A HOTELIER’S GUIDE TO
DATA SCIENCE
The essential toolkit for working with data as a hotel marketer
For hotels, the promise of a well-developed data discipline is exciting: a clear-cut decision-making engine that takes the emotion out of marketing. Each decision is made for a reason, a reason that’s backed up by actual user behavior and not just instinct.

Fulfilling this data science promise also means more accurate tracking, which results in better return on advertising investment (ROI), and ad spending (ROAS). With improved accuracy, hotel marketers can be more confident in their work. These stronger returns can then be used to marshal more resources for marketing, and to better communicate results to teams and financially oriented stakeholders.

This increased accuracy extends to how hotels understand guests. A strong data science discipline unites insights from disparate systems to give hotels a more complete picture of guests, as well as their preferences and behaviors. With that information pulled into rich guest profiles, hotels can deliver more personalized experiences that are also more relevant to guests — and yes, this personalization and relevancy drives better results both on and offline.
How to get started with data

Of course, a data science discipline isn’t an easy thing – and it certainly isn’t quick. There’s a lot of effort that must go into doing it right – because, all too often, the project is rushed or not fully fleshed out. When that happens, the data isn’t accurate and can’t really be trusted to tell the truth. Without an accurate picture, hoteliers can pull the data that confirms their own assumptions rather than data that reflects what’s actually happening in the business.

Data can be tricky – especially if it leads hotel marketers down the wrong path. That’s why it’s important to implement a complete data science approach from the ground up.

To launch a data science initiative at your hotel, there are three things you need to do:

- Leverage multiple data sources from across your tech stack
- Lean on available expertise from around the industry
- Collaborate cross-functionally to gain buy-in across the hotel
Unite your data sources.

The frustrating truth of many hospitality organizations is that there’s not a single source of truth for data. Without a data ecosystem or data warehouse, a data science initiative can never truly get off the ground. The data will always be incomplete and there will always be questions around its integrity, cleanliness and accuracy.

To bring your data sources together, it’s essential to invest in a home for all data. A centralized data intelligence warehouse gives marketers the power to deliver the promise of data. It should pull in data from across the acronyms (RMS, CRS, CMS, POS, GSS, PMS), as well as social, web, call center, loyalty, apps and other useful data, with a continuous refresh of input from these channels. From there, marketers can slice and dice, building micro-segments of guests that can be sent targeted, relevant messaging with pinpoint accuracy.

Use industry expertise.

Don’t expect to get it all done in-house. It’s often the case that external hospitality experts can accelerate progress and improve the velocity of a data science initiative. It’s always helpful to look outside hospitality for inspiration and best practices.

Be curious and resourceful.

Ask colleagues at other hotels, browse blogs and download guides (like this one!) that can guide you on this important journey. You may be surprised at how much knowledge and expertise lives in key stakeholders in other departments.

Lean on those resources and ask them to share key industry benchmarks so you can set baselines for your own work.
Every organization experiences its fair share of data silos. This is partially due to the natural separation of data across disparate systems. For example, information about a guest in the PMS doesn’t always correlate nicely to engagement metrics from the latest marketing campaign. To work towards a single source of (data) truth, it starts with visibility. Keep your ears open, ask questions, and start tracking which department has access to which types of data. Then you can prioritize collaboration to gather the data you need to accomplish your objectives.

This is why it’s so important to gather buy-in with others. This alignment will not only make the entire process easier; the initiative will be more successful at launch if it also includes input and insights into the problems faced by other teams across the organization.

The proof is in the reporting

The reasons why data science matters to hotels are numerous, but all boil down to one thing: improving business outcomes. To show just how helpful properly managed data can be, review these eight real-life examples. Each report slices into the data to reveal unique insights that answer specific hotel business outcomes.
This report paints a complete picture of the effectiveness of your marketing efforts via Google Ads. When viewing ad campaigns in isolation, it can be difficult to grasp exactly how the campaigns affect your broader marketing strategy.

By using Google Data Studio, alongside Google Analytics and Doubleclick, you can create a dashboard that highlights your click-throughs and cost-per-clicks. Seeing this information alongside your conversion rates gives you an idea of your marketing performance. With a clear view into the cost per conversion, you'll be far more efficient with your hotel's marketing spend.
2 Optimization:

Recommending changes in tactics to improve results in a specific channel for marketing campaigns

Datasets required: Google Analytics, YouTube Analytics. Tools used: Google Data Studio.

Improving optimization is another benefit of a data science approach. By taking engagement metrics from a specific channel (YouTube in this case), you can shift your hotel’s marketing dollars towards regions that show organic interest. Rather than trusting your gut, this data shows regions that are naturally interested in your content.

By using Google Data Studio to aggregate your YouTube Analytics, you can identify opportunities for stronger targeting. When one region outperforms, it’s worth exploring. It’s less about finding out the “why” and more about opportunistically taking advantage of engagement trends.
One of the biggest challenges in maintaining an effective e-commerce strategy is that things change. What once was may not always be; past results are no guarantee of future success. If you rest on your laurels, and expect successes to continue without further inputs, you’ll be greatly disappointed.

In this combined report (made via Google Data Studio), you’ll see e-commerce metrics alongside sales by source, Google Ads Metrics, and Google Ads cost per conversion. At a glance, you can see which sources are driving the most sales and identify trends for further investigation. For example, a drop-in cart conversion alongside an increase in user count (as in the report above) is worth investigating. That’s a major issue that could lead to declining revenue despite spending more to attract new visitors to your hotel’s website.
What good are experiments if you don’t measure success? Use your data science initiative to pull in email data for deeper analysis. Armed with insights like these, you’ll be able to measure the success of your experiments and then optimize accordingly.

This report combines data from a marketing automation tool, as well as CRM, to show that shorter subject lines perform better for this particular cohort. Interestingly, longer subject line lengths still perform better than mid-length ones for certain email types, such as welcome emails and those sent when a cart has been abandoned.
5 Segmentation:

Identifying groups and subgroups of customers and prospects

### IMPACT OF FAMILIES ON ADR AND ON-PROPERTY SPEND BY MSA

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<th># Stays w/ Free</th>
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Datasets required: PMS, POS, Spa, CRM. Tools used: Cendyn eInsight CRM, IBM Cognos II, Excel

Segmentation is a marketer’s superpower. Properly segmented lists mean that messages can be targeted more intentionally, matching message to audience. However, without a strong data arm, there’s no simple way to discover the most promising guest segments for a hotel’s marketing outreach.

This report relies on data from the PMS, POS, Spa, and CRM to craft the Average Daily Rate and Room Night production gaps of stays with and without families. The red circle on the left highlights three markets that are underperforming relative to their respective ADRs. Marketers could feed these insights into their next family-focused campaigns, investing resources first on the markets that command the largest ADRs. Alternatively, some hotel marketers may prefer to target markets that are already engaged; it’s about bringing in more of the same rather than trying to trigger more interest from an elusive segment.

6 Storytelling:

Communicating messages derived from data to inspire better decisions across the organization

Data storytelling matters. It’s another major superpower for marketers. Without it, marketers struggle to align stakeholders and marshal resources for further campaigns.

This report is a helpful example of the unexpected insights derived from pulling in data from Google Analytics, a marketing automation platform, an engagement insights platform like Engagio and a CRM. By combining these sources, marketers can identify the title and department of potential guests that have engaged with your website.

Knowing these organizational demographics can inform decisions made across the hotel. In the example above, the corporate/group sales team may want to create content targeted towards sales directors and CXO admins. By knowing if there’s a specific content type, title or region that drives more engagement, it could increase sales velocity.
7 Models:
Recency, frequency and monetary

By plotting recency and frequency, and then sorting by the average monetary value of each user, the model provides a tactical blueprint for marketing automation. As you’ll see in the example above, each segment represents distinctive opportunities for outreach. Rather than focusing exclusively on demographics or other superficial segments, the model drives right into the marketing meat: who should I talk to and how should I talk to them based on their mindsets? The model provides a quick structural framework for subsequent outreach: one campaign for each segment, starting with the highest value, most frequent guests first.

A properly defined data science initiative means that you can leverage models to deepen your understanding of your hotel’s segments. The “recency, frequency and monetary” model is a potent tool to identify segments that need immediate attention.

Datasets required: PMS, POS, Spa, CRM. Tools used: Cendyn eInsight CRM, IBM Cognos II.

8 Campaign reporting:
Multi-touch, omnichannel attribution models with drilldown and ROI

One final example: campaign reporting with a fully realized, multi-touch attribution model. Multi-touch attribution allows marketers to see each asset’s contribution to revenue. Many hotels – especially larger ones – run a variety of campaigns targeted to different audiences. These concurrent campaigns can be tough to track, especially if you want to isolate the performance of individual asset types.

This report establishes the ROI of individual marketing assets, as well as non-content campaigns such as publicity and offline events. By drilling down into the performance of each campaign type, marketers can see the types of content that delivered revenue within each campaign.

Datasets required: Salesforce, Google Analytics, financial, Excel, offline data. Tools used: SalesForce analytics.
Now that you’ve witnessed the power of data science, it’s time to get started. Like most things, the road is winding and not always easy to navigate. Yet, the destination promises to make marketing more efficient and impactful.

Throughout the process of identifying datasets, establishing data infrastructure, and building consensus, keep the following five clarifying questions in mind. The answers to these questions will shape your approach to launching a data science initiative at your hotel.

1. Do I have access to the data I need?
2. Do I have support and alignment with other teams/departments?
3. Do I have a tool or data warehouse to bring the data together?
4. Do I have clear objectives and/or KPIs against the business problems I am trying to solve?
5. Am I ready to learn from what the data is telling me?

If the answer to any of these questions is no, then there’s going to be a major impediment to success. You’ll want to make sure that you do the groundwork to get to a “yes” for each of these questions. That’s the foundation for successfully launching a data science initiative at your hotel!
Cendyn:
The data science partner of choice for hotels

Cendyn’s eInsight CRM platform and digital marketing dashboards turn data science dreams into reality at thousands of hotels across the globe. Below is just a sample of the dashboards our clients receive to gain actionable insights, resulting in up to 33X ROI.
Reach out today for a demo of Cendyn’s CRM, data-driven digital marketing and revenue management solutions specifically designed for hotels. See how we can drive bottom line results.

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