

# REBA AI POV

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## To say that AI is all the rage would be like saying it's been a little bit hot in Phoenix!

In keeping with our core values and impact-centered approach to the software we build, we at REBA have spent the past few months evaluating various approaches and possibilities w.r.t. to AI and putting our testing and development plan together. This point of view (POV) paper shares the observations and insights that we have gained from this exercise in a spirit of full transparency with all our clients and prospects...and maybe even a few competitors reading this.

### Generative vs. Predictive

With the rapid growth and hype of ChatGPT, it's not surprising that many AI terms are being thrown around and different concepts are being combined and confused in various ways. So, we begin our journey with a clear understanding that there are two distinctly different types of AI:

#### Generative AI

Generative AI focuses on creating original and novel (or at least useful) content. This could be text base, as ChatGPT has become the "Xerox" or "Kleenex" of this space; or it can work on pictures or videos as Dall-E-2 was made famous by John Oliver's story about marrying a cabbage.

#### Predictive AI

Predictive AI has been around for a long time. It aims to predict (hence the name) future outcomes based on historical patterns. It comes in many forms, with Machine Learning (ML) perhaps the most commonly discussed. Predictive AI approaches attempt to find useful patterns in data that traditional analytical tools (e.g. regression analysis, cluster analysis, etc.) either wouldn't find or would take too long to find.

Understanding this helps us ensure that we apply the right set of tools for the right problem to solve.

## Goals

Next in our journey, we identified five key goals for AI:

1. Develop product features that make it easier for users to interact with data in REBA
2. Deliver insights to customers to help them make better and faster decisions
3. Generate narratives to summarize performance
4. Speed internal engineering and software development to increase productivity by reducing coding time
5. Communicate the capabilities (and limitations) of AI to our customers and prospects

## “Swim Lanes”

To accomplish this goal, we have set up several “swim lanes” of potential activity:

### Swim Lane 1: REBA GPT [generative]

REBA GPT will allow users to type or speak in plain language to get the appropriate dashboard or report returned to them. This makes the platform much more accessible, increases the speed to analysis, and most importantly, reduces the training effort needed to get users familiar with the platform’s capabilities.

There are several related use cases in this swim lane. For example:

- **REBA GPT** will be able to write performance narratives (financial and operational) for executives, owners, and/or other stakeholders. This will help anyone who wants to create status or variance analyses, particularly fee managers and asset managers reporting to ownership groups.
- **Create “recipe cards” for bonus structures:** Imagine using AI to create targets for bonuses based on property and position that will most drive performance and engagement.
- **Create “recipe cards” for budgeting:** REBA GPT could use its knowledge of each client’s data to suggest budget drivers and alleviate concerns over gaming the numbers.

### Swim Lane 2: AI to find new business insights and correlations [predictive]

This is AI’s “Holy Grail”—finding insights that traditional analyses would not otherwise find. Much as with the multi-millennium search for this magic chalice, we have a healthy dose of cynicism about this potential capability. Machine learning for this type of predictive AI typically needs terabytes, even petabytes, of data to find meaningful insights. The reality is that, in most applications, multifamily housing simply doesn’t have enough data to make this work. Yet also like the Grail, the potential reward is so alluring as to draw us into at least some level of effort to see what AI might be able to do. Plus, over time, AI algorithms will likely improve at dealing with smaller data sets.

### Swim Lane 3: Alerting [generative]

Another intriguing and realistic application of AI would be to parse the dashboards and reports to discover items worth alerting to users. Essentially, a more action-oriented version of creating performance narratives, this would help users make the most of their time by focusing on areas of operations and finance most likely to yield improvement.

We also note that, as we examine this potential functionality, it may be possible to build something equally effective using a traditional rules-based engine.

#### Swim Lane 4: Using generative AI for coding [generative]

A more internally focused use, the idea here is to speed up the coding process by having generative AI create code based on English language requests. Among other resources, ChatGPT was trained on the GitHub base of knowledge, so reports are that it can be quite effective at generating code. While it may be a bit premature to crown this the start of the Age of the Citizen Coder, there are many ways in which trained developers can speed up their process by starting with a shell created by generative AI.

While promising (and already happening), this is not without risk. On the technical side, auto-generated code may not be as efficient as that written by experts. In many cases this may not matter; in more sophisticated uses, it likely will. Perhaps more importantly, there is potential legal risk. In these very early days of generative AI, the jury is literally (and figuratively) out on intellectual property (IP) issues. Without knowing exactly where the code is coming from, there is a risk of unintentionally violating third parties' copyright or other IP rights, which would have potentially massive negative ramifications should anyone be caught (or even accused) of this.

#### Swim Lane 5: Use generative AI that is already embedded in common applications [generative]

Microsoft has had functionality to ask questions in English language and their Copilot in Power BI identifies outliers (think variance) and generates English language text attempting to explain them. New functionality, like Fabric and Copilot for Microsoft 365 are in various stages of private preview or "coming soon" status. Candidly, the results we've seen come across as somewhat trite; however, 1) the capabilities will only get better over time and 2) much like with Swim Lane 4 (using generative AI for coding), they may improve productivity by creating an initial shell that users can then read and embellish.

One interesting outcome of our conversations with Microsoft is that we've realized that in its current state, Copilot for Power BI works best with unstructured data or simplistic tabular datasets. Copilot for Power BI cannot currently leverage sophisticated data cubes like REBA's. So, while some of our competitors advertise their built-in generative AI as a competitive advantage, it is actually an indicator that they likely do not have a data cube. Because REBA has both a data warehouse and an SSAS cube, we are planning to leverage each of them in different components of AI solutions in our applications.

Key advantages of SSAS cubes as compared to data warehouses:

- **Speed** - During cube processing, SSAS will pre-calculate and physically store aggregations of facts. These aggregations, for example, Occupancy by Unit by Date, are used when a user or report queries the cube for this type of information. Because these are stored values in a cube, SSAS does not have to calculate the outcome from the underlying details (like a data warehouse query tool does) because it can source the values directly from the stored aggregations.
- **Multidimensional analysis** - slice, dice, and drill down: You can very quickly navigate around the data, find trends, spot patterns, drill down, and slice & dice - all key to the power of cubes, allowing users to intuitively explore data without realizing they are performing analysis.
- **Built-in advanced time-calculations** - for example a 12-month rolling average: it is easy to implement advanced time calculations like 12-month rolling average, last month, QTD, YOY, and other references to parallel periods. This is the stuff decision-makers need to have, and SSAS cubes remove the need for numerous, complicated queries in tools like PowerBI, if the latter can produce them at all.

### Swim Lane 6: Combine with 3rd party data [predictive/generative]

Another area of potentially interesting use, this might help overcome the small data issues discussed in Swim Lane 2. The publicly available version of ChatGPT only has data through fall 2021, so it's not useful for this approach. However, private versions pointing to a combination of first- and third-party data could potentially work well. It's still unclear whether rental housing can cross the threshold from "small data" to "big data," but it's clearly worth investigating.

## Conclusion

We'll avoid the overused and tired baseball metaphor that "we're still in the first inning" (oh, wait, I guess we won't). The truth is that we likely are not yet at the "peak of inflated expectations" that the Gartner Hype Cycle predicts every new technology goes through, and AI applications will have their share of examples that end up in the "trough of disillusionment." However, AI is such a powerful technology, that it's unoriginal, but important, to say that many applications will reach the plateau of productivity. And REBA will help push that journey!

## About REBA

Real Estate Business Analytics is a data analytics company on a mission to change how the multifamily industry uses data. REBA helps leaders ask insightful questions about their business by giving them access to all their data in one central location. We do this by offering a suite of business intelligence, budgeting and pricing & revenue management solutions that gather data & deliver insights so you can make better decisions, faster. With REBA, you can eliminate Excel hell, bad data, excess cost, and analysis paralysis with tools built by multifamily for multifamily.