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HOUSING  
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## The Sea Change of Data Science and Apartment Research

2020 NMHC Research Forum Webinar Series  
**March 31, 2020**



@ApartmentWire  
#NMHCresearch

## Webinar Host

**Mark Obrinsky**

SVP, Research and Chief Economist  
NMHC



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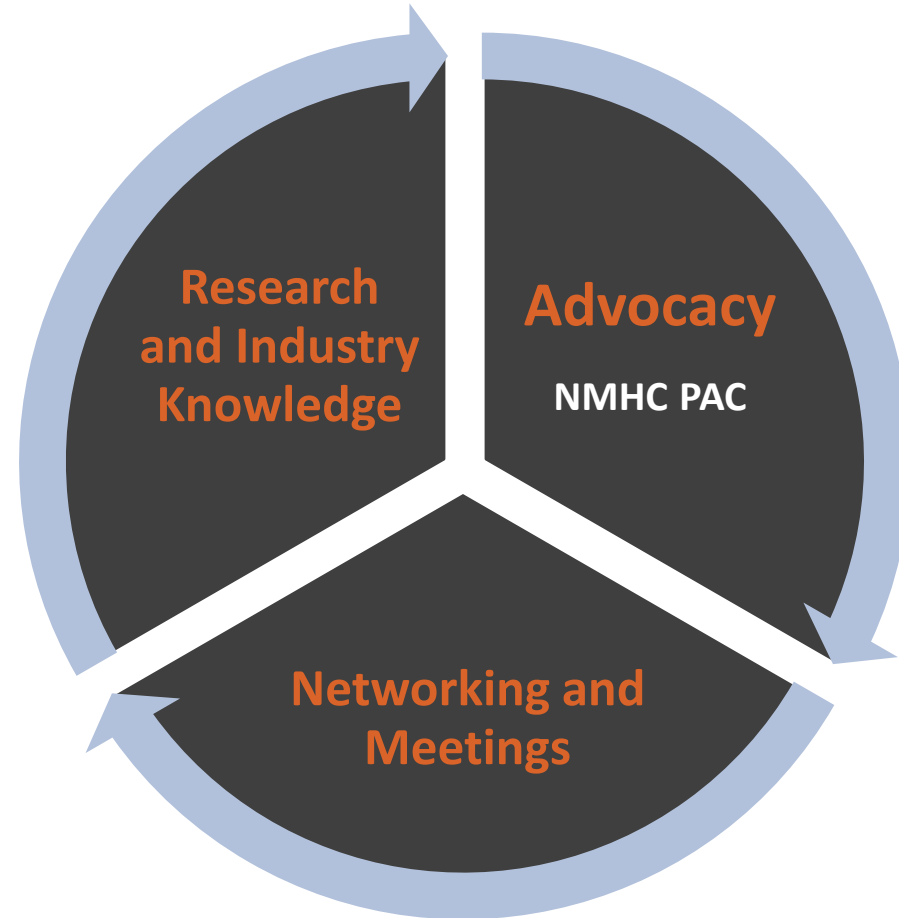


# Webinar Information

- To ensure good sound quality, all attendees will be muted during the webinar.
- To ask a question: type your question in to the Question Box on your control panel. NMHC staff will review and present your question to the speakers at the end of the presentation as time allows.
- Today's webinar is being recorded and will be made available on the NMHC website.
- This webinar is closed to media and intended for information purposes only.

# NMHC Mission

The mission of NMHC is to create opportunities for the industry's best and brightest to come together to leverage smart decision making and collaborative action to shape a positive future for their business, the multifamily housing industry and the communities they help build.



# AGENDA

- Welcome and Overview
- **Economics and Forecasting: Algorithms, Machine Learning, and Data Science**
  - James Chung, President, Reach Advisors
- Applying Data Science in Multifamily
  - Quinn Eddins, Managing Director, Research and Analytic Services, Greystar
  - Mark Franceski, Vice President, Research The Bozzuto Group
- Questions
- Closing Remarks



# ECONOMICS AND FORECASTING: ALGORITHMS, MACHINE LEARNING, AND DATA SCIENCE

**James Chung**  
President  
Reach Advisors











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# 2020 NMHC Research Forum: The Sea Change of Data Science and Apartment Research

James Chung

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REACH ADVISORS



StratoDem Analytics

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# APPLYING DATA SCIENCE IN MULTIFAMILY

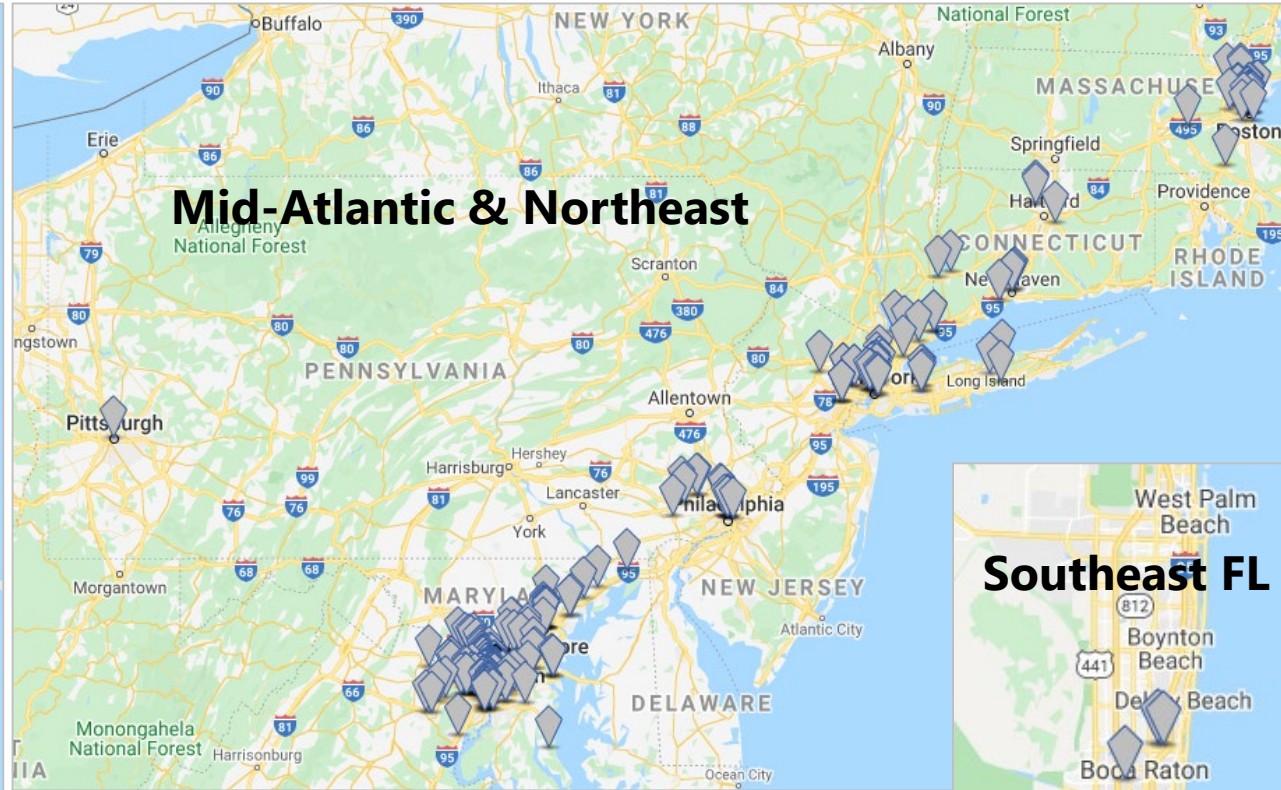
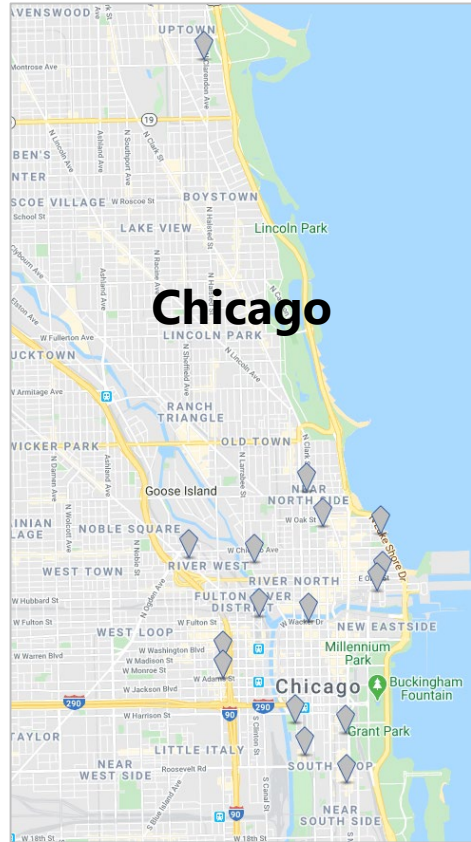


**Quinn Eddins**  
Managing Director, Research and Analytics  
Greystar



**Mark Franceski**  
Vice President, Research  
The Bozzuto Group

# Bozzuto Footprint



Metro Area	#Projects	#Units
DC Metro	121	34,000
NY-NJ-CT	49	13,700
Baltimore Metro	30	7,300
Boston	23	6,600
Chicago	17	6,500
Philadelphia	15	3,900
Florida	10	3,900
Pittsburgh	1	400
<b>Total</b>	<b>265</b>	<b>76,200</b>



# Talent Sourcing



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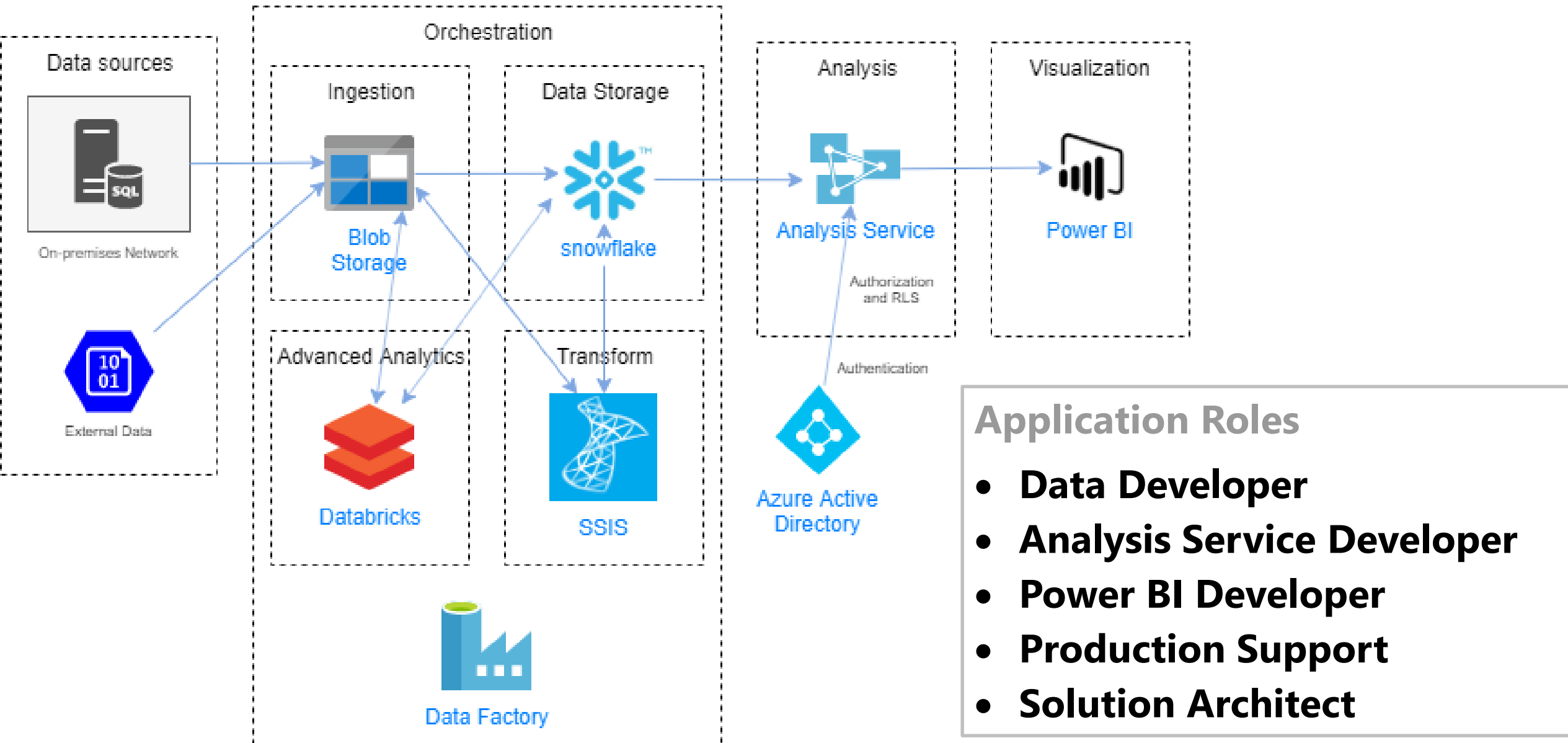
Program of Interest

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# Architecture Diagram





- Yardi Orion and the importance of data modeling
- The spectrum between “What do you want to know?” and “What do you have?” or “If this is so advanced, you tell me what I need to know.”
- Data quality
- Skills, skills, skills, skills
  - SQL, Python, database design and administration, , etc.
- Infrastructure intimidation

# GREYSTAR AT A GLANCE



Founded in 1993, Greystar™ is the global leader in rental housing offering expertise in investment management, development and construction, and property management worldwide.

**197**

Global Markets

**13**

Countries

**15,000+**

Team Members

**Charleston, SC**

Global Headquarters

## PROPERTY MANAGEMENT

**525K+**

Units Under Management  
(including student beds)

**82K**

Student Beds Under  
Management

**1,800+**

Communities (in 42 US States,  
DC, and 5 Countries)

**\$160B**

Value of Managed and Operated Portfolio  
(Estimated)

## GLOBAL INVESTMENT MANAGEMENT

**\$36.1B**

Assets Under Management  
(AUM)

**\$19.8B+**

Equity Under  
Management

**167K+**

Units and Student Beds  
Owned

**113**

Markets  
(Assets Owned)

## DEVELOPMENT AND CONSTRUCTION SERVICES

**\$14.2B**

Global Developments Underway  
(Also included in AUM)

**\$8.0B**

Global Development  
Pipeline\*

**\$7.9B**

US General Contractor  
Capitalization (Since 2009)

**176**

US Multifamily Projects  
Sponsored (Since 2009)

Numbers are as of September 30, 2019 \*The Global Development Pipeline, which represents a volume of projects that are currently being evaluated, is subject to change without notice and is provided as an example of the volume being pursued. There is no guarantee that any deals in the Pipeline will ultimately be included in Greystar's investment portfolio. Past performance of projects in the pipeline are not indicative of future results.

> [GREYSTAR.COM](http://GREYSTAR.COM)

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# QUESTIONS



James Chung



Quinn Eddins



Mark Franceski

# NMHC RESEARCH FORUM WEBINAR SERIES

## State of the Apartment Industry - Market Trends and Outlook Webinar

April 2 | 2:00 -3:00 PM EDT

## The Role of "Filtering" in Housing Affordability

April 16 | 2:00 – 3:00 PM EDT

## New Apartment Construction: The Impact on Existing Apartments Webinar

May 12 | 2:00 – 3:00 PM EDT



**Jeff Adler**  
Vice President  
Yardi



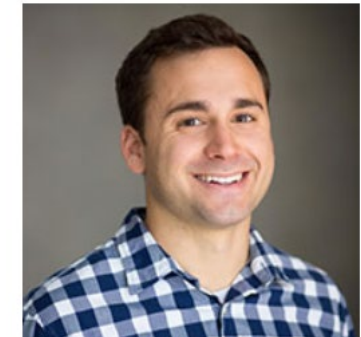
**Steve Guggenmos**  
Vice President  
Research & Modeling,  
Investments & Advisory  
Freddie Mac



**Jay Lybik**  
Vice President, Research  
Services  
Institutional Property  
Advisors



**Dr. Dowell Myers**  
Sol Price School of Public Policy  
University of Southern California



**Evan Mast**  
Economist  
Upjohn Institute

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