### Introduction

In 2014, **Etihad Airways** mistakenly sold thousands of plane tickets from New York to Dubai for only $300. These “mistake fares”, where an airline or travel company accidentally offers tickets at a significantly lower price than intended, were caused by data errors being ingested into Etihad’s pricing algorithm, and created a dilemma for the company - honor the fares and take a significant financial hit, or not honor them and risk consumer outrage.

In 2020, **Brex**, the corporate credit startup, was relying on Plaid to connect to their customers’ bank accounts and determine their creditworthiness. These connections were brittle, and would often disconnect, leaving Brex with stale data. Brex’s algorithm reacted to stale/missing data by immediately dropping credit limits, but this understandably led to unhappy customers. Brex’s data team had to eventually modify the underwriting algorithm to accommodate some amount of stale data, and to make assumptions based on that past data - for instance that if a company had $100 million in their bank account a month ago, they probably had not gone bankrupt since.

In 2021, **Zillow** lost $550 million on its home-flipping program, Zillow Offers. Zillow Offers was powered by big-data analysis that told Zillow what to auto-offer for a house and how much to charge on the flip. Simple, right? Until it wasn’t. In 2021, Zillow realized that it had bought thousands of houses for more than they were worth, and the whole program was underwater. Sales were producing an average of an $80,000 loss per house. The issue was that the data sources for Zillow’s price forecasting were nowhere near as real-time and thus actionable as they needed to be.

Each of these three scenarios above is an example of how bad data can lead to poor business decision-making, either explicitly through human judgment or implicitly through automated computer systems. Especially today, when every entity within a company from executives to employees to microservices, relies on data to make decisions, the cost of bad data is higher than ever.

### Enter data observability

That doesn’t mean the situation is hopeless! While bad data can seem like a white whale, there are concrete steps you can take to improve your data quality and reduce the occurrence of data issues. Maybe you first start with simple SQL checks. At some point, though, you’ll want to move on to data observability.

#### What is data observability?

Data observability is the ability to monitor and understand the state of your data systems at all times. It’s akin to the dashboard on your car, giving you a constant stream of information about how your system is functioning and whether it’s running into any problems.

Data observability platforms like Bigeye will provide some subset of:

* Monitoring - tracking volume, freshness, quality
* Anomaly detection -
* Service Level Agreements (SLAs) -
* Data lineage
* Data governance

With these tools, organizations can answer questions such as:

* Is customer data arriving on time?
* Are there any duplicated transactions?
* Is the decrease in average purchase size real or a data issue?
* Will deleting a table from the data warehouse have any impact?

On a higher level, they help organizations prevent data quality issues or at least mitigate their impact on the business.

### 6 ways that data observability can improve your company’s decision-making

Given that companies often blame bad decisions (or lack of decisions) on bad data, investing in data observability can pay big dividends. Here are some specific ways that it can improve your company’s decision-making:

1. Data is more likely to be fresh and complete:

With data observability in place, companies can be confident that they are using the most up-to-date and complete data available. This means that they can make decisions based on a fuller, more accurate picture of what is happening within their organization and in the market.

1. Executives are more likely to rely on the data:

When data is trustworthy and reliable, executives are more likely to actually use it to inform their decision-making rather than relying on gut instinct. (This is especially true for executives in more traditional industries) This can lead to more evidence-based decision-making, resulting in better outcomes for the company.

1. Engineering productivity is improved:

Data observability can help to prevent outages and other data-related issues from occurring in the first place. This means that data scientists and software engineers can focus on shipping new products and running new experiments rather than being bogged down by data-related problems.

1. Marketers have a more accurate understanding of ROI on ad spend:

With data observability in place, marketing teams can have a much clearer sense of how their ad spend is performing. This allows them to make more informed decisions about where to allocate their resources and how to optimize their campaigns.

1. Finance team has more accurate revenue projections:

Finance teams can use data observability to make more accurate revenue projections, which can help to inform investment decisions and other financial planning.

1. Data scientists have the ability to run more sophisticated and accurate machine learning models:

With data observability in place, companies can trust that the data going into models that are making automated decisions, is of high quality. As business decision-making increasingly moves from humans looking at dashboards, to machine learning systems, the stakes for data quality increase. For example, suppose that an e-commerce company uses an AI chatbot for customer support. A customer asks for a refund - the chatbot checks its records and issues the refund. Except that the data was stale, and in fact, the customer already received their refund. The company has now double-paid and incurred a financial loss.

### Conclusion

By ensuring that data is accurate, up-to-date, and available to those who need it, companies can make more informed decisions. This can lead to better outcomes for the company and a more competitive edge in the market.