

Finding Value in AI: Applied AI and Social Technologies



The truth about AI is relatively boring compared to the utopian fantasies that suggest we will all soon be living a life of leisure while our computerized friends do all of the work.

Artificial intelligence, or AI, is one of the most popular business buzzwords in circulation today. Many people are talking about how AI will transform how we live, work, and play. Journalists, politicians, futurists, and technology companies are also talking about how people all over the world will lose their jobs after they are replaced by thinking machines that do everything better than their lowly human colleagues. Companies of all kinds are asking themselves how AI can help them compete better, be more innovative, and be more efficient. The idea of AI has captured our imagination so completely because it promises the ultimate technological dream: a machine that can do more than a person ever could.

Much of this is just hype. The truth about AI is relatively boring compared to the utopian fantasies that suggest we will all soon be living a life of leisure while our computerized friends do all of the work. Until recently, AI has been little more than an area of advanced computing. But with new developments — the ones that are generating all of this hype — artificial intelligence is poised to become a truly transformative technology.

Despite this potential, however, the real value of AI has yet to be realized in business. It already is an amazingly useful technology and is full of potential for the future. But its usefulness is being missed among the fantasies and problematic dialogue. This is because few understand how it works, let alone how to unlock its potential. Business leaders are not AI specialists. For many, AI is still largely just a part of the world of big data, or it is just a magical black box that you must “get” in order to compete. In part, this failure to see what AI technologies can do is due to the fact that there is a fundamental problem surrounding AI that needs to be addressed. Simply put, the hype is clouding our ability to see what we should do with this technology. And this is leading to a crisis of missed opportunities because it is not being applied well.

This story of AI has deep roots and great meaning, and it shapes how we understand what AI is and what it should be doing for us. Many of our most sophisticated AI tech-

nologies have been around for over forty years in some form or another. And we have been living with many of these technologies for years. This long history confuses the issue because much of what AI is now are technologies and processes we’ve known and used for years. Also, what we mean when we say “AI” today is only one of many definitions, and we’ve lost sight of the fact that our computer-aided world is full of carefully applied variants of AI technologies.

Visions of artificial beings have been around for five hundred years or more in one shape or another. Medieval craftsmen made mechanical monks, the earliest artificial humanoid machines. Inventors and commenters in the 18th and 19th centuries made automatons that could play chess and even speak. The science fiction of the last 100 years has added greater detail to this vision and told stories of the potential positives and negatives of creating artificial beings with thoughts of their own. All of these attempts and stories have whetted our appetites for AI and AI-enabled robots, and contributed to a feeling of the inevitability of AI’s “future” trajectory. They all tell the story that machines can match human capacities and be creative, reasoning, and social beings.

But because these stories are so caught up in the idea of general AI — a thinking intelligence that has similar, or greater, capacities to a human — they are also a burden. They hide the fact that AI is a tool that can provide solutions to many problems. While we are distracted by the idea of an artificial person, AI’s true utility as an applied solution is lost.

Making the most of AI’s potential lies in finding a purpose for it. We need to focus on applied AI, and finding ways to put AI to work now. But applied AI is not as sexy an idea as general AI. Instead of autonomous robots that can do anything, we will have more humble systems managing smaller problems. The future of well-applied AI will include self-driving trucks and trains that move cargo. It will feature computer systems that anticipate problems in traffic flow and

make the necessary corrections to keep cities moving. It will also be filled with AI enhanced consumer experiences that allow us to navigate web touchpoints more easily.

To unlock AI's potential, we need to look beyond the technology. We need to start asking good questions about how we should mobilize our technological forces to accomplish concrete tasks or solve important problems. We must begin to ask ourselves how AI can make a difference in all of our lives. Finally, we should also ask how companies can best apply artificial intelligence to create products and services that will be truly valuable to their customers.

To answer these questions, we must stop looking at AI as something that needs to be fully intelligent, and start looking at it as something smaller that can be applied to improve people's lives and create new opportunities for creating compelling experiences.

What this means is that providing value right now, or in the next ten years, through the use of AI involves five points to consider:

1. You have to first cut through the hype and see AI as a set of tools that serve a function.
2. Next, you must assess who you are solving for and understand their problems.
3. Then you must design a better outcome for you and your customers.
4. Once this is done, you need to find the right kind of AI to fit the purpose.
5. Finally, you have to apply it with a light touch.

1. Cut through the hype

Cutting through the hype means understanding AI as a tool and avoiding the belief that the future of AI lies in general AI alone. Like other technologies, AI is very good at scaling tasks that humans can do already. It adds speed, a wider global reach, includes more people, and provides a greater level of repeatability. Its primary value is that it can do the work of many humans, faster, without tiring. Because it never has to be turned off, it also provides continuous presence. It is best employed to manage large amounts of information or to find novel or surprising patterns in information-rich contexts

To unlock AI's potential, we need to look beyond the technology.

that quickly confuse individual humans. But all of these things are somewhat abstract. These capacities only come into focus when you put AI to work on a specific task. And this is what it means to apply AI.

AI can play chess and Go, but these are goal-oriented applications of pattern management and decision engines. IBM's premier AI system, Watson, can play Jeopardy, but it is not actually a single AI system. It is several that have been connected together to accomplish a task: playing the game. It is a natural language processor, two data retrieval systems, a decision engine, a set of trained models and filters, and a final natural language processor. It reads the clue, deconstructs it, explores unstructured data for possible answers, scores the validity of these answers, synthesizes these results using human and taught filters and then constructs an answer. But these systems were built to serve a purpose, and it took time and human effort to figure out how to best tackle the problem of providing a good answer within the rules of a game. If Watson had been designed to do something else, it would have different components. It took time and effort to generalize it — to convert it from a Jeopardy! playing machine into a sophisticated analytics engine.

This is the most important thing to understand about applied AI: the context, goal, and desired outcome matter more than the technology. They guide how AI is implemented, and this defines how it is built. What this means is that applied AI is really more about design and problem solving

than it is about raw technology. Yes, expertise in AI is absolutely necessary, but an engineer cannot work without a problem to solve. When we think of applied AI not as a fabulous technology, but as a resource in a design exercise focused on making life better for customers and users, we find the true value of AI.

2. Assess who you are solving for and understand their problems

The next step in correctly applying AI is to identify a problem that AI can solve or improve. To do this you have to understand the lives of the people who will be using the system or who will benefit from its application.

Today, AI can be found analyzing natural language to serve as an interface between people and relatively dumb systems like Amazon's retail business. It is also serving to improve searches on the web, or improve the quality of Google's translation services. In each of these examples, the AI is an enhancement of something that existed before. People were able to order books, socks, or anything else from Amazon, but Alexa provided an application of natural language processing that created a new, effortless interface. The incredible work done by Google's team in improving their translation services was a modification of an existing product. Newer forms of neural network processing augmented their existing expert-system AI translation and made it faster and more natural.

In both of these cases, the application of AI improved something that people were already using. It made users' experiences better. In both cases, however, these improvements were made to serve people better, and in more natural ways. Applied AI should be used as a tool to enhance people's lives. Both of these examples demonstrate a human-centric approach to design. The AI was used to solve problems like lag, or to create new experiences that engaged people more directly and naturally.

Understanding your customers always begins with learning about them directly. What this means is that the process of applying AI well begins with human-centric investigations. An ethnographic exploration of your customer's lives will reveal pain-points, needs, hopes, and desires that can be addressed through careful design.

3. Design a better outcome

Once you understand your customers better, you can begin to design new experiences, products, and solutions that will meet their needs. This design process should include a reimagining of your relationship with your customer. This will reveal the opportunities where AI can be applied to the greatest effect. But the opportunities are ways to create new products, services, or experiences that are enhanced with some form of AI, not opportunities to use artificial intelligence. Because of this, the design process best suited to this task is one that is based in the iterative design principles of design thinking.

4. Find the right kind of AI

Next, look for opportunities to use AI to enhance the function, scope, and purpose of your newly designed solutions. To do this, it is best to begin with an analysis of what you hope to accomplish. Do you want to remove a pain point? Do you want to enhance the abilities of your users so they can do something with the help of the AI that they could not do before? Do you want to include more people in completing a task? Or do you want to create a novel experience that was not possible without the application of AI?

These questions are essential because they outline the relationship between the user and the technology. These relationships define what the AI must do. Understanding them helps you decide what kind of AI will be needed to provide value for your customers.

This is the most important thing to understand about applied AI: the context, goal, and desired outcome matter more than the technology.

We must stop looking at AI as something that needs to be fully intelligent, and start looking at it as something smaller that can be applied to improve people's lives and create new opportunities for creating compelling experiences.

It can expand or amplify the capacities of a user: The user is able to expand their own abilities beyond what they could accomplish alone. The tool can be seen as an adaptation of their body, knowledge, or information processing abilities. The tool and the user work together to accomplish the task and the relationship expands what is possible.

Examples of this include centaur systems that help people problem solve or strategize, such as the forecasting platforms used by the financial industry. They help expand the reach of an analyst by providing them with information they would not be able to gather quickly otherwise.

It can shift a user's relationship with the skills and/or knowledge needed to accomplish a task: The tool displaces some of the capacities or responsibilities of the user and assumes them itself. The user is either relieved of unwanted responsibilities, or must give up some of their own. One example is the centaur systems that are used in Free Chess, a variant of the game where a computer and a human play chess together against another team. The player and computer share the responsibility of choosing the next move, something that has created a team that is better than human or computer alone.

It can change the relationship between a user, or a group of users, and the skills necessary to complete a task: The tool transfers capacities or responsibilities between other users or other tools. The tool allows for the sharing or exchange of roles or responsibilities. It can often be a platform for the redistribution of user's roles. This relationship is a familiar one. When people talk to Siri, Alexa, or Google Assistant, they are giving up a lot of the responsibility for what is needed to complete a task. The AI takes care of everything once it understands the request. These NLP (natural language

processing) interfaces understand what you want and translate the request into something that the computer systems in the background can process. You could do the Google or Amazon search yourself, instead they do it for you, and make some decisions on your behalf.

It can change the number or type of resources needed to complete a task: The tool combines, collapses, or eliminates roles or responsibilities. The tool allows users to accomplish tasks that might require multiple users, or to eliminate entire sub-tasks entirely, thus eliminating roles. Machine learning has transformed how we process information. Technically, humans can do this kind of processing too, it would just take thousands of people and a very long time to complete the task. The AI eliminates the need for all of these resources and can process it quickly. This is the relationship that is at the core of the threat to worker's jobs, because AI can eliminate many of them by providing a quicker, lower-resource route to completing a task like data processing and analytics.

It can produce novel solutions to problems or tasks: The user is able to do something they otherwise could not without the tool. The tool and user work in conjunction to achieve either a new task or to do it in a novel way. This is the rarest of the alterations.

This is what we are really working towards with AI. We are looking for new solutions to problems. One very simple example of this is the fact that Google has put image recognition into its Google Photos application. Now you can use a keyword to search for the content of particular photos. It is an image processing AI that provides the foundation for this service.

Like Watson, no AI system is going to be a single technology. The secret to successful applications of AI

lies in using it to create one of these relationships. Once you know what you want to do for your customers, you can then begin to design the system that will carry it out. This is simply about finding the best tool for the job. In most cases, you are not going to be creating this yourself, so finding the right technology partner will be an essential part of the next step.

5. Apply with a light touch

Finally, remember that the goal of any new product, service, or experience is to provide the best solution for your customer. Avoid taking a technology-first approach that prefers the technology over their needs, and use your new technology to provide for the needs that you identified earlier. Technology works best when it is invisible and works in the background. Artificial intelligence is no different. People should never know that they are dealing with AI. They should feel that they are being served well by the company they have chosen to provide them with the product, service, or experience.

Like any technology, applied AI is really nothing more than a tool that we use to accomplish a task. Its value lies in how well it does this. Ultimately, this means its value is measured in how well companies use it to serve their customers well. Once the novelty of artificial intelligence wears off, this is really all that will be left. So, to unlock the value of AI, it is best to move past the technology completely and serve your customers well.



GEMIC
REIMAGINING MARKETS



For more information about Gemic and how we might be able to help with your business challenges please get in touch:

Johannes Suikkanen
johannes@gemic.com
+1 212 961 6515

Sakari Tamminen
sakari@gemic.com
+358 50 361 4650