get even more commoditized in the client's living room because they don't know how to show value and they believe the client knows more about the property than they do, when in fact they're in the trenches every single day."
>
> *- Sharran Srivatsaa*

As the information economy continues to expand, learning how to not only use but also gather and analyze accurate and useful information with expertise won't happen overnight, so Sharfman outlined the various impediments that have deterred swift adoption of big data as a means to solidify a competitive advantage. He stated that social or societal impediments, data integrity impediments, and then education and training impediments are some of the key issues for the panel to address, including interpretation impediments that face agents as they attempt to get up to speed in the field of big data.

Kelly began by commenting on a societal impediment, namely that trust is still a major impediment for embracing big data, as trust needs to be established for an entity to share its data so that a consultant, such as himself, can create more value with it. "Just sharing the data with me so that I can analyze it is a big issue for large enterprise companies. Look at all the issues of data breach that we've seen even recently that add to that fear," Kelly said. He also made a larger point about drawing the right conclusions from data, because accuracy is another potential impediment since it takes the right level of expertise, which is in short supply:

> **"Making sure that you have the correct data, and that it matches based off of what the consumer really wants in it—I think that's the hardest part of our business."**
>
> *- Ryan Marshall*

"To tease out those relationships in a way that is statistically important and valid, and so that the conclusion is causal and not just correlated, takes some fairly deep data science talent. While there are a lot of tools out there that are point-and-click capable, sometimes you could be fooling yourself about what are the true dependencies and what is the true story. So there's not enough talent to do this fast enough. I'd also say another [impediment] is the need to visualize the data in a way that makes great impact on people's lives so that they want to do something different as a result of receiving that data, whether it's the CEO of a large enterprise firm or whether it's a home buyer that's a client of a REALTOR®."

As someone who deals with agents and brokers regularly, Srivatsaa mentioned the impediments that demographics pose for the industry, with younger, digital natives being far more willing to embrace big data. He noted, "The hardest part that I see daily is the psychological shift in believing that their touch, feel, and emotion of the neighborhood are better than the data. I think the human overlay is extremely important." With that demographic component affecting adoption, some agents resist utilizing the information because they think they know the market better than what the data says. "But the data is being accumulated and aggregated so much faster than it ever was before, and it can be a very great indicator or a guide, but I see agents fighting it," Srivatsaa said.

Marshall added that data integrity is the top concern he faces as an impediment in the field of data science. He stated, "Making sure that you have the correct data, and that it matches based off of what the consumer really wants in it—I think that's the hardest part of our business." Marshall went on to say that consumers also resist data information being available, and it's a challenge to

communicate what is public record when there are privacy concerns. Adding to Marshall's points about data integrity, Frame stated that since data in the real estate industry is so disparate and relatively poor, people's fears about privacy invasion have only exacerbated the quality of the data: "We're taking poor datasets and making them poorer purposefully because of our aversion to having our privacy invaded as consumers, because people are taking this information from the government and putting it on the web."

Since both Kelly and Srivatsaa highlighted the need for real estate professionals to be at the center of this data, they have a responsibility to deliver well data's insights to the client. Srivatsaa expanded this point to say the lack of training is an impediment, which needs to be addressed in order to get the industry to reach its full potential. He explained as follows:

"I don't think we train our real estate professionals to be better communicators around the data conversation. So then they get even more commoditized in the client's living room because they don't know how to show value and they believe the client knows more about the property than they do, when in fact they're in the trenches every single day. I think if REALTORS® were a little bit more open to the training component and how the data could actually benefit them, de-commoditize themselves, and show value to the process, then organizations like C.A.R., N.A.R., and even the MLS boards stand to have a very great value-added component they can bring to the table. But I think it's shifting that mentality and mindset in the agent perspective—knowing that they're open to that conversation. I think that's really hard."

Kelly contextualized these comments by noting that REALTORS® need to keep in mind that consumers already

have access to so much data and information, so they have to step up their game and be cognizant of the best role they can play with a client who has shown a desire to receive the most salient analysis related to data science—which will only grow more common as this trend is fully in motion. "If the client is analytical from the start and chooses to operate on that ground, and you've already detected it as such, then you're going to have to fight on that field. And if you don't, you're out, and someone else is going to get the listing. [REALTORS®] may already be transitioning to more of a financial advisor type of role, than the pure relationship and style aesthetics and understanding of the neighborhood. You're going to have to be able to deal with the numbers," Kelly stated.

To elaborate on Kelly's points, Frame argued that in light of consumer access to data, the burden is on the REALTOR® to "add value by synthesizing the data and being a better interpreter of it." Based on the wide availability of pertinent information, he went on to say that "REALTORS® might have to hustle to catch up with the consumer who's been thinking about their home a lot longer than you've been thinking about their home." Frame also took the long view about the next frontier for big data in real estate,

"Another [impediment] is the need to visualize the data in a way that makes great impact on people's lives so that they want to do something different as a result of receiving that data, whether it's the CEO of a large enterprise firm or whether it's a home buyer that's a client of a REALTOR®."

- John Kelly

namely for agents themselves to be the sources of data. The personal touch that REALTORS® have with clients due to their direct connection allows for the creation of new sensors on a property, and that new data can represent value for the industry if properly exploited. He commented:

"We're creating new sensors on a property which can augment everybody's understanding of that property going forward, and that's a really exciting opportunity.

Josh Sharfman, C.A.R. Chief Technology Officer, guide's the panel's analysis of technology's impact on real estate.

"We haven't fundamentally reorganized the way that housing inventory is stored and managed and then ultimately presented to the consumer."

- Marty Frame

Finding ways to sort of tap that and create differentiating value for your real estate company by saying, 'I'm the source of the data now. I didn't have to buy that from somebody else. I collected that through my agent. Or I collected that as an agent.' That gives you some really unique and particular knowledge, which is going to equip you for everything that's happening around the neighborhood."

Srivatsaa added to Frame's comments on REALTORS® serving as expert interpreters of data by positing that to successfully pull off this endeavor, agents need a framework in order to accurately interpret for the particular client they are dealing with, or a framework simply to anticipate a certain client. Having a thoughtful strategy in place for local buyers, regional buyers, national buyers, international buyers, etc. gives the agent confidence to approach each segment appropriately and be "better intellectual interpreters of data."

Kelly opined this is another example of the importance of agent education and training, stating, "Now you've got to combine good old-fashioned selling skills with new data interpretation skills. That's the old art combined with the new science, and that is new territory. I think that's something every agent's got to get up to speed on now. […] You don't want to interpret the data to say anything it's not saying."

In order to get strong results from data so that customer acquisition is not impeded in the process, Srivatsaa touted the need for having a "north star." That is to say his team constantly questions whether actions will result in agents having a unique client advantage, improved skills, or more leads. An objective-based approach ensures "good process drives good results," a motto that Srivatsaa highlighted as a strong guiding principle. ●

Marty Frame, who is the president of Realtors Property Resource®, analyzes industry trends.

PART IV. CONCLUDING REMARKS

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>
> *- Sharran Srivatsaa*

The pervasiveness of big data and its ability to advance the overarching purpose of a proactive REALTOR® proved to be key takeaways in the panel's discussion, and in its concluding remarks, the panel offered final thoughts on successfully adapting to this change for the industry. Since big data's prevalence is unavoidable for real estate, Sharfman asked the discussants to offer parting advice about capitalizing on the full potential of a data strategy—particularly in light of a point made by Marshall, who stated, "I think we're going to see a bigger spike in big data being available to general consumers."

Kelly cautioned, "Data's coming, whether you like it or not [...] so be a sensor and be an analyst [...] and above all listen to your client as a source of that data." He suggested REALTORS®, when possible, should try to add data to their qualitative sense of what is going on in the market and to what they are hearing from their clients. And since clients have access to data and information from sites like the online portals, Kelly added that agents may be experiencing increasing conflict, or at least conversation, with their clients about "what numbers are going on in the market," which means it's important to present different data points, blend perspectives, and put forth the most valuable and correct analysis for the client.

To buttress Kelly's comments on presenting the most accurate analysis, Srivatsaa opined that if agents can resolve for the client the conflict created by the industry's inaccurate data, then they can pivot themselves more firmly into the role of a trusted advisor. He stated, "Since a lot of the data is not accurate, I think that provides a phenomenal opportunity for a real estate professional to show value […] so if agents can see the value in being the advisor, resolving conflict, then that puts them in a really, really special place."

Srivatsaa also advised that just like writers should write every day to hone their skills, practitioners of real estate have a similar duty to reach a strong level of comfort with big data. He stated, "I think good practitioners practice every day. So for an agent or a professional or a broker to become better at their craft, they should just do it every day."

To characterize his perspective, Frame commented that he is fundamentally "an 'incrementalist' when it comes to the application of technology to the real estate industry. So what does that mean for real world applications of big data to real estate? Frame suggested, "You have to develop something that takes the business process of a high-performing producer and just do it a little bit more easily, more timely, more cost effectively, with a little bit more value-added information, than what the practitioner's already doing."

Both Frame and Marshall agreed that it is a matter of focusing on successful processes, learning from them, and applying a larger source of information than just an agent's gut instincts, with Marshall adding that, "Use data to support your purpose and leverage it."

And if an agent wants to stay ahead of the curve, Srivatsaa suggested that REALTORS® should "embrace all the data points associated with the concept of an online reputation economy, then they're going to be so far ahead of the curve in the next 10 years." That's because Srivatsaa believes in the future that "the single biggest determining factor of how a consumer chooses an agent to enhance their experience is going to be through an agent's online reputation," so it's important to cultivate reviews and an online profile.

Another way to stay ahead of the curve, according to Kelly, is "to take that data and blend it well with knowledge, education, experience, and doing your best to be a trusted advisor. [All] those together, I think you'll be ahead of the curve and making great money in this market for many, many years to come."

Sharfman and the Center for California Real Estate are appreciative of the panel's ability to offer incisive analysis and practical applications for the real estate industry amid the growing prevalence of big data. It's clear that in light of the panel's comments, being proactive with big data is a core strategy for being successful in an environment that will continue to feel the effects of the new information economy now and in years to come. ●