
Delivering Personalized Digital Experiences With AI and Data Analytics

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Eric Redman,27 **AI + Data + People = Personalization**
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Delivering Personalized Digital Experiences

By Marydee Ojala, Editor-in-Chief, *KMWorld*



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In today's digital, knowledge-powered world, consumers expect tailored experiences. They want the companies that they do business with to understand their needs and preferences. They expect their suppliers to be in tune with them to offer content and products that give them exactly what they want, maybe even before they ask. Personalization fuels the growing trend in KM that capitalizes on the power of AI and data analytics. It takes the Know Your Customer edict to a whole new level.

Perhaps the desire for personalized digital experiences is a throwback to simpler times, when, at least in *Cheers*, everybody knew your name. The restaurant staff knew you took cream but not sugar in your coffee. The dry cleaners knew you preferred light starch on your dress shirts. The office supply store knew what type of ink your printer required. When online ordering became the norm and casual dress codes removed the need to wear dress shirts, many people felt something was lost.

Highly personalized digital experiences drive customer satisfaction and loyalty. It makes them feel a connection to companies and products. Done well, you can turn customers into fans of your products and services. You went back to the restaurant, the dry cleaners, and the office supply store. What happens when those face-to-face interactions moved to a digital world? Or when staff changes erased the tacit knowledge that created the personalized experience in the first place?

At the core of personalized digital experiences is knowing the data. Companies have been collecting data about their customers for years. They want to know demographics—such as names and name variants, email addresses, age, gender, ethnicity, location, net worth, and payment preferences—and their buying habits—purchase history, website interactions, social media engagement, and abandoned shopping carts. What's new is how this data can be used to train language models. This is where AI kicks in, allowing for new insights to be gleaned from existing data.

As Eric Redman, Senior Director, Product, Lucidworks, points out, the first step in digital personalization is defining the correct use case. Then you can get on with model training. Balancing needs with cost and security is critical to successful implementations. Decisions about what data can and can't be used in training depends a great deal on whether the model will be used internally or externally.

Proprietary data should be viewable only by those authorized to do so.

Balancing Personalization With Privacy

Although people appreciate personalization, they also have some privacy fears. They become concerned when a company knows too much about them. It can be innocuous: A company knows that your name is James but you prefer Jimmy. It can result in slight missteps: Your birthday is October 3rd; in the U.S., you receive birthday wishes on that day, but if the company is based in Europe, you may receive somewhat mysterious birthday wishes on March 10th, since the date convention is day/month not month/day.

Conversely, it could resemble stalking if a company knows you searched for something on social media and 5 seconds later an ad for it shows up in your feed. Or, to take an

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extreme example—one that doesn't yet exist and hopefully never will—the grocery store refuses your purchase of ice cream because it accessed your physician's notes that suggested weight loss and read your smart watch fitness tracker statistics that said you hadn't done your full complement of steps for the day.

The fine line between personalization and privacy will be drawn differently by different companies. Sharing knowledge with an individual's permission is fine, so long as it's shared in a transparent manner. Suggesting additional products in which a customer might be interested, based on prior purchases, is often appreciated. A bookstore, for example, noticing that a customer has a history of buying books by one particular author, can send a note informing the customer that the author has just published a new title.

Measuring the Success of Digital Personalization

As enterprises come to grips with the cost of a full-scale generative AI project, many experience sticker shock. That is not the personalization experience they anticipated. When considering how to proceed with AI and data to drive digital personalization, note that costs to prompt and tune language models are high but awareness of these high costs is spurring efforts to find ways to bring down the costs.

One decision point is the choice of language model. The choices are abundant and their technical capabilities change frequently. Language models are generally thought of as Large Language Models (LLMs) but attention is shifting to Small Language Models

(SLMs), which may be a better fit for your organization.

As Redman points out, AI is never a "set and forget" effort. He suggests tracking by key metrics in a data-driven fashion. Metrics will guide you in determining the success of your digital personalization projects. You want digital personalization to deliver real, measurable value and add to customer satisfaction. You might measure customer retention, increased spending, fewer complaints, less churn, or better customer support.

Delivering excellent personalized digital experiences requires a combination of AI (all varieties of AI, not only generative AI), data, and people. Clean, usable data is essential, and advances in AI technology will impact digital personalization, as will customer expectations. ■

AI + Data + People = Personalization

By **Eric Redman**, Senior Director, Product, Lucidworks



Eric Redman

Eric Redman leads product management for data science and analytics at Lucidworks, a leading provider of search solutions. Based in Portland, Oregon, Eric brings over 35 years of experience in software

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Customers have craved personalized digital experiences for years. Generative AI has now shown millions of people that it's really possible. But it's not a one-and-done implementation. So where to start?

The answer lies in a strategic AI adoption plan. Implementing these technologies requires a thoughtful approach to avoid costly missteps. This article outlines best practices for delivering personalized digital experiences with AI and data analytics, ensuring your business stays ahead of the curve—without compromising security or response accuracy.

Plan First, Adopt AI Second: Defining the Right Use Case

Before diving headfirst into AI, it's crucial to define the specific problem you're trying to solve. Start with use cases that present high "information friction" where users struggle to find the information they need. For example, searching for FAQs or looking for product dimensions when making a purchase decision. Here, AI can shine by providing a smoother, more efficient experience.

Build a Strong Foundation: Data Analysis and Model Training

The key to a successful AI implementation lies in its data. By analyzing past user queries and data offline, you can train your AI models to learn and improve. This not only leads to more accurate responses but also allows you to identify areas where your knowledge base might have gaps. This training process can involve fine-tuning the model to better understand your specific industry jargon or terminology. The more you refine your AI model offline, the more accurate and relevant results it will deliver in the real world.

Choose the Right AI Model: Balancing Needs With Costs and Security

Not all AI models are created equal. Large language models (LLMs) are a powerful type of AI, but they're not a one-size-fits-all solution. Several factors influence your decision, with cost and security being paramount.

When considering LLMs, identify if the model will be used for internal or external purposes. When dealing with proprietary data, it is critical to ensure that any type of tuning and prompting of the LLM only uses data that the

user is authorized to see. Businesses must also consider transparency. Users should be aware they're interacting with AI, and businesses should provide clear paths to trusted resources for further exploration.

Regardless of which model you choose—commercial or privately hosted—costs will be high. And remember, the "best" model today might not be the best tomorrow. There is a lot of research happening today to try to find ways to train small and efficient models for specific tasks. In the future, costs will likely continue to fall.

Extract Value from Data: Techniques for Effective AI Implementation

There's more to AI than just throwing data at it. Specialized techniques unlock the true potential of your data and enhance your AI's capabilities. Here are a few key methods:

◆ **Semantic Chunking:** This breaks down complex information into smaller, more manageable pieces, allowing the AI to

process and understand it more effectively.

◆ **FAQ Extraction:** This improves search of complex documents. LLMs have proven to be adept at generating synthetic FAQs which can then be vectorized to support improved search relevance for collections of complex documents.

◆ **Embeddings:** These models encode the meaning of text, images, and other media as numerical vectors. This type of model

is used for semantic search as well as Gen AI models.

These techniques are particularly valuable when dealing with "messy" data sources like online forums or chat conversations. By leveraging LLMs with these techniques, you can extract key insights and questions, allowing the AI to provide more comprehensive and relevant responses.

Track Progress and Measure Success

Implementing AI isn't a "set it and forget it" endeavor. Tracking key metrics is essential to gauge the impact of your AI and identify areas for improvement. This data-driven approach allows you to continuously optimize your AI for maximum effectiveness.

Remember, the initial wave of AI enthusiasm is giving way to a more calculated approach. Businesses are recognizing the potential of AI but are also cautious about

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costs and risks. By prioritizing planning and focusing on specific use cases, businesses can ensure their AI adoption delivers real value—accelerated paths to purchase, increased CSAT scores, more effective customer support—while keeping costs and risks in check.■

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