'ALEXA, FIX MY RECORDS!'

A LOOK AT AI IN THE INFORMATION PROFESSION
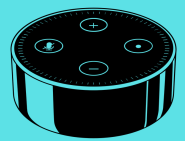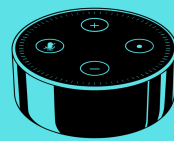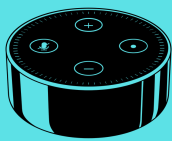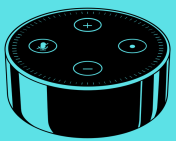
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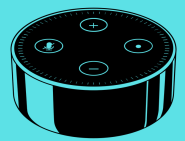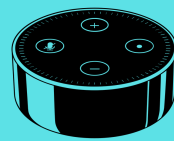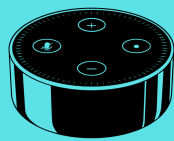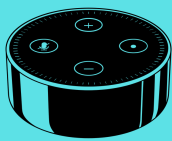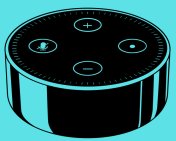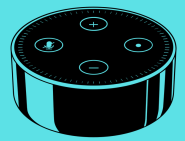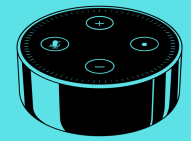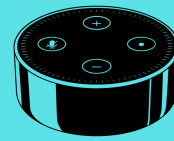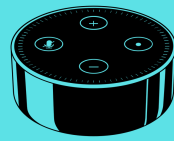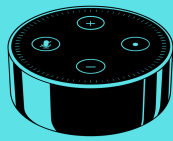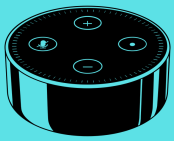
To many people, "artificial intelligence" is a bit of an oxymoron. It is the suggestion that we can create something that then can be creative on its own. If intelligence is the ability to acquire and apply knowledge and skills, requiring a measure of judgement and reasoning, can we create such a thing through mechanical or digital means?

Some scholars suggest that artificial intelligence (AI) isn't intelligence at all, but rather an advanced machine skill-set that is mathematically driven and facilitated by humans.

We are yet to build a machine that we can ask to complete without human input a task that it has absolutely no knowledge or familiarity with. The process so far has been for human beings to feed AI software a foundation for its processing wizardry.

In contrast, humans will draw on their own non-related past experience and intellect to ascertain how to approach the task with the best results. This is keeping us gray-matter-driven innovators ahead of the bots . . . for now, at least.

Will we get to the point with AI whereby machines eventually become creative and evolve to having their own perceptions, judgements, and reasoning? Renowned physicist Stephen Hawking said there is potential for the machine to become superhuman, and Elon Musk, innovator and chief of Tesla Motors, suggested machines will become superhuman if we can put network infrastructure in place to handle the bandwidth required for such quantum processing.

In any case, AI (in some form and with its self-learning potential) is here, and this is where it gets very interesting, even for IM professionals.

"Alexa, Turn Up the Heat a Little, Please"

In everyday life, we have software (Nest, for instance) that automatically adjusts room temperatures according to data it gathers on our living habits; we have Alexa or Siri providing weather data and advising which highways to avoid on the way to work; we have AI that monitors livestock from satellites; and we have airplane autopilot functions that can respond to environmental and mechanical scenarios.

Some time ago, a computer playing chess would choose among the hundreds of thousands of possible strategic moves that it had been fed. Using layers upon layers of processing, it was able to respond to its human opponent and in many cases win.

Google then took that capability farther. Alpha Zero, Google's answer to IBM's Deep Blue chess-playing computer, was fed the rules of chess and nothing else, and yet it was able to make intuitive discernments that
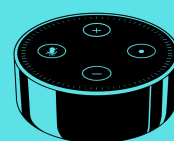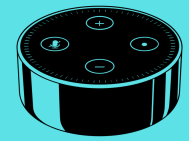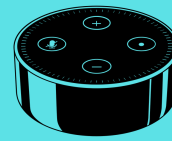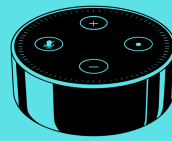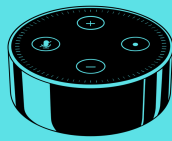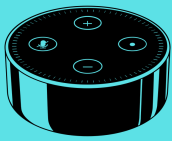
led to masterful move selections, making it even more successful than its predecessors.

This is where machine skills start to look more like intelligence.

"Alexa, What's New in AI?"

In the same vein, machine language translation has evolved in such a way that machines now make inferences about languages. Essentially, a machine can be fed a few basic structures around a language – French, for example – and from that data it can infer the rest of the language translations into English. It isn't perfect, but it's functional – and very fast. In essence, machines have gotten to a place where they teach themselves how to learn.

Another great example of machine advances is the confluence of AI and 3D printing. Industrial manufacturers, for example, can now create a rough prototype of a piece of machinery or a mechanical part and feed this information to a system, along with suggested materials, cost requirements, and usage data. AI then takes these inputs and, using the internet as its brain, comes back with suggestions, alternate material types, alternate design types, and even test results on its findings. The manufacturer can then 3D-print the part onsite – a step that's called "additive manufacturing" – and test its suitability.

"Alexa, Show Me What We Have on Asset Management for Our Latest Infrastructure Project"

Given the fact that AI is emerging virtually everywhere, especially in the technology we use every day in our work and play, it's not surprising then that the information profession is also undergoing some radical changes and adjustments due to AI.

Currently, multitudes of companies are adopting AI-driven solutions (machines and software) that are compiling and managing their information. Such technology is cross-platform, media neutral, astonishingly intuitive, and easy to use. In fact, we may soon rethink our notions around collecting, analyzing, and storing information.

Those like John Mancini suggest that the IM world needs to get away from thinking that data should be housed in a single repository, as well as to start focusing more on the value and role of metadata.

"Alexa, Search Outlook and My Network Folders for Anything on the 'Acceptable Use of the Business Network' Policy"

AI in software – M-Files, for example – is making it possible to work with information on virtually any platform in any location. Analysts and proponents of these solutions are referring to them as intelligent,
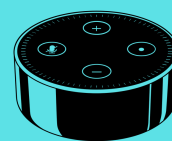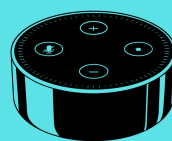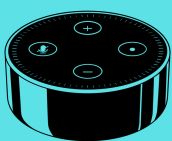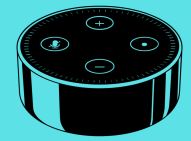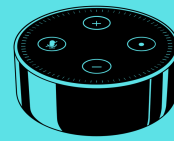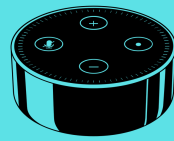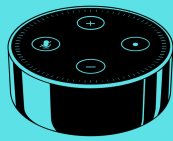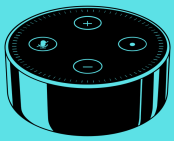
Analysts and proponents of these solutions are referring to them as intelligent, repository neutral, and metadata driven.

A single search for a type of information can draw accurate results from Outlook, SharePoint, shared drives, cloud storage, and an electronic document and records management system (EDRMS), to name a few. There is no need for data migration because the software provides a contextual view of the information while leaving it in place.

Search results are available in practically any format, highlighting and bringing to the forefront virtually any subsets of information.

Cross-references can be made between a multitude of media types, from images to PDFs, and this data can be compiled and analyzed in many ways through a very user-friendly interface. AI uses labels, key words, or even patterns to compile inventory information. Such software can also compile and save relationships between information that exists in different physical locations.

Imagine the implications for audits and inquiries.

"Alexa, Read This for Me, Please"

Thanks to recent AI advances, existing information can be automatically analyzed and enhanced. Recent advances in AI development mean that machines can now read information in natural language, meaning it is "understanding" what it is reading and is then able to make determinations and inferences from the same. AI reading a case study, as an example, can now identify what factors led to a particular outcome or decision.

In other words, instead of organizing data to run through predefined equations, these "deep learning" capabilities set up basic parameters about the data and train the computer to learn on its own by recognizing patterns using multiple layers of processing. Machine learning algorithms can comb through unstructured text and learn about the format and the content as they go. Law firms, for example, are now having AI tools read thousands of pages of legal precedents and case law to give them succinct analyses and reports on matters of litigation. The time-saving is enormous.

This means our IM software can read a document, identify and fix data discrepancies, highlight information around retention schedules such as disposal dates, and add to (or correct) the existing metadata. The software is also programmed to be on the lookout for duplicate information as it compares the data it's examining with what it has processed in the past. Accordingly, AI may mean that redundancy will become a
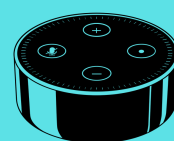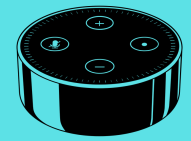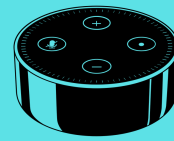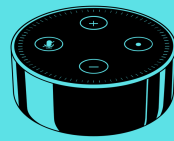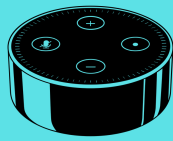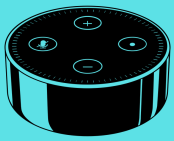
thing of the past.

Many images that have been loosely classified without much background information can be enhanced as AI performs image recognition and pulls information about the photo or image from any repository at its disposal. It's like holding your phone up to a landmark and having it tell you the story of what's in your camera frame. In essence, using Google as its brain, AI then writes the more concise metadata for your photo.

"Alexa, File This for Me, Please"

The advances in AI also have parallels in the information profession.

As for new information we intend to hold or new records we're creating, AI can process and manage these with amazing accuracy and efficiency. We simply classify a few of the incoming records and their relevant metadata and then let the software do the rest. Then we scan the subsequent information, or create it as is done in the normal course of business, and have the software name, describe, categorize, and file it. Additionally, AI software tags the information so it becomes discoverable under several categories. For example, a record on litigation concerning a failed overpass can be tagged in such categories as construction company information, cement manufacturer, environmental conditions, and litigation

outcomes or errors.

Interestingly, AI is not simply copying the classification methods it was taught in the initial stages; it's actually analyzing each lot of information and enhancing the categorization or metadata where it sees fit.

In this process, AI is in analysis mode and can monitor new records for discrepancies, missing data, or redundancy. It's also mining existing information for direct or indirect relationships with other stored information. Such checks and balances are proving to mitigate errors in client transactions as well as augment information integrity – and are exponentially speeding the auditing process.

An access-to-information request goes from mining a half-dozen information holdings individually to a single, carefully orchestrated search that pulls data from any and all digital repositories in the organization. This information is then presented according to the wishes of the search requestor.

Once stored, queries of the data can range from key words to much more complex combinations of desired results. Programs like M-Files are proving they can accurately pull anything from anywhere. Given that the AI queries look at file names, metadata, titles, and content, the results can come from email, draft documents on a network or shared drive, official records from an ERDMS, and
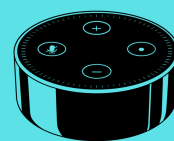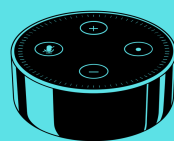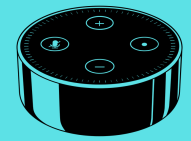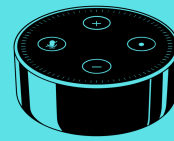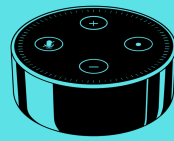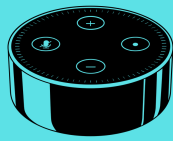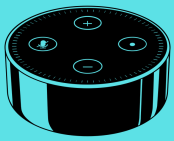
images from a hard drive – in one fell swoop. Such solutions also capture all the changes to the version history and are equipped to keep a full audit trail of changes.

Hence, it appears that AI is helping information managers meet their quality and compliance requirements more easily.

However, let's just hope that AI innovators are working to enhance and augment the human experience, not replace it.

"Alexa, I'm gonna need another coffee."
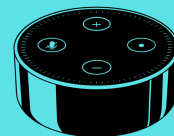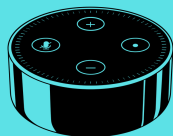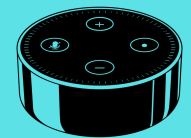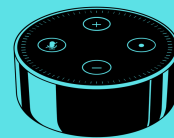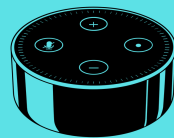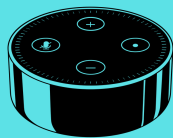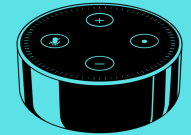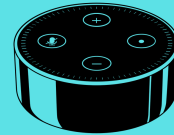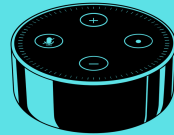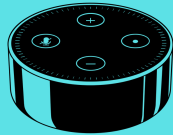
about the author

Jeff Hutchings

Jeff Hutchings is an IM Professional with the Government of Newfoundland and Labrador, a published author, blogger, and avid Martial Artist. Jeff's study and teaching of Shotokan Karate involves the practice of mindfulness as it relates to daily living.