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قـــــــسم علوم الذكاء الاصطناعي

LECTURE: (5)

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As technology evolves, knowledge will exist in more and more disparate places. Information gets stuck in email, social media interactions, forum discussions, comments, tickets, and even in the brains of individual service desk agents. If you don't already have one, it's time to aggregate your knowledge in a single repository or system.

What is a knowledge base?

In general, a knowledge base is a centralized repository of information. A public library, a database of related information about a particular subject.

In computer science, a knowledge base (KB) is a set of sentences, each sentence given in a knowledge representation language, with interfaces to tell new sentences and to ask questions about what is known, where either of these interfaces might use inference. It is a technology used to store complex structured data used by a computer system. The initial use of the term was in connection with expert systems, which were the first knowledge-based systems. In relation to IT, a knowledge base is a machine-readable resource for the dissemination of information, generally online or with the capacity to be put online. Knowledge bases are an integral component of knowledge management systems. They are used to optimize information collection and information organization and retrieval.

A digital knowledge base is not a static collection of information but a dynamic resource. They may themselves have the capacity to learn, as part of an automation or artificial intelligence expert system.

The data in your knowledge base can come from anywhere. Typically, contributors who are well versed in the relevant subjects add to and expand the knowledge base. The content can range from the ins and outs of your HR or legal department to an explanation of how a product works. The knowledge base may include FAQs, manuals,

troubleshooting guides, run-books, and other information your team may want or need to know.

Many knowledge bases are structured around artificial intelligence that can interact and respond to user input. Others are simply indexed encyclopedias. There are also machine-readable knowledge bases that store content in system-readable forms. Solutions are based on what we call automated deductive reasoning. When a user enters a query, software helps narrow down a solution.

Why you need a knowledge base

In today's connected world, people expect and demand easy access to accurate information. And to do that, they often aren't willing to get on a phone call. Or send an email. Or file a service ticket. They want the answer they need immediately. Which is why you need a rich, deep knowledge base.

Organizations use knowledge bases for a lot of reasons. And they're finding more uses virtually every day. The way you use a knowledge base depends, of course, on what your organization does and who it serves. But here are a few of the ways knowledge bases are proving to be invaluable to various teams.

IT: It simplifies everything from troubleshooting to training/onboarding and general how-to and support questions

HR: Again, great for everything from training/onboarding to distributing company policies and pay schedules

Legal: Helps with contract and other approval processes, policies, trademarks and registrations

Benefits of a knowledge base

Different benefits of using KB. Perhaps, the most important benefits are:

Less time spent searching for information – Purpose-built knowledge base software makes it easier to surface specific knowledge when needed. This improves contact center efficiency by making it easy for agents to resolve customer issues on the first call. It also improves company-wide productivity by making it easy for everyone to find the information they need to do their jobs well.

Faster onboarding – New hires no longer need to ask tons of questions in their first weeks. A quality internal knowledge base enables them to effectively self-serve and stops repeat questions from interrupting your most critical staff.

Easy upkeep – Documents and spreadsheets can easily become outdated, and version control can lead to duplication and confusion. Knowledge bases allow users to update individual items as necessary (instead of having to update and republish an entire document). A quality knowledge base includes a simple way to quickly see whether information can be trusted, and automation to remind SMEs to keep their information up-to-date.

Roles and permissions – Knowledge bases allow for granular access and editing. While some other solutions (like Google Docs and Google Drive) can also be limited this way, the settings often require more time to maintain.

Designed to be used in-workflow – A quality knowledge base solution is designed to be used to provide answers where and when you need them, while other solutions require major context-switching and searching. For example, Guru's Chrome extension, Microsoft Teams, and Slack integrations allow everyone to quickly access the knowledge they need without leaving the apps they use every day.

On the other hand, and with a strong knowledge base and knowledge management practice, you'll find your organization is nimbler and able to deliver faster service. You'll also be able to improve self-service, give greater access to more articles, and offer regular updates through that knowledge management system.

Consistent service   Higher resolution rates   Lower costs

Here are a few of the ways a knowledge base can make a difference for your organization:

More consistent service: Everybody in your organization will reference the same playbook. Whether you're in sales, IT, HR, or any other department, you'll see the same information. This reduces confusion and enables teams to operate more consistently.

Higher resolution rates at first contact: With a good knowledge base, there's no need to put customers on hold, or transfer them between agents, or call them back later. Answers are right at customers' fingertips. And when they have additional questions,

others in the community are right there to help. It's an easy-to-use, self-serve way to resolve issues fast.

Lower training costs: A knowledge base, supported by a strong knowledge management program, ensures new hires are trained with the latest information and get consistent guidance. That translates to a better work environment and lower costs.

Once you put a good knowledge base in place, backed by a plan for knowledge management, customers and employees find answers themselves. So you can focus on the important aspects of your job, rather than answering everyone's questions. If you aren't already convinced of its value, a knowledge base can also:

⊕ *Organize everything people need to know in one place.*

⊕ *Standardize answers.*

⊕ *Make your company look smart, up-to-date, and professional.*

⊕ *Offer a feedback loop and the opportunity to engage with stakeholders.*

Types of knowledge base systems

There are five main types of knowledge bases. They include the following:

⊕ *Internal knowledge base*

⊕ *Hosted knowledge base*

⊕ *Self-hosted knowledge base*

⊕ *Open-source knowledge base software*

⊕ *Customer service knowledge base*

How to build a knowledge base?

The main steps to build a KB are:

1. *Conduct research to determine knowledge base need*

2. *Determine what type of knowledge base you need*

3. *Outline a simple knowledge base structure*

4. *Gather content and establish who will maintain it*

5. *Upload resources to your shared platform*

How to measure the impact of your knowledge base?

So, how do you know if your knowledge base is actually working the way you want it to? The main impact metric you should be measuring here is usage. If your software offers them, take a look at your analytics and see how frequently team members are searching for, consuming, updating, and sharing information.

If your software doesn't give you clear analytics, try to take stock of how new the information in your knowledge base is. At the beginning, this might be easy but check every month or so to see when information was last added or updated. If it's been weeks with no changes, your information is going stale.

Another way to check is to see how frequently people at your company are asking questions in chat and how often your agents can resolve customer service requests at first contact. If you see the volume of questions relative to what's been captured in your knowledge rise or you think your first-contact resolution rates could improve, people are ignoring or bypassing your KB, lowering its overall impact.

What is the difference between database and knowledge base?

The difference between a database and a knowledge base is that a database is a collection of data representing facts in their basic form, while a knowledge base stores information as answers to questions or solutions to problems. A knowledge base allows for rapid search, retrieval, and reuse. Information in a knowledge base is typically fully developed and ready to be applied.

What is knowledge base artificial intelligence?

Knowledge base AI can be seen as the intelligent sibling of conventional knowledge bases, elevating the concept to greater heights by incorporating artificial intelligence.

Essentially, it is a technology that combines AI, natural language processing (NLP), and machine learning (ML) algorithms to enhance and optimize traditional knowledge bases, providing them with a remarkable boost in performance and efficiency.

But what does that mean in practice? It's all about understanding and interpreting human language, learning from user interactions, and continuously improving performance. Knowledge base AI systems are no longer passive information repositories; they actively learn, evolve, and grow smarter as they process data.

Main components of an AI knowledge base

Let's dive into the details of the key features of an AI knowledge base:

Data: The Building Blocks

Think of data as the LEGO bricks that form the foundation of your AI knowledge base. Without these blocks, there's nothing to build upon! Data encompasses various forms of information, such as text, images, videos, and anything else that can be processed and analyzed by the AI system. The more diverse and relevant the data, the stronger and more accurate your AI knowledge base becomes.

Natural Language Processing (NLP): The Communication Bridge

Imagine conversing with someone who doesn't speak your language – tricky, right? That's where NLP comes in. It's a subfield of AI that enables computers to understand, interpret, and generate human language. In the context of a knowledge base, NLP acts as a bridge between human queries and machine-generated responses, allowing the system to comprehend user questions and provide accurate, context-aware answers.

Machine Learning (ML): The Secret Sauce

Machine learning is the secret sauce that makes AI knowledge bases so powerful. It's a subfield of AI focused on developing algorithms that can learn from data. By using ML techniques, knowledge base AI systems can identify patterns and trends in user interactions, enabling them to improve their performance over time. In other words, the more "cooking" (i.e., learning) the AI does, the tastier (i.e., more intelligent) it becomes!

User Interface (UI): The Welcoming Front Door

A user interface is like the entrance to your favorite restaurant – it sets the tone for the experience inside. The UI is the part of the system that users interact with to access

the knowledge base. An effective UI should be intuitive, easy to use, and visually appealing while allowing users to instantly find the information they're looking for. After all, nobody wants to spend ages hunting for answers!

By understanding these core components, you'll better grasp what goes into creating a top-notch AI knowledge base. Like a well-orchestrated symphony, each piece plays a crucial role in ensuring the system functions harmoniously and efficiently, providing the best possible experience for users.

Examples of Knowledge Bases in artificial intelligence

Customer Support

Knowledge base AI revolutionizes customer support by providing instant, accurate answers to customer queries. By using AI, businesses can reduce response times, improve customer satisfaction, and lower support costs.

Internal Knowledge Management

Companies use knowledge base AI to streamline internal knowledge sharing, making it easier for employees to access information and collaborate. This can help improve productivity, enhance decision-making, and foster a culture of continuous learning.

Training and Onboarding

AI-driven knowledge bases can be used to create interactive training materials, helping new employees quickly get up to speed with company policies and procedures.

Product Documentation

Knowledge base AI can automatically generate and update product documentation based on user interactions, ensuring that documentation is always up-to-date and relevant.

Market Research

By analyzing vast amounts of data, knowledge base AI can help businesses gain valuable insights into customer preferences, industry trends, and competitors, driving more informed decision-making.