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## Clinical Trials in Industry 4.0

While everyone is waiting for AI to make huge headlines, AI is quietly transforming unglamorous workflows. The world of clinical trials is no exception. People are working diligently for the utopian dream in which AI develops drugs, completely skipping humans during trials. At the same time, multiple AI technologies are accelerating, improving or doing away with clinical trials' processes. Here are a few examples.

### 1. Compliance with Trial Protocols

Clinical trial protocols are designed with utmost care. Protocols must balance the goals of safely meeting performance objectives for the drug, excellent care for the subjects, and minimized regulatory burden and cost. This careful balance almost always shifts once trials actually begin. For example, a physician at a provider may want to test some ancillary procedures, either out of a genuine desire to help humanity or perhaps to pad his bill. Once the master files with clinical trial reports are back with a pharmaceutical company it takes a lot of effort to decide whether the actual trials have been in compliance with the protocols that were designed earlier. Someone (or more likely an entire team) must study each report, carefully teasing out which parts of the protocol have been covered and which parts of the studies conducted were actually required by the protocol. Its a critical, intelligent and mind-numbing process that every company must endure.

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Natural Language Search (NLS) is a technology that can ingest huge amounts of nebulous texts and answer questions like humans would. The answer at the end of a question is a specific nugget of knowledge - a sentence, a data point, an image, or a judgement of yes or no. NLS finds these answers irrespective of the actual keywords used in the question, or in the texts that the NLS is searching over. NLS works based on intents, not keywords.

Technology like NLS can be a boon to teams that are responsible for making sense of engagement data. Take the case of compliance with protocols. With NLS, executives can flag each protocol and quickly monitor compliance levels, and identify parts of the engagement reports that do not conform to original protocols. In other words, NLS can simply classify all documents, and contents in each of the documents, as expected, unexpected or missing within milliseconds.

There are concerns, though. First, some major players in the AI and cognitive computing world, like IBM, have had some false starts in the area. They promised world class solutions, but these solutions turned out to be too expensive and ineffective. So much so that IBM finally announced [a retreat of Watson in the drug development area](#).

However, newer approaches, like Coseer's [Calibrated Quantum Mesh](#), have enabled [Point and Shoot AI](#), which takes the cost of training a system down to near zero. There is no need for tagging or special data prep, which has been the bane of Deep Learning-based algorithms like that of IBM Watson. And cost savings don't stop there - lower costs allow for more iterations, bespoke deployment and, in turn, 95-98% accuracy, quickly.

In general, 95-98% accuracy by itself doesn't necessarily assure practitioners that the system has not missed anything. With blackbox AI technologies like Deep Learning users have come to expect no visibility into the decision making process, and can't be sure whether the AI has reached the correct decision. Not so the case with algorithms like Coseer, which is a truly explainable AI. Every decision is logged and the evidence for that decision can be traced. In short, it is now possible to very easily setup AI systems that can take the pain out of clinical trials.

## **2. Structured Knowledge Management**

There are many other processes that fall under the definition of critical, intelligent and mind-numbing. Another one is protocol design itself. Most pharmaceutical companies have decades of experience running clinical trials. There is such a wealth of knowledge that, in theory, they shouldn't meet any surprises. The trouble is that this knowledge is shelved away in massive PDF documents stored in inaccessible storage structures.

In science fiction, the team responsible for designing a protocol can just key in a few things that are necessary and a software can read through volumes to automatically design that protocol. This isn't pure science fiction anymore. Next generation enterprise search tools can find information from billions of pages of text and answer the questions just like a human would.

Executives at pharmaceutical companies are thinking about structured knowledge management in all aspects of their business. FDA's [KASA initiative is prodding the regulatory teams](#), and they, in turn, are pushing structured knowledge management in the entire value chain, including teams responsible for clinical trials. However, such investments are going to pay off even without KASA.

### 3. Next-gen Knowledge Management

The sheer ability of tools like Coseer to find the exact answer for a question, and link to exactly the right page is valuable for clinical trial organizations by itself. In many situations, this leads to up [3X acceleration in cognitive processes](#). In particular, given the spiking activity in pharma M&A, NLS is proving to be a [boon for teams involved in diligence and onboarding](#) of new assets.

Clinical trials can be less expensive, faster and less uncertain by an order of magnitude. It does not take a leap of faith in science and fiction - the technology to make that happen is already available. All you have to do is [plug in to Industry 4.0](#).

### What is Next-Generation Enterprise Search?

Coseer's search solutions are transforming industries from healthcare to finance. Our point-and-shoot AI trains finds answers and insights with 95%+ accuracy within 4-12 weeks - all of this in 100% security. The reason? We founded Coseer on the principle that computers should take care of the boring stuff so that humans can focus on creativity and judgment. To that end, we've built enterprise search solutions to complete complex workflows just as humans would in a fraction of the time. Fortune 500 leaders are using Coseer to speed up and automate their most complex work.

We follow a tactical approach to enterprise search:

- We deliver 95-98% accurate solutions within 4-12 weeks.
- Our solutions deploy entirely behind your own firewall for 100% security, and every decision point is logged for full transparency.
- You add the finishing touches, but our point-and-shoot AI practically trains itself. No more huge training data sets or time wasted annotating and tagging.

Visit our [website](#) for in-depth case studies, ROI breakdowns per industry, and other insight.