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The Execution Layer Hotels Are Missing, and Why It Matters Before Agents Arrive

Mid-Stay

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George Roukas identifies the layer most hotel AI strategies are skipping entirely: execution. Brands can build sophisticated loyalty programs and accept intent-rich bookings from AI agents, but if the operational infrastructure cannot reliably deliver what was promised — the right room, the right amenities, the right moment — none of it compounds into loyalty. His argument is that an ontology-based digital twin of hotel operations is what closes that gap, and that now is the time to build it.

Hotels are complex businesses. Every stay has to optimize for several groups at once. The guest wants it to feel easy, personal, and well-executed; the brand wants consistency and loyalty; management wants the property to run smoothly; ownership wants stronger revenue and better margins.

Third-party distributors sell the option with the highest expected value of profitability. By expected value, I mean weighing the likelihood of purchase (showing high-profit items the guest won't buy is a waste of time) against present and future costs (so don't sell a place where customers regularly complain and demand refunds). It's all about optimizing today's Benjamins.

For hotels, it's different. The hotel wants an ongoing relationship with a chance to optimize for the guest's business across a lifetime of opportunities. It's more than revenue per stay; their objectives include better retention, more frequent visits, and the kind of experience people talk about afterward in reviews and to friends who travel.

Restating the obvious? Maybe, but executing on it in a world of chatbots and personal agents (let's just call them agents for brevity) will be very different from web transactions. Agents don't arrive with a simple destination/dates/# guests request. They arrive with an "intent envelope", a mini-RFP of needs and wants, asking hotels to return their best offers *for this specific traveler* and expecting something far more personalized than room types and rate plans. To do it, hotels have to get three things right.

First, brands and hotels need strong loyalty and personalization.

A loyalty program isn't just points and status. It's a way to recognize the guest, apply the right entitlements (upgrade, anyone?), offer incentives they actually value, and tailor the stay in ways that the traveler enjoys. That can mean remembering you like feather pillows, a 68-degree room, or particular food and beverage options (extra M&Ms, please). The details that make a stay feel personal.

Second, hotels need to understand guest intent.

Not every guest wants the same thing. A late-arriving business traveler may want a quiet room, fast check-in, and a comfortable bed. An anniversary couple may want view, atmosphere, dining, and small touches, like hearing "Happy Anniversary, we're glad you chose to spend it with us!" at check-in. The hotel's job is to understand what the guest is really trying to accomplish, then match the right features, services, and offers to that intent. But how does this happen?

A prime reason travelers use agents is that the agents accumulate rich 'memories' of their preferences before planning even begins. So when the traveler makes a request (anything from a simple prompt to a full brainstorming session), the agent combines it with that memory to build an elaborate description of their intent and packages it into the intent envelope. By the time the envelope arrives at the supplier, it carries far more intent signals than you'd get from a web booking widget. And that brings us to the hard part.

Third, hotels need delivery execution.

This is where many hotel strategies succeed or fail. Promising a personalized stay is one thing; aligning the operating teams to deliver it is another. Today, that happens largely through manual processes. I once asked a client whether his company (a top-10 global hotel brand) had an offer management system. He said: "Yes, and no. We built one, but we had to abandon it within about 6 months because the properties couldn't consistently deliver on it."

Notice that the system failed even before agents entered the picture, in a plain world of booking widgets, because properties had no operational way to execute consistently beyond the room-type/rate-plan standard.

So what happens when travelers arrive with elaborate intent envelopes and the hotel answers with a feature-packed offer? Whatever was promised must now be delivered, and that's harder than it sounds. The hotel needs to customize the stay before arrival, adjust it as needed during the stay, and remember what it learns so the next stay is even better.

In simple terms, hotels create the value that drives loyalty and CLV when they match the promise made to the guest with the experience delivered on-property. The good news is that the same kind of technology can fix it. The AI that got us into this mess sits on the guest's side: the agents generating these intent-rich mini-RFPs. The answer is AI on the hotel's side, working the target and current states to close the gaps and deliver on the promise. And it isn't theoretical; it follows a path already proven in other industries, adapted for agentic operation.

We'll get a bit more technical here, but I'll keep it brief.

AN OPERATING MODEL FOR HOTEL EXECUTION AUTOMATION

To automate operations and deliver reliably, the hotel needs to consider three practical questions. What's true right now? (the current state.) What do we want to be true? (the target state.) What needs to happen to close the gap between the two? (the execution layer.)

The **current state** represents what's actually true at a given moment. For a room, that's what's physically present, its condition (clean or dirty), etc. Keeping this current can get involved; at full build, it draws on inspections, room video scans, PMS and other system signals, housekeeping and engineering systems, and staff input.

But it doesn't have to start there. It can begin with basic signals already moving through the property, like a housekeeping signal that a room's been cleaned or the PMS recording that a room's been assigned to a guest for a given date. The model describes the current state better the more you feed it.

The **target state** defines how we want things to be. For a room that includes brand and local SOPs. For a specific guest stay, it includes loyalty benefits, guest preferences, purchased amenities and attributes, and other stay-specific commitments.

To define these two states and make this scalable, the hotel needs a structured model of its property and operations. Technically, that's called an ontology: a schema that describes rooms, room types, attributes, standards, rules, tasks, actions, exceptions, and escalation paths. (Yes, I'm aware that one brand famously does all this with index cards, and others let eye-watering staffing budgets make the magic happen, but neither is universally feasible. Ontologies can apply anywhere, so expect to hear more about them.)

And this isn't a hotel idea, or even a new one; it's how some of the most demanding operations on earth already run. Palantir built its business on its ontology, a model it calls a digital twin of an organization, used to run everything from manufacturing lines to financial operations. Anduril's Lattice platform merges thousands of sensor feeds into an ontology to keep a live picture of a battlespace and task assets against it. Siemens and Nvidia build digital twins of entire factories, allowing BMW and Mercedes-Benz to plan and run plants in a living virtual replica before and while the physical ones operate. A hotel is simpler than a battlespace or an auto plant. Believe me, if the model works there, it will work in a hotel! (Current ontology example here for hotel control systems.)

The cool thing is that a single ontology expresses both states using a common vocabulary, and because they both come from the same model, an AI agent can compare them directly. Does the current state match the target state for this room? When the answer's no, the difference is a gap.

When the agent finds a gap, it can determine the appropriate action, trigger the task, monitor its completion, and verify whether the issue was actually resolved. If the task succeeds, the current state updates. If it doesn't, or the situation calls for judgment, the agent escalates to a human with an explanation. Remember the AI that's going to get us out of this mess? This is it. Give an ontology to a capable agent, and it's a party!

Take the anniversary couple from earlier. Their agent books the stay and confirms a quiet high-floor room, feather-free bedding, champagne on arrival, and a late checkout tied to loyalty status. The target state includes those promises. The current state shows the assigned room is available but not feather-free, and it sits next to the elevator.

The system flags the gap, finds a better room, triggers housekeeping to swap the bedding, confirms the amenity, and alerts the front desk to acknowledge the anniversary at arrival. No one had to remember to check.

Let's be honest, this isn't going to happen all at once. Consumer agents will roll out later in 2026, creating intent envelopes that hotels will initially address with conventional responses that begin with loyalty entitlements and include some limited preferences. This will earn bookings, but over time, the hotels with richer offers will get a bigger slice of the pie. Defining and automating your ontology will take some careful thought, so now is really the best time to start. Agents have the potential to attract significant demand from intermediaries, and savings in distribution costs will more than cover the costs of creating and enabling them. The benefits of success are there if we can deliver on the promises, but the hangover will be awful if we don't.

STILL, THE HUMAN TOUCH PREVAILS

The point of automation isn't to replace hospitality. It's to help hotels keep the promises they make to guests, which matters more as agent-driven demand creates more operational complexity. Automation can help ensure the room is ready, building trust and creating an environment more fertile for the elusive 'magic moments' of real engagement.

This is also where the hotel's economics finally come back into focus. The intermediary optimizes the expected value of a single transaction and calls it a day. The hotel, by reliably delivering on its promises, optimizes something the distributor can't even see: the lifetime value of a guest who comes back, tells friends, and writes the review that brings others.

Real hospitality still depends on people: the warmth of recognition (I, for one, will be sooo happy to never again hear "have you stayed with us before?" when I've been at the property enough times to have a room named after me), the judgment to know when a situation is on shaky ground, and the instinct to know what to say or do. The goal isn't to automate hospitality out of the hotel. It's to remove enough operational friction that staff have more room to actually engage in it.

Technology can help ensure the promise is kept. People still make the promise mean something.