Artificial Intelligence: Navigating The New Treasure Map

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In a recent episode of our Hotel Tech Podcast, we sat down with renown computer science educator, **Roberto Battiti**, from University of Trento to get a clearer picture of what artificial intelligence (AI) is, what it is doing now, and what it will do for savvy hotel owners in the future. Check out the following highlights of what Roberto had to say, then be sure to listen to the full podcast!
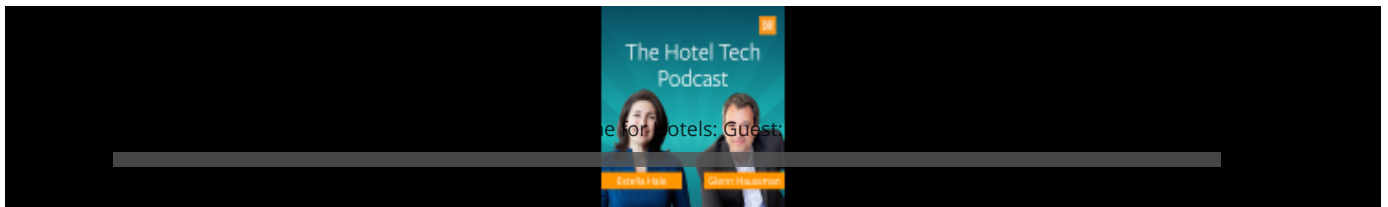
How did the idea of artificial intelligence develop?

To simplify it greatly, I can break it down into distinct stages. The first stage was about fifty to sixty years ago. The initial effort then was to imitate human intelligence, in particular by way of what is known as "symbolic intelligence" which is based on rules and language people can easily understand. Someone coming from Italy, for instance, that person would probably like spaghetti. A sort of "if this, then that" type of logic. The developers would to businesses, schools, etc. to collect this type of knowledge from the people working there. But then, you have things like learning to ride a bicycle. How do you explain something instinctual like riding a bike, in steps? Or reading. We are good at reading, but not defining the rules for exactly how we read, each syllable or sound, step by step. So, that method was very limited and tedious, but a start.

Then, in the second stage, in the middle of the 80's, there was a new type of intelligence theory, named "artificial neuro networks," or also "sub-symbolic neural networks," that said you could develop intelligence systems by starting from the data ONLY, not the cumbersome listing of rules first. This was a very dramatic change for the better.

How does this relate to AI now, and especially to hotels today?

The two stages or directions were combined—the symbolic and sub-symbolic learning from the data—to build more complex, complete systems of AI. Hotel data can be used to build models that can help predict how consumers will behave, all in an effort to make the hotel more money as well as to better-serve the guest. Hotels can connect more and better data from their hotel websites, from reservation systems, from Booking.com, from marketing and more, then start building and using predictive AI models as that data is automatically processed revealing patterns that would be physically impossible for a person to deduce on their own.

So, it's kind of like discovering a map that will take you to buried treasure that you didn't realize existed. Is that a fair analogy?

Yes! Today's AI model is an opportunity to discover things you didn't know that you didn't know before, if that makes sense. You don't need to see that whole map, that picture of it all beforehand like with trying to explain how to ride a bike, because today's automated methods, with massive computations going on in the background, are continually delivering knowledge you can work from to improve your business outcomes.

Can you speak to the example of revenue management (RM), and how AI can enhance the traditional RM methods?

Sure. With RM, the issue is always what is the proper price for this customer, for this day of week, for this month of the year. Without AI, you can try to come up with rules, but that's difficult. Or you can just experiment within your booking engine, going up or down 5% in your price, then measure on your own how visitors are responding. But how can you detect what the real optimal price is? The best you can do is make an educated guess based on your own experience. Or you can find the average price in your market of all your competitors, then lower your price by a few dollars, and see what happens. But your competitors are doing the same thing! Which is why this is the wrong way, as it will never end, and your entire market will be weakened.

But with AI you can do the same experiments, and only collect that data that is appropriate and useful in figuring out how and why visitors are doing what they are doing. Most importantly, you will have YOUR hotel's optimal price structure in the end, not simply a guesstimate or a generic number. YOUR customers' data, not some other hotels' data. Then week after week, month after month, you can just continue gathering data 24 hours a day improving your predictions to get your strategies closer and closer to YOUR ideal targets. It's very personalized.

It seems like AI is really like strapping a bigger brain to our brain to see the opportunities we simply cannot see on our own, yes?

Absolutely. If you know there is a big conference in your area, for example, you can increase prices on your own. But what if there is a lot of activity on your website and you have no idea why? With AI, you can know these things before you even "know" them. I mean you can discover that something is going on by looking at the numbers going up and down, and you can react immediately to increase prices, often finding out later the reason for the spikes in activity. It's really amazing. It goes back to the buried treasure that you mentioned.

As humans, we tend to think that once we figure something out one time, we can just keep doing it the same way. Why is this untrue, and how can AI help?

Hope is not a plan. Yet, as you say, people do seem to keep doing the same things over and over, hoping outcomes will improve. People are habitual by nature. This is where the beauty of AI models can help break those patterns that are not working but that we cling to, making us aware of opportunities that we just would not recognize otherwise. But you have to be willing to admit that you do not know everything; no one knows everything. I will also add that no one wants to feel that they are losing control. So, the thing to do is to combine your best strategies with what you can learn from AI, so you get the best of both worlds. What we see in hotels is that it takes months to accumulate data, but once they accept it and realize it's there to help them, they start growing their revenues percentage by percentage. Remember, you cannot do worse with AI, you can only do better.

Talking about losing control; is AI a set-it-and-forget-it proposition for hoteliers? Will it replace them?
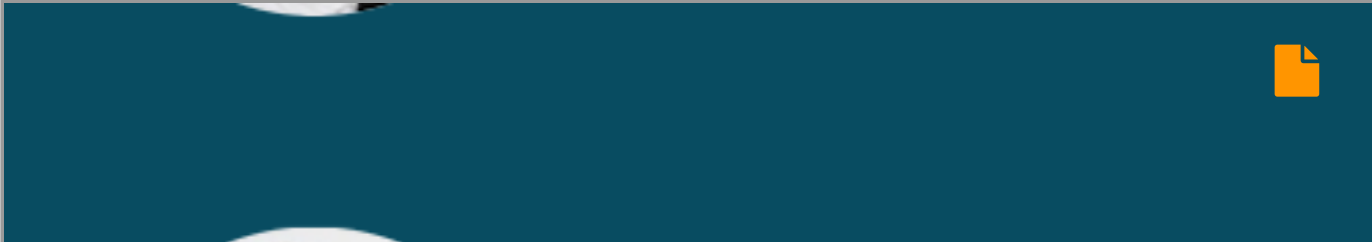
No. AI is definitely NOT about sitting back and letting machine learning take over. The hoteliers have got to take an active role in designing what they want and what their objectives are. Once they do that, and only when they do that, they can start improving their outcomes. The machine, the AI, cannot know what the desired outcomes are until the hotelier shares that information, and that information is always changing. What is it you want to achieve this year, this month, this season? What are your goals? There is no miracle in AI. AI is a like a very powerful servant that needs direction from people.

Roberto, what would you advise hoteliers to do to get involved in the best of AI now?

You need to be aware of the possibilities, and to distinguish the smoke from the meat, if that makes sense. You need to be careful of the smoke sellers, you know? It won't happen in a day or a week, but more like six months, and then you will start to see serious, measurable improvements in about a year. But keep in mind, the improvements will depend on where you were at when you started, and where you want to go.

The bottom line is that this is a very beautiful period for people with top quality hotels. BUT, the key is to start now, and get to the real meat of AI that will serve your hotel best. It can be difficult at first, but if you will dedicate the time and investment, and let computers help you help your business, your guests, you'll see the payoff, the treasure, that you never knew existed.

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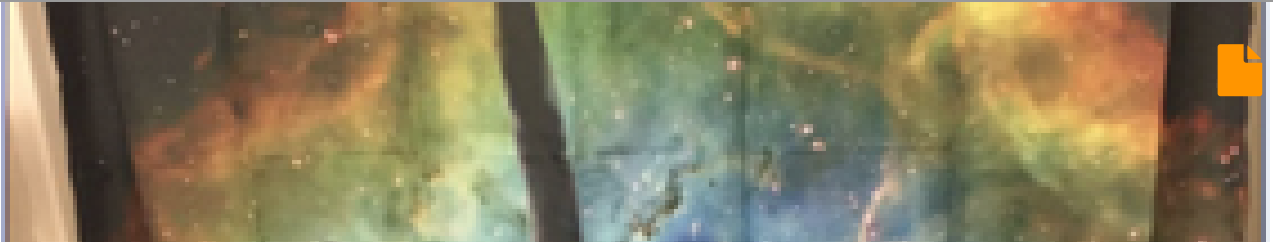
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