

## **Is AI a Threat to Jobs**

A recent story on the BBC reported remarks by Mr. Andrew Haldane, chief economist of the Bank of England, warning about the threat that Artificial Intelligence (AI) poised to British workers. Mr. Haldane went on to assume that new jobs would be created, and that all would be OK if workers were simply trained in the skills needed for those new jobs.

Let's begin by defining AI, as Mr. Haldane is using the term. AI simply refers to a new set of software programming techniques that will let computers do new things. There are no major breakthroughs – computer scientists have been working on robotics, on vision, language processing and on reasoning systems since the Seventies. What has changed is the processing power of computers that is now sufficient to realize many of the techniques that have been impractical until recently.

AI has recently been used in games, to win Jeopardy! and Go. And it is being rapidly deployed in a wide variety of industries. Self-driving vehicles are just around the corner. A self-driving car will use vision systems to envision its environment, language systems to talk with its passengers, GPS systems to lay a course and robotic systems to actually steer the car. Massive knowledge systems will enable the systems to evaluate traffic conditions and make hundreds of steering and driving decisions along the way. And this is only one of the more dramatic applications. Insurance companies are fielding systems that replace claims evaluators. Stores are using Ai-based answering systems to field phone calls and resolve customer problems. Some of the applications are really impressive, but most are simply examples of the types of automation we have been witnessing for the past thirty years, speeded up and expanded. AI is being aided and abetted by the Internet and Web that are also revolutionizing the ways we do business.

Broadly speaking, automation began in the Seventies, when all kinds of back office jobs were replaced with computers. Bookkeeping and inventory tasks were largely automated. In most cases people were still there, but they played less of a role. Robotics began to replace factory jobs in the 80s and their use has grown rapidly. Now, the coming generation of AI applications are going to go a long way towards replacing middle managers and low level experts of all kinds. Again, some will remain to oversee the computers, but most will go.

The interesting question is how quickly the replacement will proceed and how far it will go. My personal opinion is that in 50 years most jobs we know of today will be

gone. If you think of human tasks consisting of three types: physical work, mental work, and interpersonal work, then the first is the easiest for computers to replace and the latter is most difficult. A computer may be able to serve me food in a restaurant, but it isn't going to brighten up my morning with friendly conversation.

To be fair to Mr. Haldane, his assumption that new jobs will be created as AI replaces old jobs has been historically valid since the beginning of the industrial revolution, around 1750. Automobiles replaced horse drawn buggies and jobs were lost in buggy manufacturing plants. But other jobs were created in automobile manufacturing plants. The workers who had worked in buggy plants needed new skills, but once they had obtained them, they found jobs in the auto plants, or in gas stations, or creating new highways required by automobiles.

Haldane, and most economists, assume that AI will simply be more of the same. Let's hope it is. But I suspect it won't work out that way this time. I suspect that AI applications will prove so pervasive and will expand so rapidly that they will eliminate most jobs, leaving large numbers permanently unemployed. This will create a social problem, which I'm confident societies can solve. The key thing to remember is that our society depends on widespread consumption. Creating a situation in which we can produce goods and services very cheaply, but don't have anyone with the money to buy things isn't a situation that we can live with.

In any case, none of this is going to happen overnight. For the next couple of decades we will have more of the same – companies will increasingly automate and economies will continue to grow, creating new jobs. A lot of the automation will involve the use of AI, and people who want to be sure of good jobs will want to get a lot of education and to focus on creating jobs that involve imagination or lots of human interaction.

## AUTHOR



In addition to his role as Executive Editor and Founder of Business Process Trends, Paul Harmon is Chief Consultant and Founder of Enterprise Alignment, a professional services company providing educational and consulting services to managers interested in understanding and implementing business process change.

Paul is a noted consultant, author and analyst concerned with applying new technologies to real-world business problems. He is the author of *Business Process Change: A Manager's Guide to Improving, Redesigning, and Automating*

*Processes* (2003). He has previously co-authored *Developing E-business Systems and Architectures* (2001), *Understanding UML* (1998), and *Intelligent Software Systems Development* (1993). Mr. Harmon has served as a senior consultant and head of Cutter Consortium's Distributed Architecture practice. Between 1985 and 2000 Mr. Harmon wrote Cutter newsletters, including *Expert Systems Strategies*, *CASE Strategies*, and *Component Development Strategies*.

Paul has worked on major process redesign projects with Bank of America, Wells Fargo, Security Pacific, Prudential, and Citibank, among others. He is a member of ISPI and a Certified Performance Technologist. Paul is a widely respected keynote speaker and has developed and delivered workshops and seminars on a wide variety of topics to conferences and major corporations through out the world.

Paul lives in San Francisco.

Paul can be reached at [pharmon@bptrends.com](mailto:pharmon@bptrends.com)