

## The Future Knowledge Base



From Wikis to information repositories, knowledge bases are where we store our most valuable information, facts and data so that it can be accessed simultaneously by thousands of users. Except for the occasional update to a newer, more pleasant user interface, knowledge bases didn't change much from their database origins for over a decade. These legacy systems are structured and scaled to meet the pace set by human creators and users.

However, the speed and scale of knowledge is changing rapidly. Technologies such as social media, device telemetry, big data, machine learning, etc. have enabled an exponential rise in the amount of knowledge that is both created and consumed. Currently, the sum total of human knowledge is said to double approximately every thirteen months. According to IBM, with the inception of the Internet of Things (IoT) space, the sum total of human knowledge will eventually begin to double every 12 hours.

This is not merely an exponential rise in the amount of raw data collection. With the rise of machine learning, the knowledge synthesized from that data is already taking business into a new information age.

A seismic shift is taking place in the amount of knowledge captured. This shift is impacting how we mine, search, and filter that knowledge. The growth in human-made content and crowd-sourced answers is already so great, that no legacy document storage system can handle it. As machine-created content continues to grow, how can the average human search and make sense of its vast ocean of trending issues and solutions? The answer is that machine learning and artificial intelligence will play a critical role in the knowledge base of the future.

And it's not just knowledge that's changing. Connectivity is also changing rapidly, with millions of consumers wanting direct access to knowledge solutions. Customer service agents, who traditionally trained and worked in large central offices, are connecting and working from home and locations all over the world (the collaborative economic model). The hyper-localized approach of hiring, housing and training agents in a central office location is being upended. A different approach for training people and delivering and deciphering vast amounts of knowledge is needed. Asurion is innovating and accelerating how it leverages its knowledge base to ensure we continue to lead the industry in delivering loyalty and advancements for our clients and consumers.



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## The Crucial Difference between Information and Knowledge

Information and knowledge are not the same thing. Information is data that has been given meaning by way of relational connection. But knowledge is much more than just a collection of data. It's a concise presentation of information in a way that makes it useful. Information is a set of related search results for a problem. Knowledge is the know-how for how to fix it.

One of the issues of old-fashioned knowledge repositories, is that even when knowledge was presented a useful way, such as a set of solution steps, such systems can still only search and display this knowledge as information – a large set of search results that are potentially related to the issue. Even when identifying the correct solution article, the knowledge is often generalized with a one-size fits all approach (granularity that is overly general) as well as multiple variations (granularity that is non-applicable) that the agent or customer is forced to sort through and interpret.

## How Knowledge Was Done in the Past

Asurion's team of content writers and trainers has successfully crafted over 50,000 articles, spread across multiple knowledge base systems. The direction of content has been driven by an ongoing partnership with agents and review of live calls and call reasons.



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That success has caused issues common to more old-fashioned knowledge bases. Such a vast sea of solutions becomes more difficult to navigate as it grows. Lacking statistics to back up article creation and management makes it difficult to know when knowledge needs to be created, or when it is obsolete. As requirements change, our content creation teams need these tools to support their work. While renovations to the knowledge base will address some of these issues, the old fashioned approach to knowledge toolsets and creation cannot solve a problem that will continue to grow with the size and scope of the knowledge base.

Another hallmark of the mature practice of knowledge authoring is the one-size-fits-all approach. This approach was required by the technological limits of old fashioned navigation, search and unstructured data. An article on clearing the cache on your Samsung device required a general encyclopedia entry that covered, in vague terms, ways to do it for most models on most carriers. An agent or customer would need to stop and read through the entire article to glean what may be useful, if anything. This crude level of granularity is based on the kind of smaller, human curated / human consumed knowledge base that Asurion and other business have already outgrown.



Finally, our old knowledge bases were built for an office-bound workforce in a local country/language, delivered to agents via a desktop PC. These agents

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require extensive training on premises in order to learn enough to get the right answers out of the knowledge base to our customers. And these complex knowledge bases also require replication and specialization for every single partner. Yet expensive, centralized training is not the direction that the workforce is moving.

## Asurion's Transformative Approach

The future of knowledge base is no longer focused on the ability to search by intuitively choosing appropriate key words. It's a much more comprehensive experience that guides agents and customers without requiring a manual search at all.

If you have ever typed in an old-fashioned web search, you understand the pull method, where the agent or consumer asks a question, and gets back a large set of possible answers. They then need to decide which of the first twenty search results to start with (assuming the answer is within the first twenty). That is a traditional knowledge base search approach. Even if the search engine isn't overwhelmed by the increasing amount of results, this old process relies on the agent already being highly knowledgeable about the right question to search for and what the likely answer will already be, in order to search through all those results and find the one they need.


Instead of presenting all possible solutions and leaving it to the viewer to continue to filter and decipher, we can push the correct solution. The new paradigm is one where the right solution is pushed directly to the agent or consumer. Based on a combination of knowledge of the customer's account, telemetry from the device sensors about what is wrong, trending device issues being discussed in the world and within our walls with other customers combined with probing questions to help pinpoint the issue, the vast number of potential solutions are filtered out and only the correct solution or solutions are pushed to the user.

Pushing the right solution to the agent or customer requires a different kind of knowledge base – one that relies on machine intelligence, structured knowledge authoring, deep familiarity of the customer, and the device. A guided search of the knowledge base requires it to know which questions to ask for the remaining missing pieces in that data, so that the system can quickly filter down to the right answer.

This future knowledge base technology is being developed by the Asurion Labs research and development team.

The new paradigm of knowledge base allows for:

- Structured content at a very fine granularity. Allows a single topic to be written for everyone, and only the useful data and solution steps to be delivered to a given user.
- Content with deep statistics of usefulness, correctness, freshness, or traffic.
- Knowledge base built for a widely distributed workforce (home, office and on the go), globally available and easily localized for each country/language, with content that is singularly created in one place and available to everyone from employees to customers to partners.
- Knowledge that is multi-channel – delivered to agents and consumers, via all devices from pc's to phones, to TV's, smart cars and smart appliances. Delivered through multiple ways across multiple channels by both human and Chabot agents – voice, text, apps, across Facebook, Skype, etc.
- Machine created, and crowd-sourced content to augment human created content.

  
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