Conclusions

- Real estate researchers identified that buying (a) has a positive impact on selling price, (b) slightly reduces marketing time, and (c) leads to a notable increase in the probability that a property will sell and clear during a given marketing effort.
- The limitations, however, that in future studies the data will be fitted to regression models using mortgage and house price data as dependent variables to explore and estimate the predictive nature of Twitter content and sentiment.
- A net saving of 5% - 10% is considered to be achievable. These include capacity costs, labor costs, transaction costs, process costs, etc. In contrast, new cost may also arise for investing in resources and new types of functions with timber and applying a customer-centric approach to the design and assortment of elements, all the while linked to the process but also helps focus on the customer.

Conclusions

- The results of this research offer three important research implications: note to note, note to note, and note to note. Immediate feedback realized from the implementation of HTP includes, but not limited to, network scalability, data redundancy, and the potential of a national multiple listing service.
- The ability to access real-time data and insights drawn from that data about the urban environment that surrounds real estate and identify its connection with real estate value provides an unprecedented potential for enhancing real estate development decisions, primarily through better access for building calculation, more accurate assessment of the purchasing power of users of real estate, and to better risk assessment of real estate users.
Digitalization Real Estate on American Real Estate Society 2018

A Dramatic and Irreversible Shift in Real Estate Systems

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The 34th annual congress of April 10-14 this year took place in Bonita Springs (Florida) where the professionals in real-estate education and research discussed six themes: global economy and capital flows, real estate market cycles, demographic effects, future-proof real estate, disruption in technology and future educational models.

The six themes of this congress were the result of the more than 120 participants who participated in the Critical Issues Seminar in Coronado, San Diego last year. As with the previous nine years of these ARES meetings, the central goal of the meeting is to focus on education and research strategies and action plans that can close the gap between the real estate profession and the academic world. This makes real estate education and research more relevant and better utilized within the various professional and academic sectors of the real estate economy. The large variety of the many panels that took place included many different perspectives in 105 sub-sessions.

The influence of technology on the valuation of real estate is also presented in various themes. The impact of technological changes on real estate and the real estate sector is considerable. PropTech is developing very fast, but can this be expressed in a valuation of real estate as we can and should do with sustainability? Big data too - we have a lot of data, but do we know how to ask the right question to make this data accessible? - will influence the potential impact on demand, supply and financing. All questions that the Congress tries to answer with many researches. In seven presentations of research into the digitization of real estate and its influence on the development of real estate, two of the 105 sessions presented, explained and commented: (1) Technology & Housing Dynamics and (2) Big Data & Urban Dynamics:

DIA OVERZICHT
1. **The Impact of Blogging on the Key Metrics of Price, Marketing Time, and Likelihood of a Transaction for Residential Properties**

Bogosavljevic, Gravatt and Johnson (2018) writing in their abstract that ‘digital marketing decisions are no longer solely in the hands of real estate brokers. Property sellers not only determine if the property will appear online (or not); they also decide what, if any, other digital marketing efforts may be associated with their online property listing. This is due in large part to a settlement between NAR (National Association of Realtors) and the DOJ (Department of Justice) concerning third party comments. In this study, we examine the impact of the seller’s choice to allow third-party comments concerning their residential property wherever it is posted online. The field definition coded as blogging in many MLSs (Multiple Listing Services) is investigated for its effect on property price, property marketing time, and the likelihood of a transaction of a property during a given marketing period. Findings suggest that blogging: (a) has a positive impact on selling price, (b) slightly reduces marketing time, and (c) leads to a notable increase in the probability that a property will sell and close during a given marketing effort. This new knowledge should allow for a better understanding of the impact of digital marketing, in general, and blogging, in particular, as the industry moves forward into an environment of greater and more intensive digital marketing efforts.’

2. **Twitter and Housing Markets**

Winson-Geideman (2018) states in her abstract that ‘this research analyses the content and sentiment of Twitter data collected over a four-year period from mid-2013 through mid-2017. The data were collected using scripts written in the programming language R that were specifically designed to capture Tweets containing hashtags or terms related to houses, house prices, and mortgage/interest rates. Data were captured on a daily basis, and the raw data set includes almost 14 million Tweets. The specific hashtags and terms that were collected and are relevant to this research include: home price, home value, housing, house price, houseprice, housevalue, home, housing, inflation, interest rates, interestrates, mortgage rates, mortgage, and mortgagerates. Other terms and hashtags collected include: condo, realestate, real estate, and realtor.

3. **Business Case qklinker: a digital housing corporation in the Netherlands**

Making progressive decisions in the current market organization is complex (Veugel and Koeken 2018). In view of the exponential growth of digitalization and the related possibilities such as the modernization of service, it is crucial to be able to act completely freely. This implies, among other things, that no restrictions are imposed on the past. This includes, for example, current processes,
tenant expectations and the current ICT landscape. Therefore, it was chosen to gear up and crystallize these ideas in the form of a start-up. An all-new, digital corporation, powered from the smartphone. This offers the opportunity to start with a sharp digital vision and the pursuit of a future-proof Mitros. This new startup will be incorporated under the name qlinker.

4. A Hub-and-Spoke Messaging System for Next Generation Multiple Listing Services

Leong (2018) states in his abstract that ‘current Multiple Listing Services (MLS) operate as isolated systems due to tight coupling to their local markets and a lack of interoperability for provisioning listings outside of their local areas. Moreover, these legacy MLSs act as controlled gateways eliminating a network effect for maximizing marketability of listings to non-local buyers. This paper proposes a new, distributed messaging protocol called Real Estate Transport Protocol (RETP) for resolving weaknesses and inefficiencies present in today’s legacy MLSs. Implementing a virtualized infrastructure, RETP’s messaging protocol creates a hub-and-spoke network topology for provisioning listing messages to a centralized hub from connected nodes acting as network spokes similar to FedEx’s package shipping model. The results of this research offer three messaging use cases: node to hub, node to hub to node, and then finally, node to hub to multiple nodes. Immediate benefits realized from the implementation of RETP include, but not limited to, network scalability, data redundancy, and the potential of a national multiple listing service.’

5. Digital Cities: Real Estate Development Driven by Big Data

Donner, Eriksson and Steep (2008) states in there abstract that ‘urban environments are composed of urban population, urban infrastructure, city governance and commercial markets within cities. The rapid growth of emerging technologies for sensing and communicating data is being leveraged by commercial companies to create digital applications where machine learning applications analyze multiple kinds of data now available from instrumented infrastructure, public and private urban transactions and citizens’ mobility to transform urban environments. This kind of transformation is our view of what enables a “digital city”. Commercial markets are at the heart of this concept, with commercial applications of digital infrastructure rapidly developing, because data from multiple sources are more easily available and analyzed across multiple data layers drawn from different sectors and regions of the city. It is now possible to visualize multiple kinds of outcomes across an entire city and its markets, and to do “What if?” analysis using predictive analytics to generate new insights and financial models across a wide range of vertical urban services. The ability to visualize real time data and insights drawn from that data about the urban environment that surrounds real estate and identify its connection with real estate value provides an unprecedented potential for
enhancing real estate development decisions, primarily through better forecasts for building utilization, more accurate assessment of the purchasing power of users of real estate, and by better risk assessment of real estate users. This article presents an analysis of the potential benefits of digital cities for real estate development decision making."

6. The Driving Forces Behind Real Estate Digitalization

As Piazolo states in his presented research results are the driving forces of digital technologies: (1) increasing transparency, (2) raising efficiency, (3) enhancing flexibility and (4) enabling new opportunities, new contents, and new insights. These four formative characteristic will also describe future new developments in real estate within a few years. Piazolo concluded that companies that fulfill with their business models these characteristics will prevail against competition and otherwise crowding out through competition. He also mentions a couple of hypotheses for discussion for digitalization and real estate: (1) transparency-pressure will increase, (2) platforms will continue to gain importance, (3) frictionless execution of all secondary processes around bought product is expected, (4) quality and credibility are demanded, (5) power of control about data as important as staff and (6) processes automated, but staff is more flexible.

7. A real game changer in real estate: blockchain

Blockchain – a distributed database that contains a growing list of data items and that is hardened against manipulation and counterfeiting - plays an important role in that. The notaries and brokers have already experienced this in the recent period, and it will continue to have an effect on real estate owners, financiers, users, builders, brokers, notaries and the cadastre. The real estate world finds itself at a tipping point of a transition: a dramatic and irreversible shift in (real estate) systems in society. This abstract based on research (Veugier 2018) is a State of the art of Disruption, Blockchain and Real Estate in the Netherlands and international.

Conclusion

In conclusion, we can draw seven conclusions from the studies described above:

- Findings suggest that blogging: (a) has a positive impact on selling price, (b) slightly reduces marketing time, and (c) leads to a notable increase in the probability that a property will sell and close during a given marketing effort.

- The expectation is, however, that in future studies the data will be fitted to regression models using mortgage and house price data as dependent variables to explore and estimate the predictive nature of Twitter content and sentiment.
• A cost saving of 5% - 30% is considered to be achievable; these include capacity costs, waste costs, transaction costs, process costs, etc. In contrast, new costs may also arise for investing in resources and (new types of) functions within qlinker and applying a customer centric approach to the device application not only eliminates all the wastes linked to the process but also helps focus on the customer.

• The results of this research offer three messaging use cases: node to hub, node to hub to node, and then finally, node to hub to multiple nodes. Immediate benefits realized from the implementation of RETP include, but not limited to, network scalability, data redundancy, and the potential of a national multiple listing service.

• The ability to visualize real time data and insights drawn from that data about the urban environment that surrounds real estate and identify its connection with real estate value provides an unprecedented potential for enhancing real estate development decisions, primarily through better forecasts for building utilization, more accurate assessment of the purchasing power of users of real estate, and by better risk assessment of real estate users.

• As Piazolo states in his presented research results are the driving forces of digital technologies: (1) increasing transparency, (2) raising efficiency, (3) enhancing flexibility and (4) enabling new opportunities, new contents, and new insights. These four formative characteristic will also describe future new developments in real estate within a few years.

• The real estate world finds itself at a tipping point of a transition through blockchain: a dramatic and irreversible shift in (real estate) systems in society.