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# Wizenoze: The Value of Engaging the Customer's Customer

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*Stefano Puntoni examines how Wizenoze, a Dutch educational technology startup, uses AI to match educational content to each learner's reading skills. The case illustrates how AI can allow service personalization at scale in order to increase user engagement and satisfaction.*

Customer engagement is a priority for many companies, but what it looks like in practice depends on the product or service. For educational technology (ed tech) companies, customer engagement requires that users pay attention to the product or service in order to benefit from it. We use technology to facilitate learning and to ensure that students are engaged and ready to process and retain information. Artificial intelligence (AI) can help us to achieve this goal deeply and at scale.

Consider the experience of Amsterdam-based start-up Wizenoze. It was founded in 2013 by Diane Janknecht and Theo Huibers whose purpose was to

curate information on the Internet for children and young students to ensure that what they see is age appropriate, true, safe, and appropriate to their educational reading level.<sup>1</sup> A research grant from the European Union to academics at the University of Twente in the Netherlands, where Huibers is a computer science professor, got the start-up off the ground.

Janknegt and Huibers believed the Internet offers an incredible wealth of data but that finding relevant, reliable, and readable information for students from primary to graduate school is difficult. They knew that search engines like Google cannot match content to the reading skills of the user and do not always yield results suitable for quality education. They founded Wizenoze to offer a better way.

The company developed algorithms that matched online content, both free and proprietary, to a student's learning goals and reading skills. Humans are in the loop to screen the information for relevance and readability. This technology is integrated into a school's learning system and matched to the curriculum. Teachers and students can then search the Wizenoze database for reliable and relevant data as they teach or learn.

### Engaging the Customer's Customer

But in 2019, revenues were not meeting expectations and the company decided to radically change direction. Janknegt, the CEO, describes this pivotal moment as "running into a wall while driving 100 kilometers per hour." She realized they had made a major mistake. In their product development, the company's leaders had listened carefully to their business to business (B2B) customers — learning management system providers (such as Canvas, Moodle)

and publishers (Pearson, Encyclopedia Britannica, and the like).

But they had not listened to end users: students and teachers. What they had failed to realize was that even if Wizenoze gave students access to a smaller, curated trove of information than the open Internet, many students still found searching for specific information too difficult. They wanted an easier way to get the best information about their topic.

Wizenoze quickly changed its proposition. Instead of being a search engine for education, the company dropped the search bar altogether. Instead it created a tree of curated libraries of educational content. A student interested in learning about a particular topic in biology could now click on 'biology' to go immediately to a high-quality library of relevant information selected by Wizenoze to match their reading skills. From within the biology library, the student could then click 'cell development' to refine the results.

### AI Application

The approach taken by Wizenoze differs from that used by most search engines, which judge content eligibility based on blacklisting. In this approach, users can access most sites except those that are blacklisted. Wizenoze instead whitelists websites, blocking websites by default unless their content is proven to be trustworthy and suitable.

Humans determine the trustworthiness of each source, assuming a trusted source to have trustworthy information. Meanwhile algorithms match materials to the required reading level and curriculum. Humans provide additional oversight by checking the content libraries.

How Wizenoze curates and checks the content:

- 1) Web crawlers browse the Internet to identify content potentially suitable for education.

- 2) Human experts, such as teachers, select trusted sources from the candidate pool of websites.
- 3) A combination of human and automated agents strip the selected websites of content that is not deemed educational.
- 4) Machine learning algorithms assign a reading level to the content and then match it to the curriculum.

To match web content from its collection with learning objectives in the curriculum, Wizenoze fine-tuned a state-of-the-art neural information retrieval (NIR) model using a Siamese BERT network.

Each curriculum in the system is defined by a structure that is an ordered sequence of layers. Different curricula might have different structures composed of layers such as 'Grade,' 'Subject,' 'Unit,' 'Topic,' and 'Query.' These algorithms are a crucial source of competitive advantage for Wizenoze.

- 5) The top results are then checked by human experts before being included in the curated content library.
- 6) A web crawler ensures that the information is kept up-to-date.

### Customer Engagement Results

Much online information is not suitable for education because it is untrustworthy, irrelevant, or difficult to understand. Furthermore, it is hard for many students to formulate effective queries and judge which websites to trust. The Internet's enormous potential to support and facilitate education is therefore still largely unfulfilled.

Wizenoze provides a solution to this important problem. With Wizenoze, students can log into their school's online learning site and find the best online resources on any subject in the curriculum. The system will then curate this content according to relevance and reading level.

To gauge its system's effectiveness, Wizenoze conducted a study in the United Kingdom (UK) to measure customer engagement.<sup>2</sup> It tested the tool on a focus group of teachers and 190 students at different reading levels. The teachers reported benefitting from the tool's support of students in a variety of tasks, including reviews (recalling topics previously discussed in class), research (for presentations or reports), exploring topics related to those covered in class, and helping students individually with specific subjects.

Students also responded positively to this new learning tool while their teachers appreciated the ability to personalize, for example, by choosing how many results appeared on a page. For a UK client, the company also conducted a later study using four English primary schools in Sussex, London, and Bristol. This unpublished study confirmed the effectiveness of Wizenoze content libraries for customer engagement and learning.

In the latter study, 87 percent of teachers said the search results improved for their pupils in terms of relevance, readability, reliability, ease of use, and enjoyment. Students confirmed the teachers' assessments, rating Wizenoze as better than Google for finding relevant information (average of 4.8 on a 5-point scale). Although long-term data on the service is not available at this time, students indicated an interest in using it if it became available in their school (average of 4.1 on a 5-point scale).

The company is currently growing rapidly and already reaches over a million students. It is expanding internationally, and expects its revenues to double annually for the next

three years, with a growing global footprint that includes the UK, Europe, the Middle East, and India.

### Lessons to Take Home

The case study of Wizenoze, and particularly its pivot from open searches to curated libraries in 2019, offers important lessons for AI-driven companies seeking to boost customer engagement:

1. *Value chain perspective on B2B marketing.* Wizenoze had interacted frequently with its B2B clients and tried to be as responsive as possible to their needs. However, this customer focus was not sufficient to ignite growth. The company's trajectory only picked up once it started paying attention to end users. B2B companies must take a value chain approach to product design and value generation. In short, caring about your customers is not enough; your customers' customers are equally important.
2. *The value of information in a post-truth world.* Even in a world where search costs are essentially zero, there is room for businesses to grow by helping people find information online. The Wizenoze case suggests a productive way to think about new opportunities in digital business: Look for needs that are currently unmet by ad-driven business models. We glorify big data, but small good data beats big bad data. Wizenoze's differentiation is a shift from information quantity to information quality.
3. *Customer engagement as an antecedent to providing value.*

In many industries, customer engagement is directly linked to benefits. In education, it is crucial that students have access to materials that match their reading skills and learning goals. Those who do not find it difficult to process the information provided and struggle to stay motivated. AI can facilitate engagement in education because it enables personalization at scale.

4. *Boosting engagement by reducing choice.* Behavioral science has long established that people value having a lot of choices. But in fact, they can also suffer from having too many choices. Talking to end users helped the Wizenoze team realize that, for many students, searching for information and sorting through search results is cumbersome. Wizenoze became more successful by reducing the number of choices. Leaders should always remember that simplifying choices can improve the customer experience and increase customer engagement. Sometimes, less is more. ■

### Author Bio



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### Endnotes

1. The article is based on interviews and research conducted for "Wizenoze: Matching Digital Content to Learners in a Post-truth World" by Kassiani Nikolopoulou and Stefano Puntoni,

published by the Case Development Centre at the Rotterdam School of Management, Erasmus University. <https://www.rsm.nl/cdc/multimedia-cases/wizenoze/>

2. Jochmann-Mannak, H., C. Fräsera, G. de Vries, T. Westerveld, and T. Huibers (2021), "Supporting self-directed learning and exploratory research on the web," European Conference on

Technology Enhanced Learning for a Free, Safe, and Sustainable World, Bolzano, Italy.