Artificial Intelligence: Promise or Peril?

Silicon Valley
Thought Leaders Series

2 June 2016
Menlo Park, CA
Both dreamed of and feared for decades, artificial intelligence—for better or worse—is working its way into the fabric of our daily lives and giving rise to some compelling questions.

Elements of artificial intelligence (AI) are all around us, from the digital assistants on our smartphones to auto-pilot in our cars. The evolution of AI holds a wealth of opportunities—and raises a number of intriguing questions.

This transformation is being fueled by tremendous investment—in the past five years alone, more than $70 billion has been invested in AI. Major players have been pouring money into R&D and snapping up promising AI startups—for example, Google with DeepMinds, Apple with VocaliQ, and GM with Cruise—and emerging initiatives such as OpenAI are devoting billions of dollars to research. One thing is clear: AI is transforming not only our personal lives but also the landscape of business.

“We’re summoning the demon” —Elon Musk

Some would say it’s not all good news. In fact, leading technologists and policy makers are raising red flags about the perils of AI. “With artificial intelligence, we’re summoning the demon,” Tesla founder Elon Musk has said, adding that it “could be our greatest existential threat.”

So should we celebrate or worry? Our research suggests the outlook is primarily promising.

The Future Is (Mostly) Bright

Many studies have explored the impacts of automation from a physical perspective, particularly in areas such as robotics. However, the most compelling developments are occurring in learning and intelligence as machines evolve to mimic mankind’s cognitive abilities. In our survey of 100 executives from around the world, we found most have an optimistic outlook, with 70 percent seeing great promise in AI (see figure on page 2).

Nonetheless, AI could have tremendous implications for society and the workforce. Based upon our analysis of the likely impact of AI on more than 800 occupations, we believe millions of knowledge jobs could be partially or wholly replaced in the coming decade. In the United States alone, AI could displace 13 percent of workers more than 19 million people—by 2024. The jobs most at risk are those that revolve around routine and repetitive intellectual tasks, such as tax preparers or administrative assistants. More creative jobs, such as music composers or artists, and jobs that require sensing, reasoning, or building interpersonal relationships, face less near-term risk.

The implications are profound, meaning that repurposing jobs and finding new, more human ways of working will be essential. For example, consider healthcare. AI makes it possible to more accurately diagnose diseases and create more precise treatment plans. This will affect the jobs of many healthcare professionals who currently serve in those roles. Consider also car insurance, where AI is likely to lead to a decline in the number of accidents as self-driving cars take over, leading to safer roads and less need for insurance. To thrive in this new environment,
Artificial Intelligence: Promise or Peril?

Promise or peril

Who will be first to develop human level intelligence?

Where do you expect the most significant impact?

<table>
<thead>
<tr>
<th></th>
<th>Promise</th>
<th>Peril</th>
<th>Not sure</th>
<th>Military/ government</th>
<th>Start-up</th>
<th>Large corporation</th>
<th>Academia</th>
<th>High tech, telecom, media</th>
<th>Health-care and medicine</th>
<th>Finance and banking</th>
<th>Manufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promise</td>
<td>70%</td>
<td>11%</td>
<td>19%</td>
<td>32%</td>
<td>31%</td>
<td>19%</td>
<td>18%</td>
<td>33%</td>
<td>31%</td>
<td>18%</td>
<td>18%</td>
</tr>
<tr>
<td>Peril</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not sure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: A.T. Kearney surveys (N=800, N=434, N=244)

all industries will need to create new business models and new job types that reflect our higher level cognitive, social, and physical abilities.

Charting a Way Forward

Relative to the power of the human brain’s ability to learn and reason, AI has still a long way to go. Most researchers believe that AI could reach general human intelligence, with brain-like, autonomous learning, within the next few decades. In other words, we will have machines that start to self-improve and which may no longer need us—the so-called moment of “singularity.” Is this good news or bad? Although opinions vary widely, most executives agree AI could be the biggest technology transformation in history. “In the future, every decision that mankind makes is going to be informed by a cognitive system, and our lives will be better for it,” IBM CEO Ginni Rometty has said. Unfortunately, leading AI experts say it might be the last big technology transition unless we learn how to avoid the risks.

AI is presenting profound questions for society to resolve, ensuring our most dire fears aren’t realized. We will need to grapple with fundamental ethical, moral, privacy, regulatory, safety, legal, and economic issues—in many cases with little precedent. Governments and independent bodies, such as OpenAI, are beginning to form to start addressing these matters, while the progress of technology marches on without waiting for the regulators to catch up.

“Every decision that mankind makes will be informed by a cognitive system”
—Ginni Rometty

For business leaders, AI should be a top corporate agenda topic since it stands to reshape the competitive landscape of industries, beginning with the opportunity for companies to
fundamentally redefine the products and services they offer to their customers. Additionally, forward-thinking executives will use AI’s capabilities to seize cost and delivery advantage, by optimizing internal capabilities and processes. Determining how and where to direct investments will also be vital as firms find ways to prepare for the new rules of an AI-enabled future.

More Promise Than Peril

Although some envision the future as the “rise of the robots,” we believe it’s much more positive than that. AI will transform companies, augment jobs, create new products, spur innovation, and save lives. As we move away from routine tasks and transform the way we work, new possibilities emerge. “We have the opportunity to make major strides in addressing the grand challenges of humanity,” computer scientist and inventor Ray Kurzweil has said. “AI will be the pivotal technology in achieving this progress.” Mankind has had a remarkable ability to adapt and take advantage of transitions in technology—AI offers us a chance to redefine our working world and the businesses we lead, and improve the overall welfare of society. Our brightest minds will work on harnessing these capabilities in the decades to come.

“We have the opportunity to make major strides in addressing the grand challenges of humanity” —Ray Kurzweil
About A.T. Kearney’s Silicon Valley Thought Leaders Series

A.T. Kearney’s Silicon Valley Thought Leaders Series brings together inspirational leaders, thinkers, entrepreneurs, and senior executives from the Bay Area to engage in interactive dialogue on the challenges and opportunities facing business and industry today.

Our Distinguished Guests

Tushar Chandra  
Principal Software Engineer  
Google

Jeremy Howard  
Faculty Member  
Singularity University

Dr. Fei-Fei Li  
Associate Professor, Computer Science  
Department, Stanford University;  
Director, Stanford’s Artificial Intelligence Lab and Vision Lab

Ian Buck  
Vice President, Accelerated Computing  
NVIDIA

Louis Monier  
Chief Scientist  
Import.io

Hosts

Reuben Chaudhury  
Partner, A.T. Kearney  
reuben.chaudhury@atkearney.com  
+1 212 350 3341

Dieter Gerdemann  
Partner, A.T. Kearney  
dieter.gerdemann@atkearney.com  
+1 415 490 5252
A.T. Kearney is a leading global management consulting firm with offices in more than 40 countries. Since 1926, we have been trusted advisors to the world’s foremost organizations. A.T. Kearney is a partner-owned firm, committed to helping clients achieve immediate impact and growing advantage on their most mission-critical issues. For more information, visit www.atkearney.com.

| Americas       | Atlanta | Dallas | Palo Alto |
|               | Bogotá  | Detroit | San Francisco |
|               | Boston  | Houston | São Paulo |
|               | Calgary | Mexico City | Toronto |
|               | Chicago | New York | Washington, D.C. |

| Asia Pacific   | Bangkok | Melbourne | Singapore |
|               | Beijing | Mumbai | Sydney |
|               | Hong Kong | New Delhi | Taipei |
|               | Jakarta | Seoul | Tokyo |
|               | Kuala Lumpur | Shanghai | |

| Europe        | Amsterdam | Istanbul | Oslo |
|               | Berlin | Kiev | Paris |
|               | Brussels | Lisbon | Prague |
|               | Bucharest | Ljubljana | Rome |
|               | Budapest | London | Stockholm |
|               | Copenhagen | Madrid | Stuttgart |
|               | Düsseldorf | Milan | Vienna |
|               | Frankfurt | Moscow | Warsaw |
|               | Helsinki | Munich | Zurich |

| Middle East    | Abu Dhabi | Dubai | Manama |
| and Africa     | Doha | Johannesburg | Riyadh |

For more information, permission to reprint or translate this work, and all other correspondence, please email: insight@atkearney.com.

The signature of our namesake and founder, Andrew Thomas Kearney, on the cover of this document represents our pledge to live the values he instilled in our firm and uphold his commitment to ensuring “essential rightness” in all that we do.

A.T. Kearney Korea LLC is a separate and independent legal entity operating under the A.T. Kearney name in Korea.

A.T. Kearney operates in India as A.T. Kearney Limited (Branch Office), a branch office of A.T. Kearney Limited, a company organized under the laws of England and Wales.

© 2016, A.T. Kearney, Inc. All rights reserved.