Hospitable Data

Is Your Hospitality Data Strategy Opening the Door for Success?

Assess Where You're At.
Get Where You Want to Go.

ELDER RESEARCH
DATA SCIENCE · AI · MACHINE LEARNING

Contents

Introduction

"Hospitality is easy." Said no one ever.

We know you're juggling a lot—from finding and retaining talented staff to navigating the new frontier post-COVID; it's a demanding landscape.

Customers are expecting more for less, and as if keeping up with costs wasn't enough, technology and AI are growing rapidly. It's enough to make heads spin … and it's just another Monday morning for you.

That's why we created this guide. **As you navigate this unpredictable and competitive industry, a solid data strategy isn't just helpful; it's essential.**

This guide includes an analytics assessment to help you gauge where you currently are, identify possible roadblocks, and chart a course forward. Whether you're a seasoned pro or just starting out, we want to equip you with some tools and food for thought on your journey.

But first let's talk about why a solid data strategy is so important for every part of your business.

How a Solid Data Strategy Can Help

We've all experienced the fear of missing out, and that's a frustrating place to be when it comes to data. No doubt, you've encountered numerous articles, podcasts, and vendors telling you that you need to do better or you'll fall behind.

As a hospitality leader, you know it's not about collecting data for data's sake; **it's about using data to make decisions better, faster, and with more certainty**. It's also not about pushing people away with data and technology but about efficiently using all your tools so that people can focus on what people do best—being hospitable to your guests and each other.

Is it worth investing time and resources in developing a data strategy? The typical response to this question is wholeheartedly, "Yes!"

A comprehensive data strategy can help you:

- Establish a trusted data source for business-critical elements such as staffing, revenue projections, and investment priorities.

- Establish role clarity to staff the right people in the right places to support data and analytics.

- Understand which data is important to purchase and which has little ROI.

- Use your own data to help your business run more efficiently.

- Monitor trends to be as prepared as possible when pivots happen (or need to happen).

- Make sure you don't breach customer or investor confidence by letting data leak out.

A data strategy can support your:

Business Success

- You can ensure you have the right products and supplies available in the right place at the right time.

- You can convince investors your revenue projections are based on solid data and rigorous forecasting techniques.

Customers' Journeys

- You can help your newest customers find you and your best customers find their next favorite location.

- You can tell your customers you will keep their trust by keeping their data safe.

Employee Retention

- You can keep your employees more fulfilled by prioritizing their work and teaching them new skills to help the organization.

- You can automate many mundane tasks so that humans can do their best work, letting tech take on the boring things.

All in all, you can sleep better at night knowing there is trusted data to help you make the most difficult business decisions.

Assess Where You're At

Success in analytics projects relies on five core areas:

1. **ANALYTICS:** Extracting actionable insights from data to drive informed decision-making.

2. **PEOPLE:** Empowering a skilled and confident workforce to embrace a data-driven culture.

3. **PROCESS:** Establishing transparent decision-making processes aligned with organizational priorities.

4. **TOOLS:** Implementing efficient technology and infrastructure to support data-driven initiatives.

5. **DATA STRATEGY:** Integrating a comprehensive data strategy with the corporate vision for optimized outcomes.

How does your organization stack up in each category? The strength of each of these areas relates to your organization's level of analytics maturity.

Use the assessment below to uncover areas for growth, taking note of your score in each category. Each section includes action items for each level of analytics maturity.

There's always room to learn something—whether your team is new or advanced in analytics. While the questions are not exhaustive, we hope this assessment is a catalyst for productive conversations.

Analytics

■ **Which type of analytics is your organization currently using?**
(CHECK ALL THAT APPLY; 1 POINT EACH):

  ☐ **DESCRIPTIVE:** "We had 10,000 guests last month." **(1 POINT)**

  ☐ **DIAGNOSTIC:** "Customer satisfaction is down because we had more delays." **(1 POINT)**

  ☐ **PREDICTIVE:** "We predict $40,000 in beverage sales at this location next year." **(1 POINT)**

  ☐ **PRESCRIPTIVE:** "To increase off-season bookings, we should target retirees with special packages." **(1 POINT)**

■ **How does your organization use data to inform decision-making?**

  ☐ **NOT AT ALL:** Decisions are not based on data analysis. **(0 POINTS)**

  ☐ **REACTIVELY:** We occasionally review past performance data but don't systematically use it. **(1 POINT)**

  ☐ **PROACTIVELY:** We regularly use historical data and trends to plan for future operations and marketing efforts. **(2 POINTS)**

  ☐ **STRATEGICALLY:** We integrate advanced analytics into strategic planning, e.g., predictive analytics for dynamic pricing or prescriptive analytics for enhancing guest experience. **(3 POINTS)**

■ **How is your analytics strategy formalized and integrated into your operations?**

  ☐ **NOT FORMALIZED:** There's no defined analytics strategy. **(0 POINTS)**

  ☐ **PARTIALLY FORMALIZED:** Analytics initiatives only cover some of the operational functions. **(1 POINT)**

  ☐ **FULLY FORMALIZED:** The analytics strategy is well defined and integrated into business operation, focusing on the guest experience, operational efficiency, and revenue management. **(3 POINTS)**

■ **What challenge does your organization face with current capabilities?**
(CHECK ALL THAT APPLY; -1 POINT EACH)

  ☐ There's a lack of guest data or insufficient data integration. **(-1 POINT)**

  ☐ Our tools are insufficient for analyzing guest feedback. **(-1 POINT)**

  ☐ We're dealing with organizational silos that hinder sharing data or insights across departments. **(-1 POINT)**

  ☐ Our team lacks adequate skills for interpreting data or translating insights into action. **(-1 POINT)**

Total Points: _____

■ **5+ POINTS:**
High Analytics Maturity

▶ Your organization leverages a wide range of analytics applications to enhance guest experiences, optimize operations, and drive strategic decisions. Emphasize fine-tuning your analytic capabilities, monitoring and governing your analytics, and continuously exploring innovative technologies.

■ **3–4 POINTS:**
Medium Analytics Maturity

▶ You have a solid foundation directly impacting guest satisfaction and operational efficiency. The focus should now shift towards more advanced predictive capabilities and a robust integration of analytics into strategic planning.

■ **0–2 POINTS:**
Low Analytics Maturity

▶ There is significant room for growth. Start with building a comprehensive data strategy, focusing on collecting and analyzing guest data and gradually introducing predictive analytics to anticipate guest needs and optimize operations.

People

- **What kind of capabilities does your organization have?**

    - ☐ **LIMITED:** We have minimal or no dedicated analytics staff. Hospitality staff occasionally use basic reporting tools without deep analytic skills. **(0 POINTS)**

    - ☐ **DEVELOPING:** We have some personnel with analytics responsibilities alongside their main roles. These personnel may be working in a specific business function and have basic analytic skills relevant to hospitality, such as understanding guest data or forecasting. **(1 POINT)**

    - ☐ **ADVANCED:** We have a dedicated analytics team with both analytic skills and contextual understanding of the hospitality industry, including predictive modeling. **(2 POINTS)**

- **What kind of training and development opportunities does your organization offer?**

    - ☐ **LIMITED:** There are no training opportunities for staff to develop data analytics skills. **(0 POINTS)**

    - ☐ **DEVELOPING:** We provide some training sessions for personnel in specific data and analytics roles, such as how to leverage certain data tools and conduct certain types of analytics. **(1 POINT)**

    - ☐ **ADVANCED:** We invest in advanced training programs, including workshops, courses, and certifications. The training focuses on advanced analytics techniques that can be used for complex tasks such as personalizing guest experiences or optimizing operations. **(2 POINTS)**

    - ☐ **STRATEGIC:** In addition to investing in advanced analytics, we invest in data literacy training across the organization. This allows all roles, not just analytics roles, to develop data and analytic appreciation. **(3 POINTS)**

- **How well does your organization collaborate across departments?**

    - ☐ **LIMITED:** There's little to no collaboration between analytics staff and operational teams. **(0 POINTS)**

    - ☐ **DEVELOPING:** There's some level of collaboration where analytics insights are occasionally discussed and used in specific areas like marketing or inventory management. **(1 POINT)**

    - ☐ **ADVANCED:** There is a high level of integration and collaboration between analytics and operational teams. Data-driven insights regularly inform strategic decisions, guest services optimization, and operational improvements. **(3 POINTS)**

Total Points:_____

- **6+ Points: High Maturity in People (Data and Analytics)**

    - ▶ Your organization demonstrates a strong foundation in data analytics with a dedicated, skilled team that collaborates effectively across departments. To further enhance your capabilities, focus on continuous learning and staying ahead of emerging analytics technologies and methods in hospitality.

- **3–5 Points: Medium Maturity in People (Data and Analytics)**

    - ▶ You have foundational analytics capabilities with some skilled individuals. Improving training programs and fostering better collaboration between analytics and operational teams could drive more data-informed decisions.

- **0–3 Points: Low Maturity in People (Data and Analytics)**

    - ▶ Your organization has significant room for growth in building analytics skills and integrating data-driven insights into hospitality operations. Focus on establishing or expanding your analytics team, offering targeted training in hospitality analytics, and encouraging collaboration across departments.

Process and Governance

■ **How does your organization manage and govern data assets?**

☐ **LIMITED:** We have minimal or no formal process. Data quality and consistency are ongoing challenges, especially with data generated from disparate sources. **(0 POINTS)**

☐ **DEVELOPING:** Some processes are in place, including basic data quality and access controls, but they are not consistently applied across all data assets. **(1 POINT)**

☐ **ADVANCED:** There is a comprehensive data governance framework that ensures data quality, security, and accessibility with a high focus on safeguarding guest data. **(3 POINTS)**

■ **How does your organization govern analytics models and tools?**

☐ **LIMITED:** There are no analytic tools, or there is little to no governance. Any capabilities are developed ad-hoc with no standard practices. **(0 POINTS)**

☐ **DEVELOPING:** There are some guidelines for development and deployment, but practices vary across different teams and departments. Ongoing monitoring and maintenance are inconsistent. **(1 POINT)**

☐ **ADVANCED:** Clear governance policies are in place for the entire analytics lifecycle, including development, deployment, performance monitoring, and regular updates. **(3 POINTS)**

■ **How does your organization evaluate and prioritize data and analytics investments?**

☐ **LIMITED:** There is no formal process for evaluation. Success criteria is unclear, and analytics is rarely integrated into strategic planning related to operations or the guest experience. **(0 POINTS)**

☐ **DEVELOPING:** There is a process for evaluating some analytics investments, and success criteria are defined for certain large-scale projects. Analytics insights are occasionally used in decision-making. **(1 POINTS)**

☐ **ADVANCED:** There is a structured process for prioritizing analytics investments across all functions, and each has clear success criteria. Analytics is fully integrated into business operations and strategic planning, driving decision-making across the organization. **(3 POINTS)**

Total Points: ____

■ **7+ points:**
High Maturity in Process and Governance

▶ Your organization has a sophisticated approach to data and analytics governance with robust processes to support data management and analytics integration. Continue to review and refine these processes to enhance analytics efficiency and impact.

■ **3–6 points:**
Medium Maturity in Process and Governance

▶ You have basic governance structures in place, but there may be inconsistencies or gaps. Focusing on standardizing practices, enhancing data and model management, and more closely aligning with business strategies can drive improvements.

■ **0–2 points:**
Low Maturity in Process and Governance

▶ There's significant opportunity to develop and implement governance frameworks and processes for data and analytics. Establishing clear policies and aligning analytics projects with business objectives should be prioritized.

Tools

■ **How would you best describe your IT infrastructure in terms of supporting data analytics?**

☐ **LIMITED:** Our IT infrastructure is outdated or insufficient, struggling to support current data and analytics needs. **(0 POINTS)**

☐ **DEVELOPING:** Our infrastructure supports basic data storage and analysis but faces challenges with high data volumes or real-time processing. It is a challenge to support new data sources. We have basic measures in place for security and privacy. **(1 POINT)**

☐ **ADVANCED:** We have a modern, scalable IT infrastructure capable of handling large volumes, real-time analytics, and complex computations. The systems can scale to handle new data sources. We have advanced data management practices to safeguard guest data. **(3 POINTS)**

■ **How effectively does your organization transform data from diverse systems?**

☐ **LIMITED:** We struggle with integrating and transforming data from different systems like revenue management, staffing, and guest profiling. This hampers our analytics efforts. **(0 POINTS)**

☐ **DEVELOPING:** We can transform and integrate data from various systems, but they process is often manual and time-consuming. **(2 POINTS)**

☐ **ADVANCED:** We have automated, efficient processes for data transformation and integration, allowing integration of data across all sources, and enabling seamless analytics. **(3 POINTS)**

■ **Is your team developing and integrating analytics tools specific to hospitality?**

☐ **LIMITED:** We have minimal in-house analytics tools, and integration with our operational systems is limited or nonexistent. **(0 POINTS)**

☐ **DEVELOPING:** We're developing analytics capabilities, but integration with other hospitality systems is still a work in progress. **(1 POINT)**

☐ **ADVANCED:** We have a suite of advanced analytics tools that are specific to our hospitality space, they are integrated with our operational systems, and they provide insights and decision support. **(3 POINTS)**

Total Points: ____

■ **7+ Points:
High Maturity in Tools**

▶ Your organization has a robust IT infrastructure, secure and scalable data storage, efficient transformation, and the analytics tools that are integrated into your operations. To maintain the edge, continue exploring emerging technologies and training for your team.

■ **4–6 Points:
Medium Maturity in Tools**

▶ Your technology supports some basic analytic needs, but you could achieve greater efficiency and security through more integration. Investing in more advanced solutions and automating data processes can significantly enhance your capabilities.

■ **0–3 Points:
Low Maturity in Tools**

▶ There's considerable room for growth in developing your IT infrastructure, data management, and analytics tools. Focus on upgrading systems for scalable data storage solutions. This will allow you to integrate analytics more deeply into your hospitality operations.

Data Strategy

- ■ **How well is your data strategy aligned with your overarching strategic goals and objectives?**

    - ☐ **LIMITED:** We don't have a well-defined data strategy, or it does not directly support our broader strategic objectives. **(0 POINTS)**

    - ☐ **DEVELOPING:** We have a data strategy that supports some strategic goals, but alignment is not consistent across all data initiatives. **(1 POINT)**

    - ☐ **ADVANCED:** All aspects of data strategy are subservient to overarching strategic goals. Each data and analytics initiative is focused and directly supportive of these broader goals. **(3 POINTS)**

- ■ **How effectively do leaders work together to prioritize data and analytics investments?**

    - ☐ **LIMITED:** There is little collaboration or strategic prioritization of data and analytics investments. Leaders of different business units often feel frustrated at the level of data and analytic support. **(0 POINTS)**

    - ☐ **DEVELOPING:** There is some level of collaboration and prioritization, but it is not always strategic or consistent. **(1 POINT)**

    - ☐ **ADVANCED:** Leaders collaboratively and strategically prioritize data and analytics investments. There are productive conversations about how investments in some functions will support other functions. **(3 POINTS)**

- ■ **Do leaders understand the investments required in technology, people, and change management to drive data values?**

    - ☐ **LIMITED:** There is a lack of understanding among leaders about the necessary investments to maximize data value **(0 POINTS)**

    - ☐ **DEVELOPING:** Some leaders understand investments needed, but it is not widespread or consistently acted upon. Even with the right technology and people, leaders don't effectively drive the required change management. **(2 POINTS)**

    - ☐ **ADVANCED:** Leaders across the organization have a strong commitment to investing in technology and human resources to drive data value. They focus on change management to ensure a lasting, strategic impact. **(3 POINTS).**

Total Points: ____

- ■ **7+ points: High Maturity in Data Strategy**
    - ▶ Your organization exhibits a strong data strategy that is closely aligned with strategic goals. Leadership is fully committed to investing in data-related resources. Focus on continuous refinement of your strategy to stay adaptable to new challenges and opportunities.

- ■ **3–6 points: Medium Maturity in Data Strategy**
    - ▶ There is a foundation for a data strategy. It is vital to identify gaps in alignment, utilization, and leadership commitment. Fully aligning your data strategy will enhance leadership commitment to driving data value.

- ■ **0–2 points: Low Maturity in Data Strategy**
    - ▶ Your organization needs to develop a more coherent and strategic approach to data, with significant opportunities for better aligning data strategy with overall goals and enhancing leadership commitment to data investments.

A Story of Data-Driven Success

Having a solid data strategy is the starting point for success in your data analytics initiatives. Here's how we helped one hospitality client gain more insight from their data and improve their customer experience.

PREDICTING CUSTOMERS' WAIT TIME

INDUSTRY

Hospitality

BUSINESS NEED

Utilize real-time order and location patterns to predict a customer's wait time interval.

SOLUTION

- Developed a machine learning model that integrated into the client's ecosystem.

- Iterated to best fit the needs of all stakeholders.

- Received advocacy for chainwide implementation from over 90% of store proprietors during a testing phase.

BENEFIT

Increased transparency for customers, identification of potential opportunities for data quality improvements, and utilization of predictions in other use cases across the organization.

Elder Research partnered with a client in the hospitality industry to develop a machine learning model that predicts a customer's wait time for their order. The solution was developed in Python and implemented in the client's mobile app by leveraging AWS cloud services.

THE CHALLENGE

As technology advances and organizations gather more and more data, customers in the hospitality industry are growing accustomed to receiving thorough information and updates about the products and services they purchase. Some organizations are initiating and prioritizing data science and machine learning solutions to meet these expectations by giving customers accurate information based on known data. Creating a machine learning solution that would predict how long a customer would have to wait for their order to be ready was requested by an existing client.

THE SOLUTION

Our team utlizied the CRISP-DM methodology to comprehend the scope of the business problem, investigate the available data, develop and test a machine learning model, and implement the solution within the client's existing infrastructure. In addition, we collaborated with stakeholders to iteratively design solutions. The solutions began simply in order to test out the new concept but grew in complexity as the client collected more data and end-user feedback. Over time the consensus for defining model success amongst multiple client groups evolved.

The solution was developed in Python using the scikit-learn package and the LightGBM framework to predict an estimated wait time interval that would be displayed within the client's existing mobile app. The solution ingests data on individual order characteristics, store-specific patterns, and real-time activity levels to generate prediction intervals.
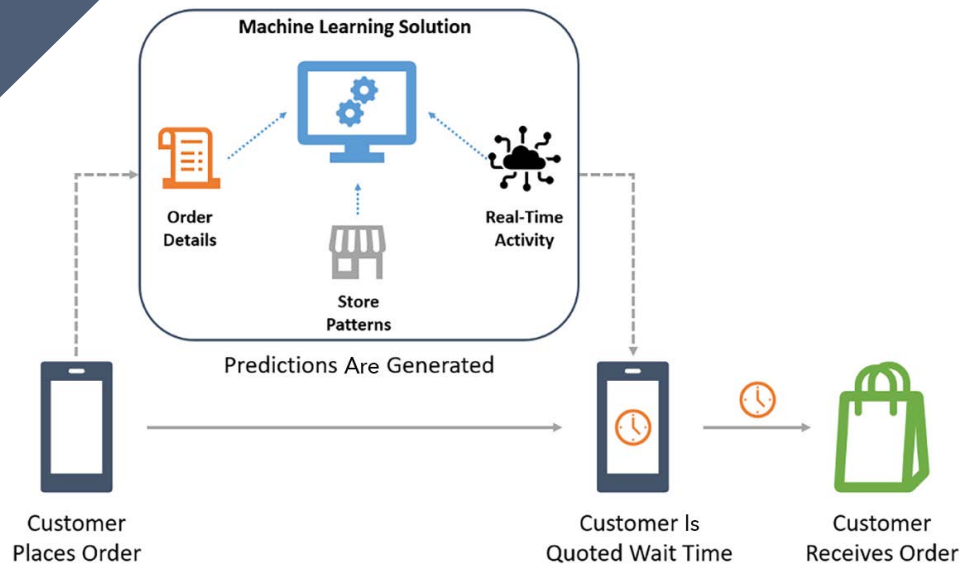
PREDICTING CUSTOMERS' WAIT TIME

**The solution provides an average interval of 5.5 minutes within which
87% of customers' wait times fall.**

RESULTS

After the solution's testing phase, over 90% of store proprietors advocated for its chainwide implementation. Stakeholders are optimistic that the solution will enhance the customer experience and expectations, as well as inform the processes of individual stores by revealing wait time patterns.

Machine Learning Solution

Order Details

Real-Time Activity

Store Patterns

Predictions Are Generated

Customer Places Order

Customer Is Quoted Wait Time

Customer Receives Order

Where to Go Next

Now that you've assessed where you're at with your data strategy, it's time to determine some good next steps. Here are some ideas to get the ball rolling based on your organization's level of analytics maturity.

New to Analytics?

- **Find quick wins to get folks engaged and excited.** This is the perfect reason to celebrate even the smallest of data and analytics successes.

- **Find what already exists at your organization.** For example, what current opportunities do team members have to grow in analytics? Who are the super users on the team? Where can efforts be more aligned? Don't try to boil the ocean, but find some dots to connect.

- **Define success by setting right-sized strategy, goals, and policies.** Remember, progress is more useful than waiting for perfection.

- **Gather your data and make sure it's clean, trusted, and in the right places.** This is a big task to tackle, but even small steps can make a big difference!

Somewhat Experienced in Analytics?

- **Shift your analytics from discrete bodies of work to efforts that may be able to have a bigger impact across your organization.** What if you could track a customer's journey across all your systems?

- **Enhance collaboration with other parts of the business.** Break down operational silos by defining and securely sharing common datasets.

- **Shift towards more forward-thinking approaches such as predictions or causal modeling.** Seeing where you've been or describing where you are is wonderful, but it's even more powerful to be able to inform where you can go!

- **Automate manual processes.** Save valuable personnel time and minimize the risks of human error by using technology for easily repeatable processes that don't require individual intervention.

Advanced in Analytics?

- **Validate and monitor deployed analytics by watching for drift, assessing continued usefulness, and adjusting as needed.** The world is rapidly changing, so the data and analytics you use to navigate it should change too.

- **Continue to learn; don't become stagnant or overconfident.** Invest in keeping your entire team sharp, savvy, and self-reflective.

- **Stay up to date on the field of data and analytics in general.** Technology is always changing, and you need to understand the field to make sound time and financial investments.

- **Stay up to date on your industry and where it's headed.** Data and analytics is about both the now and the future—positioning you to be ahead of the pack and a standout for your customers!

In addition to the ideas above, consider these questions.

10 Questions to Ask
Before Starting a Data Analytics Project

1. **ARE OUR OBJECTIVES FOR ANALYTICS CLEARLY DEFINED?**

   At the beginning of a data analytics project, devote careful attention to formulating the business questions you are trying to answer.

2. **DO WE HAVE KEY STAKEHOLDER SUPPORT?**

   Obtaining stakeholder buy-in is key, because analytics ultimately will change the way people in the organization make decisions.

3. **ARE WE TACKLING TOO MUCH TOO FAST?**

   Rushing into analytics without a strategy and a project roadmap that supports a clear business objective almost invariably fails.

4. **DO WE HAVE THE RIGHT DATA?**

   In our experience the mistake of waiting for perfect data probably kills more projects than any other.

5. **DO WE HAVE THE RIGHT TOOLS?**

   Define the problems you need to solve before selecting the software that will help you solve them. The software will better match your needs and you'll enjoy a much higher return on your investment.

6. **WHAT KIND OF ANALYTICS IS RIGHT FOR OUR ORGANIZATION?**

   Business leaders who understand the different kinds of analytics before they develop an analytics capability within their organization will make better decisions on the program assets necessary for success.

7. **DO WE HAVE THE RIGHT TEAM?**

   A good team consists of more than a few data analytics experts and a champion. It includes people who understand the business and the data, and people who are going to be using the analytics.

8. **SHOULD WE INCLUDE DOMAIN SUBJECT MATTER EXPERTS?**

   Involving subject-matter experts throughout the analytic process contributes to a better understanding of the business problem, a more complete and accurate modeling process, and a more successful adoption and application of the results.

9. **WHAT IS OUR PLAN FOR DEPLOYMENT?**

   Deployment should be an integral part of the initial planning. Even the best analytics output is valueless until it is integrated into existing organizational processes and accepted within the culture.

10. **HOW WILL THE ORGANIZATION NEED TO CHANGE?**

    Organizations that effectively use analytics undergo a transformation in the way they think. Instead of reactive decisions based on what has happened, they rely on predictions about what is likely to happen and why.

It's Time for an Alignment

A solid data strategy is all about alignment. We once worked with a hospitality client who used one tool to gather customer feedback via social media, another tool to gather customer feedback via a survey, and a third internally managed tool to collect customer feedback via direct response.

To gather the insights needed to maximize their business required multi-step manual extraction, labeling, and merging of themes, taking valuable person time from other projects, and leaving valuable insights undetected. Good data was out there, but it was inaccessible.

Finding a solution began with a willingness to pause and take a hard look at how things were being done.

It became clear the process wasn't meeting business needs, and it was slowing down the team. That honest assessment opened the door for designing a new approach. The new process drastically minimized the resources needed to come to an actionable, unified understanding of customer perceptions. Ultimately, it helped the team save valuable time and freed them to be more productive.

We know you're tackling a lot, and data analytics is just one piece of the overall picture. But as the hospitality industry keeps evolving, continuing to build a data-driven culture at your organization is essential. And that begins with aligning your analytics, people, processes, tools, and data strategy.

Whether you want greater ability to anticipate customer preferences, optimize operations, or retain talent, we know your aim is making informed decisions. **And it's not just about keeping up with the competition; it's about staying ahead and thriving in an ever-changing landscape.**

This guide is a starting point, and we'd love to continue the conversation with you.

If you're interested in chatting about specific analytics initiatives or have a question for our team, send us a note at contact@elderresearch.com.