Customer Transaction Data: From Essentials to Leisure

Sponsored by Majid Al Futtaim

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Introductions

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Questions?

To ask a question, click the chat button in the upper-right and type your question

- All questions will be answered live or via e-mail
Agenda

• About Majid Al Futtaim
• Research Opportunities
• About the Data
• Research Proposal & Application Process
• Q&A
A Few Operational Notes

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Questions about our research programs or for press inquiries:

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To work with WCAI and Majid Al Futtaim, research teams must submit a proposal for approval. More details throughout this presentation.
About Majid Al Futtaim
“My dream is to create great moments for everyone, everyday.”

Majid Al Futtaim
We are a leading lifestyle conglomerate in the Middle East, Africa and Asia, serving over 560 million visitors a year.
We continue to transform the way people shop, live and play through a diverse portfolio

Advancing the quality of life in the region
Creating countless great moments across the region

15 countries

- Armenia
- Bahrain
- Egypt
- Georgia
- Iraq
- Jordan
- Kuwait
- Kazakhstan
- Kenya
- Lebanon
- Oman
- Pakistan
- Qatar
- Saudi Arabia
- UAE
Amongst the largest privately owned employers in the region

40,000* employees (and growing)

104 nationalities

We are committed both to diversity and localisation, enabling us to attract the best and brightest talent.

*2017
Letting numbers tell our story

**BBB** credit rating, the highest among privately owned companies in the GCC
An ambition built on two key pillars

Signature customer experience & Top notch talent and capabilities

Developing seamless and integrated omnichannel offering
Investing in value generating capabilities

- Talent Development
- Sustainability
- Customer Insights
- Seamless Customer Experience
- Meaningfully Different Experiences
- Societal Impact
Customers are at the heart of our ecosystem

Deploying advanced analytics at scale to benefit our businesses and partners, and ultimately design and deliver the best-in-class customer experience.
And Customer analytics is the key

- Continuously Reinforce Ecosystem
- Scale-Up and Enrich Data Analytics
- Re-conceive Business with a Technology Dimension
- Actively Instill Mindset of Innovation
- Leverage Analytics for R&D Incubation
- Become a Magnet for Tech Native Talent
Path to change
We have embarked on an ambitious transformation journey to continue translating our bold vision into great moments for everyone, everyday.
**ANALYTICS TRANSFORMATION AIMS TO ENHANCE DATA-DRIVEN DECISION MAKING TO SUPPORT CUSTOMER AND EMPLOYEE EXPERIENCE**

<table>
<thead>
<tr>
<th>Vision for AA transformation</th>
<th>Key goals for the AA transformation</th>
</tr>
</thead>
</table>
| Instill a **data driven culture** across Majid Al Futtaim to **improve decision making** and to **maximize value creation** from **insights** | - Establish MAF as the regional leading player in data analytics and become a talent magnet  
- Empower employees to leverage data for decision making  
- Proactively generate and manage data as an asset  
- Improve efficiency and employee experience via data simplification  
- Increase internal agility and responsiveness via data & tech  
- Create transparency & consistency of information across OpCos  
- Optimize customer experience via personalized offers  
- Maximize customer life time value  
- Drive insights to new sources of value through improved performance and behavioural metrics |
THE CURRENT PHASE OF THE TRANSFORMATION IS FOCUSED ON DEVELOPING AN ANALYTICAL MINDSET AND SCALING UP THE TRANSFORMATION

**Year 1**
**BUILDING THE FOUNDATION**
Setting the foundation of our analytics transformation, building our data lake, acquiring the required talent and launching pilot use cases

**Year 2**
**CHANGING MINDSETS and SCALING UP**
Upskilling squad members and the broader organization to scale up the transformation, and generating the first wave of impact from ongoing use cases

**Year 3**
**AUTONOMY and REALIZING IMPACT**
Ensuring seamless integration between OpCos and Centre of Excellence, realizing financial impact from use cases on an ongoing basis, and regularly launching new use cases
WE COLLECTED CUSTOMER AND TRANSACTION DATA FROM CARREFOUR, NAJM, VOX, L&E, AND WI-FI TO BUILD THE MAJID AL FUTTAIM GOLDEN CUSTOMER RECORD
Research Opportunities
Research Opportunities

Consumer science

• Creating a group wide segmentation of MAF customers (e.g. customers that shop at one or multiple of our businesses)
  - Defining the lifetime value of each of these segments
  - Defining offers/optimal path to grow each of the segments

• Identifying areas with new customers and defining optimal way to acquire them

• Assessing the value/ROI of NPS scores (e.g. is there a correlation between the increase/decrease of customers’ NPS scores and their spend)
Research Opportunities

Estimating and increasing share of wallet

- Calculating disposable income for Credit Card users and developing an index for total spend
- Identifying customers who are shopping at other stores and developing ways of bringing them back into the ecosystem
Research Opportunities

Targeting promotions

- Direct marketing
  - Targeted promotions to Carrefour customers
  - Targeted promotions to mall shoppers
  - Targeted promotions to VOX customers

- Targeting direct marketing and designing cross promotions
  - Identifying (and targeting) mall shoppers who might want to go to the movies
  - Identifying (and targeting) moviegoers who might want (or need) to go to Carrefour.

- Promotion effectiveness measurement
  - Defining methods to assess the effectiveness and ROI of campaigns
Research Opportunities

Loyalty reward mechanisms

• Designing the reward mechanisms of a group-wide loyalty program, including experiments (if necessary). Defining the optimal reward mechanisms, e.g. what are the tiers, what are the rewards per tiers, how does a customer move up or down from tiers etc.

Operations/optimization

• Defining methods to measure the financial impact of current analytics initiatives within MAF
  - Method to quantify the impact of experiments/pilots for assortment optimization
  - How to measure the direct impact of changes to movie scheduling
Research Opportunities

Re-identification of transactions in the mall(s)

• Connecting WiFi/Search data to POS data
• Identifying customers who were in stores at the time of transactions
• Re-identification of customers in infrastructure-poor countries (e.g. no loyalty cards)

Definition of data product to generate insights for third parties

• Defining data product/sets of analysis based on customer panel that would be valuable for external partners such as CPG manufacturers or movie producers

Something else not on this list!
About the Data
Data Background

• The dataset contains information for customers of Majid Al Futtaim

• Data can be linked at the customer-level across business types to create a comprehensive view of each customer:
  - It includes *purchase activity* from MAF Retail Businesses and Cinema Locations
  - *Credit card activity* through MAF and Non-MAF stores and businesses
  - *Location based data* collected from WiFi in the Mall
  - And *customer feedback* from surveys
Data Background – Cont.

• The dataset also contains assets not directly linked to customers:
  - *Anonymous point of sale transactions from Mall stores*
  - *And parking visits at the Mall*

• Data has been collected over a 2 year period
  - *A sample of ~380,000 customers and 3 months of data is represented in this presentation (except where noted)*
  - *Awarded teams will have access to the full dataset*
  - *All data has been de-identified*
A Single Customer in the Data

The dataset contains retail purchases

- We observe Customer A making purchases at Carrefour and other retail stores and businesses operated by MAF
A Single Customer in the Data

The dataset contains retail purchases

- We observe Customer A making purchases at Carrefour and other retail stores and businesses operated by MAF
- And through other businesses and channels NOT operated by MAF
  - These could be competing businesses, online services, or even include financial charges
A Single Customer in the Data

The dataset contains cinema transactions

- We also observe Customer A purchasing movie tickets and snacks at a VOX Cinema

![Diagram showing purchase history of Customer A]
A Single Customer in the Data

The dataset contains WiFi location/engagement data

- Customer A may have connected to *WiFi in the mall*
A Single Customer in the Data

The dataset contains WiFi location/engagement data

- **Customer A may have connected to *WiFi in the mall***
- **We observe them *moving around the mall***
A Single Customer in the Data

The dataset contains WiFi location/engagement data

- **Customer A** may have connected to *WiFi in the mall*
- We observe them *moving around the mall*
- And receiving promotional messages *on their connected device*
A Single Customer in the Data

Finally … the data includes customer feedback

- So Customer A may receive a survey after shopping or connecting to WiFi
Data Structure

- **Retail:** Carrefour Data
- **Retail:** Mall Store Data
- **Malls:** WiFi Data
- **Malls:** Parking Visits Data
- **Consumer Finance:** Credit Card Data
- **Cinema:** VOX Data
- **Feedback:** Survey Data

Transforming Business Through Customer Data
Data Structure

Retail:
- Carrefour Data

Consumer Finance:
- Credit Card Data

Cinema:
- VOX Data

Malls:
- WiFi Data

Retail:
- Mall Store Data

Feedback:
- Survey Data

Malls:
- Parking Visits Data

Transforming Business Through Customer Data
This includes individual customer credit card transactions through Najm, one of UAE’s leading provider of credit card solutions

- Data captures all customer credit card activity, including online and offline purchases at stores/businesses operated by MAF, and customer activity at competing businesses

- **Customer Information:**
  - Credit card information, with application details
  - Demographics: Age, Nationality, Gender
  - Total Monthly Salary (AED)

- **Transaction Information:**
  - Amount
  - Purchase Date
  - Merchant Type/Category
Data Structure

- **Retail:** Carrefour Data
- **Consumer Finance:** Credit Card Data
- **Cinema:** VOX Data
- **Malls:** WiFi Data
- **Retail:** Mall Store Data
- **Feedback:** Survey Data
- **Malls:** Parking Visits Data
Retail: Carrefour Data

These include customer purchases and loyalty card information from Carrefour, one of the largest hypermarket chains in the world.

• Customer Information:
  - Demographics: Age, Nationality, Gender
  - Segmentation information (e.g. wealthy family)
  - Loyalty card information
  - Communication opt-in/opt-out flags

• Product/item Information:
  - Product category
  - Purchase Date

• Store Information
  - Location
Questions?

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Data Structure

Retail:
- Carrefour Data
- Mall Store Data

Consumer Finance:
- Credit Card Data

Cinema:
- VOX Data

Malls:
- WiFi Data
- Parking Visits Data

Feedback:
- Survey Data

Transforming Business Through Customer Data
Cinema: VOX Data

This data includes *online* and *offline* customer transactions and movie information from a VOX Cinema

- **Transactions Information**
  - Tickets/food items purchased
  - Purchase timestamp
  - Type of transaction: Online/Offline

- **Cinema/Movie Information**
  - Screen identifier
  - Movie session attributes (e.g. 2D vs. 3D)
  - Show start/end time
  - Seats available/sold
Cinema: VOX Data

Here we observe *online* and *offline* customer transactions from a VOX cinema

- Each row is a single transaction (e.g. movie ticket(s), food item(s))

<table>
<thead>
<tr>
<th>Hashed Customer ID</th>
<th>Item purchased</th>
<th>Item type</th>
<th>Movie Name (if applicable)</th>
<th>Transaction date</th>
<th>Quantity</th>
<th>Net Amount</th>
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</thead>
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<td>3D Glasses</td>
<td>BOX O...</td>
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<td>2018-06-23 00:50</td>
<td>1.0000</td>
<td>0.000000</td>
</tr>
</tbody>
</table>

* Only a sample of 3 months of data is represented. Awarded teams will have access to the full dataset.
Cinema: VOX Data

We also have the movie sessions associated with ticket purchases

- Each row shows additional information about the specific movie showing associated with a ticket sale

<table>
<thead>
<tr>
<th>Movie Session ID</th>
<th>Movie Session Attributes</th>
<th>Seats Sold</th>
<th>Show Times</th>
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<tbody>
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<td>94</td>
<td>7/24/18 17:05 - 7/24/18 19:05</td>
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<tr>
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<td>2D</td>
<td>91</td>
<td>7/24/18 23:00 - 7/24/18 1:56</td>
</tr>
<tr>
<td>28dfe3abc59f613c2bc84a191350d</td>
<td>2D</td>
<td>120</td>
<td>7/24/18 14:45 - 7/24/18 16:50</td>
</tr>
<tr>
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<td>2D</td>
<td>115</td>
<td>7/25/18 12:00 - 7/25/18 14:45</td>
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<tr>
<td>64b9202e4c1566e3bfe74bb7e1760d</td>
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<td>120</td>
<td>7/24/18 18:45 - 7/24/18 21:00</td>
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<tr>
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<td>193</td>
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<tr>
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<td>2D</td>
<td>131</td>
<td>7/24/18 19:30 - 7/24/18 22:15</td>
</tr>
<tr>
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<td>2D</td>
<td>80</td>
<td>7/24/18 23:55 - 7/24/18 2:00</td>
</tr>
<tr>
<td>a5f2bc5e8950d0be83e7c8e2a27e2d77</td>
<td>2D</td>
<td>20</td>
<td>7/24/18 22:30 - 7/24/18 1:45</td>
</tr>
<tr>
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<td>70</td>
<td>7/24/18 17:05 - 7/24/18 19:05</td>
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<td>2D</td>
<td>70</td>
<td>7/24/18 14:00 - 7/24/18 16:25</td>
</tr>
</tbody>
</table>

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- **Malls:** Parking Visits Data
Malls: WiFi Data

Data includes customer WiFi location and engagement data from a MAF mall

- **Customer Acquisition Information:**
  - Acquisition location & timestamp
  - Device(s) registered
  - Communication opt-in/opt-out flag

- **Customer Visit Information:**
  - Shows customer movement throughout the mall
  - Location/zone information
  - Visit start/end times

- **Customer Engagement Information:**
  - Communication type: SMS/Push Notification
  - Timestamp
  - Customer location
  - Campaign id
First, we see a snapshot of WiFi acquisitions, showing customers registering their devices in a MAF mall.

- Every row is a record of a customer registering their device.

<table>
<thead>
<tr>
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<th>gender</th>
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<th>acquisition_timestamp</th>
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<td>M</td>
<td>Samsung Galaxy J7 Prime</td>
<td>Android</td>
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<tr>
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<td>M</td>
<td>iPhone</td>
<td>iOS</td>
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<tr>
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<td>05a7428613e58a9b9f9d8678678a</td>
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<td>Android</td>
<td>2/21/17 10:68</td>
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<td>5/16/18 13:53</td>
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<td>iOS</td>
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<td>c9f6abc2f75da6221db366c2b3edc10</td>
<td>U</td>
<td>Samsung Galaxy J7</td>
<td>Android</td>
<td>2/9/17 18:57</td>
</tr>
</tbody>
</table>
Malls: WiFi Data

Second, we see WiFi visits tracking individual customers as they enter and exit different locations throughout the mall

- Every row is a record of a customer entering and exiting a zone in the mall

<table>
<thead>
<tr>
<th>Hashed Customer ID</th>
<th>Location/Zone Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>wfi_visit_hash_id</td>
<td>wfi_acquisition_hash_id</td>
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<tr>
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</tr>
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<td>0000fe0f3245842d16d5b0d6c7e712</td>
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</tr>
<tr>
<td>000010dc3c24e2277a5f59145091f5</td>
<td>MAF MALL/3F</td>
</tr>
</tbody>
</table>

* Only a sample of 3 months of data is represented. Awarded teams will have access to the full dataset.
Malls: WiFi Data

Third, we see a sample of WiFi engagements, each record providing information about promotional messages sent to the customer’s device:

- Each row shows a customer receiving a promotional message

<table>
<thead>
<tr>
<th>Hashed Customer ID</th>
<th>Engagement Timestamp</th>
<th>Engagement Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>c2d657c13f8e3e2cb6d9b8a179385a56</td>
<td>6/30/2018 18:44</td>
<td>SMS</td>
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<td>7/24/2017 17:10</td>
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<td>c7e614f708cc70c2c8383f92c1d07</td>
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<tr>
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<td>SMS</td>
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<td>SMS</td>
</tr>
</tbody>
</table>

* Only a sample of 3 months of data is represented. Awarded teams will have access to the full dataset.
Questions?

To ask a question, click the chat button in the upper-right and type your question

- All questions will be answered live or via e-mail
Data Structure

- Consumer Finance: Credit Card Data
- Cinema: VOX Data
- Retail: Carrefour Data
- Malls: WiFi Data
- Retail: Mall Store Data
- Feedback: Survey Data
- Malls: Parking Visits Data
More About the Customers

Shows the *number of customers who transact across multiple business units*

* Only a sample of ~380,000 customers and 3 months of data is represented. Awarded teams will have access to the full dataset.
More About the Customers

Shows the number of customers and the business unit intersect

* Only a sample of ~380,000 customers and 3 months of data is represented. Awarded teams will have access to the full dataset.
More About the Customers

Shows the number of customers and the business unit intersect

Customers who transacted in Carrefour & VOX

* Only a sample of ~380,000 customers and 3 months of data is represented. Awarded teams will have access to the full dataset.
More About the Customers

In our collection of customers, we observe many have transacted across multiple business units

- Each row represents a single customer in the dataset

<table>
<thead>
<tr>
<th>hash_id</th>
<th>full_name_hash</th>
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<td>1</td>
</tr>
</tbody>
</table>

* Only a sample of ~380,000 customers and 3 months of data is represented. Awarded teams will have access to the full dataset.
More About the Customers: NPS

Shows *Net Promoter Score* for customers by *survey/transaction type*

*Only a sample of ~380,000 customers and 3 months of data is represented. Awarded teams will have access to the full dataset.*
More About the Customers: NPS

This shows actual NPS feedback for customers

- Surveys are sent randomly to customers who have made purchases or connected to WiFi

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Data Structure

- Consumer Finance: Credit Card Data
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Transforming Business Through Customer Data
Retail: Mall Store Data

These include *anonymous* point of sale transactions from a MAF mall

- Data captures all sales activity at individual stores, aggregated by day

- **Transaction Information:**
  - Timestamp
  - Number of Items
  - Total Spent (AED)

- **Store Information:**
  - Shop id
  - Company/Brand id
  - Store Category

- **Customer Information:**
  - Note: These *cannot be tied to individual mall customers* but do show activity in the stores
Retail: Mall Store Data

Here we see a sample of *anonymous* point of sale transactions from stores in a MAF mall.

- Each record shows the aggregated sales for a particular store, for that day.

* Only a sample of 3 months of data is represented. Awarded teams will have access to the full dataset.
Data Structure

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- Retail: Mall Store Data
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- Malls: Parking Visits Data

Transforming Business Through Customer Data
Malls: Parking Visits Data

Data includes parking visits at a MAF mall

• Parking Information:
  - Parking bay location
  - Entry/exit timestamps
  - License plate information

• Customer Information:
  - Note: These cannot be tied to individual mall customers but do show traffic coming in and out of the mall
Malls: Parking Visits Data

In this snapshot of the parking visits data, we observe cars entering and exiting the mall.

- Every row is a record of a vehicle entering and exiting the parking lot.

* Only a sample of 1 month of data is represented. Awarded teams will have access to the full dataset.
Questions?

To ask a question, click the chat button in the upper-right and type your question

- All questions will be answered live or via e-mail
Researchers will apply and submit a proposal online. Proposals should be in PDF format, no more than 2000 words, and include the following information:

• Title

• Author(s) name, title, affiliation and e-mail address: Please designate a corresponding author (Note: Teams are strongly encouraged, e.g. doctoral student(s) + faculty)

• Author bios: Include up to a paragraph-long biography highlighting what each team member will contribute to the project

• Abstract

• Summary information: Include a single “slide” that visually summarizes the team & project
• **Introduction:** Describe expected contribution(s), covering both the academic and practical aspects. Describe how you will approach the project and the key methods and ideas that you would like to bring to the table. Please keep it concise, and cite relevant work as necessary to explain your academic contribution. There is no need to include a lengthy literature review.

• **Detailed project proposal:** Please include supporting detail that will help us assess the feasibility of your approach and its compatibility with existing data.

• **Data Needs:** Bulleted list of data required or requested for analysis. While we can’t guarantee the inclusion of these items, we are happy to investigate the availability.

• **Languages/tools:** What you propose to use and how it fits the project. (Note: There are no restrictions on software)
How to Apply

Submit your proposal here:
https://wcai.wharton.upenn.edu/research/research-opportunity-with-majid-al-futtaim/

• No later than Monday, November 26th, 2018, @ 9AM US Eastern

Please contact us at wcai-research@wharton.upenn.edu, if you have any questions prior to submitting your proposal
Multiple research teams will be selected for the Research Opportunities

- **Within 9 weeks**, research teams will be selected & notified
- **Within 12 weeks**, projects will kick off
- **Within 9 months**, teams will present findings directly to WCAI and Majid Al Futtaim
Research Proposal Selection Process (cont.)

Proposals will be evaluated based on:

- **Academic contribution and the researcher’s ability to address issues of strategic importance to the research sponsor**
- **The researcher’s willingness to share all code and findings with Majid Al Futtaim**
- **The researcher’s history of academic achievement**
Proposal Review Committee

Research teams will be selected jointly by a committee of academics and representatives of Majid Al Futtaim's analytics team:

- Eric Bradlow: Faculty Co-Director, WCAI
- Raghu Iyengar: Faculty Co-Director, WCAI
- Elea Feit: Fellow, WCAI
- Guillaume Thfoin: Head of Business Analytics, Majid Al Futtaim
- Marius Raileanu: Senior Manager - Data & Platforms, Majid Al Futtaim
- Other external reviewers
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Other WCAI Opportunities for Researchers

If you registered for this webinar, you will receive regular announcements regarding upcoming Research Opportunities:

- **Research Projects:**
  [http://wcai.wharton.upenn.edu/for-researchers/research-opportunities/](http://wcai.wharton.upenn.edu/for-researchers/research-opportunities/)

- **Research Papers:**
  [http://wcai.wharton.upenn.edu/for-researchers/research-paper-series/](http://wcai.wharton.upenn.edu/for-researchers/research-paper-series/)

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