

THE GOOD, THE BAD AND THE REALITY OF AI



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BY REBECCA WALZAK

When I was getting my Masters in Business Administration, one of my professors lectured about the future of business. One example he used was from a futurist's ideas on the factory of the future. According to this individual the factory of the future would have two employees: a man and a dog.

The man would be there to feed the dog and the dog would be there to make sure the man did not touch anything.

While this tale may seem laughingly far-fetched, conversations held at the recent technology conference seemed to indicate that this scenario is within the realm of possibility. Numerous discussions were held about the use of artificial intelligence (“AI”) within the mortgage banking industry and ranged from rules-based programs to utilizing programs such as optical character recognition (“OCR”) and validating document collection to produce the first “bots” within the industry. But is this really AI or is real artificial intelligence the actual use of computers that can emulate human thinking processes and contain human drives such as hunger, power and self-preservation?

Controversy abounds on the subject and not just with potential users but

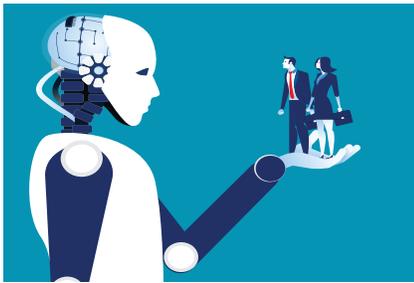
theoretical level, most of these individuals agree that one of the greatest drawbacks to the full use of artificial intelligence is the interaction currently necessary between humans and these tools. In other words, for these programs to work, a human must verbally ask a question, make a statement or key in information. This problem goes away however with the merger of biological intelligence (human thought) and machine intelligence. To accomplish this, companies are currently working on an injectable mesh, called a neural lace, into the brain that can flash data from your brain wordlessly to your digital device or to the cloud, thereby creating unlimited computing power.

With the on-going merger of AI into businesses there is also concern about how it will be managed and controlled. Current public policy on AI is largely undetermined and the software

their jobs be replaced with robots that not only collect information and compile data for a rules-based engine but actually make decisions based on the data fed into the machine’s intelligence.

Most importantly to mortgage lenders, what does all this mean to our industry? While the fun and intellectual stimulation that comes from brainstorming these ideas generates lots of enthusiasm, if these concepts become reality, we need to be prepared to utilize them to our advantage and not be thwarted by extensive costs and back room operations.

One way to envision how these AI programs will impact the industry is to look at what has been happening in similar operations. An article by Penny Crossman in the March 16, 2017 American Banker entitled “All the Ways AI will slash Wall Street jobs” gives some insights into what



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among the most advanced thinkers in this area. Their thoughts and beliefs are wide-ranging from the concept that AI will likely play a part in human extinction to those that believe it will improve people’s lives and give them more family and leisure time. An article in April’s Vanity Fair magazine quotes Elon Musk, the developer of Tesla cars and cost-efficient rockets allowing for the settlement of Mars, as believing AI is humanity’s “biggest existential threat.” On the opposite end of the scale, Ray Kurzweil, a futurist, has predicted that we are only 28 years away from the point where AI will far exceed human intelligence and humans will merge with this super intelligent program to create the hybrid beings of the future.

While arguments continue at this

is largely unregulated. Some of the biggest technology companies have taken it upon themselves to develop a partnership on the subject in order to explore the full range of issues, including ethical concerns. The European Union is also deeply concerned and is considering such legal issues as whether robots have personhood or should be considered more like slaves as found in Roman law.

But the question overriding all of these issues appears to be what exactly is artificial intelligence? Is it simply a bot-like program that runs rules that do simple labor intensive work or is it actually the ability of machines to think as humans and take over the entire workload of any business. And if so, what does this actually mean to employees in those businesses? Will

we might expect. According to the author, Opimas, a capital markets consulting firm, projects that by the year 2025 artificial intelligent technologies will reduce employees in the capital markets profession by 230,000 people. Furthermore, spending for AI-related technologies is expected to be more \$1.5 billion and will reach \$2.8 billion annually by 2021, just four years from now. This number does not even include the start-ups that capital market firms will invest in during this period. All of this expense is expected to be offset by a 28% improvement in their cost-to-income ratios.

So where are these programs being placed? The first functions being replaced by AI technology are process-oriented jobs. These jobs are actually being replaced by lower level AI functions

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that are programmed to do such things as look up documents, find data and compare multiple data sets. In addition to these process oriented jobs, those whose function is to conduct analytics on the data are also being replaced with such technology as machine learning functions. In this “deep learning” technology, AI programs digest large volumes of real-time data within a very short period of time and then “learn” to find patterns that provide insight and direction at a speed humans can’t begin to match.

Another area of capital markets feeling the impact of AI is front office sales personnel. Since initiating AI technology in this area there has been a 20% to 30% drop in headcount. In addition, many jobs in the middle

and back offices are also feeling the impact. Since the majority of these jobs are processes that are connected by human manual intervention AI that brings with it image recognition can replace this human activity.

Compliance concerns that resulted in significant headcount increases are now being taken over by AI programs that validate specific documentation and provide a more holistic view of the regulatory risk and organization compliance trends. This is one area where IBM’s Watson is proving extremely valuable.

The implementation of AI in capital markets gives an excellent overview of how this technology can be implemented in the mortgage industry.

Currently, we use some lower level rules-based programs to conduct underwriting as well as OCR usage in some back-office functions. Applying the applications discussed previously, many, if not most of the job functions being conducted today by humans could in fact be replaced with future AI programs.

One good example is the use of AI to replace loan officers for taking applications and collecting data. The Rocket Mortgage program in use today by Quicken Loans is just one example. Furthermore, most of the data collection and organization process that is labeled “processing” is also easily replaced with existing sites that offer independent validation of the informa-



tion utilized in making decisions.

An area that is also ripe for AI application is the title and closing function. Using OCR, data comparison and document production, can easily be completed while the risk of mistakes or problems at the closing table could be handled in real time.

Back room operations can also be easily incorporated into AI functionality since it is very much a data recognition, document collection and validation effort. Post-closing functions which now take time and massive amounts of human labor can not only be streamlined, but the data collected can be used to revise and improve the processes themselves.

While what may appear to be already included as an AI function, underwriting is actually where some of the best deep learning artificial intelligence is applicable. Since 1995 we have been using rule-based technology to conduct what we considered AI, but instead are simply automated underwriting programs. Deep learning AI offers the industry the solution that has plagued it since its inception, that of identifying the true performance risk of loans.

Today's credit risk function continues to use static attributes to develop, expand and or shrink credit policy without knowing the potential impact on any individual applicant. This credit risk stalemate has resulted in lending programs that reject applicants that may in fact prove to be credit-worthy borrowers. This can easily be seen in such programs as affordable housing and minority lending. Using deep learning, rather than simply applying standard credit policy to an application, AI can conduct an analysis of the applicant in comparison to all probabilities of performance and decide to approve or reject. In other words, credit evaluations would be individualized for every applicant. In addition, performance probability would be the yardstick by which pricing is tabulated.

Servicing is of course, primarily manual back-office functions that AI can address. Once again a deep learning application can contain any

information on taxes, insurances and related issues, transfer funds if and when needed as well as provide an escrow analysis, tax statements and individual billing statements.

Just this brief recap easily demonstrates the value of bringing AI into the mortgage lending environment. The question is "at what cost?" There is no doubt that the advancements in AI would have the same negative impact on mortgage lending employees. In fact, the annual convention might just turn out to be a dog and a man. However, as shown above, mortgage lending is not the only industry that will feel the same impact.

There are of course risks. One significant enough to delay implementation of AI by some firms is the risk that the technological intelligence could misinterpret input information and make decisions based on that information that would be disastrous to the company. One such example has already been experienced by Wall Street to a small degree when a mention of Anne Hathaway in the news resulted in a bump in Berkshire-Hathaway's stock. Now known as the "Hathaway Effect", companies are implementing practices such as running validation scenarios and are placing restrictions and stops on critical process points. This of course requires human oversight and runs headlong into the issue of AI and the reduction of human jobs in the industry.

The discussion over job elimination and creation however needs to be a much broader discussion around the impact of AI in the economy overall as well as in our industry. We have to think about what the massive reductions in employment opportunities

means and what type of jobs will be created as current competencies are becoming less relevant and those trained in AI technology become harder to find. This change from the use of human intelligence to artificial intelligence is similar to the change undergone by those individuals who today are labeled "white working class" as large scale manufacturing replaced humans with more advanced technology and those individuals who were educated to do manual and factory related jobs became unemployable. Those that were smart enough to take advanced training and education in the field have found new jobs, but those that haven't are left feeling angry and disenfranchised.

New skill sets that will be in demand for AI revolve around software engineering and data science. This is of course a given. But there will also be the need for a hybrid of business and digital skills which involves individuals who are knowledgeable about the business, who understand the digital environment and know how to benefit the business by continually improving its digital footprint.

While AI continues to advance, and becomes more accepted in the industry, it would be wise of us to think of when, where and how it becomes the most advantageous to the human side of the business equation. Using AI also means finding what our function as humans involves. Are we the masters of the technology or will we become evolve to a position seen by Steve Woznick when he said "I now feed my dog steak because I see humans being the pets for robots and I want my robots to believe pets eat steak." ❖

ABOUT THE AUTHOR

rjbWalzak Consulting, Inc. was founded and is led by Rebecca Walzak, a leader in operational risk management programs in all areas of the consumer lending industry. In addition to consulting experience in mortgage banking, student lending and other types of consumer lending, she has hands on practical experience in these organizations as well as having held numerous positions from top to bottom of the consumer lending industry over the past 25 years.

