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## The Economic Value of Artificial Intelligence

By Irving Wladawsky-Berger

Companies slow to adopt AI-based productivity improvements be warned: Artificial intelligence is the biggest commercial opportunity for companies, industries and nations over the next few decades, according to a recent report from PwC. AI advances will increase global GDP by up to 14% between now and 2030, the equivalent of an additional \$15.7 trillion contribution to the world's economy.

If PwC's predictions prove to be true, AI latecomers will find themselves at a serious competitive disadvantage within the next several years.

In the near term, around \$6.6 trillion of the expected GDP growth will come from productivity gains, such as the continued automation of routine tasks. Over time, increased consumer demand for AI-enhanced offerings will overtake productivity gains and result in an additional \$9.1 trillion of GDP growth by 2030.

But that's not all.

Network effects will further increase consumer demand. AI front-runners will gain an enormous competitive advantage through their ability to leverage this rich supply of customer data to shape product developments and business models, making it harder for slower moving competitors to catch up.

China is expected to see the greatest economic gains from AI, a \$7 trillion or 26% boost in GDP growth. One reason is the high proportion of China's GDP that is based on manufacturing, where AI is expected to have a particularly big impact between now and 2030. Even more important over the longer term is China's higher rate of AI investments compared to North America and Europe.

In North America, the economic gains from AI are expected to reach \$3.7 trillion or 14.5% of GDP growth by 2030.

North America will see the fastest growth in the near term, given its current lead in AI technologies, applications, and market readiness. But China will likely begin to catch up by the middle 2020s given its accelerating AI investments.

AI is expected to drive \$1.8 trillion or 9.9% of GDP growth in Northern Europe; \$0.7 trillion or 11.5% of GDP growth in Southern Europe; and \$0.9 trillion or 10.4% AI-based growth in the more developed Asian markets, e.g., Japan, South Korea, Taiwan, Singapore, Hong Kong. Developing economies will experience more modest GDP growth due to their lower AI adoption rates. Latin America will see \$0.5 trillion or 5.4%; and the rest of the world, - Africa, Oceania and less developed Asian markets - will see \$1.2 trillion or 5.6% GDP growth.

PwC also examined the impact of AI across eight major global sectors by creating the AI Impact Index. The Index was developed by first identifying the most compelling AI use cases in each sector, a total of almost 300 use cases. Each use case was then evaluated across multiple dimension, including utility value, ability to enhance personalization, saving time for consumers, and data availability. Adoption time frames were another important factor, based on the percentage of use cases in each sector that can be implemented in the near term (0-3 years), mid term (3-7 years) and long term (7+ years). After scoring all use cases across these dimensions, PwC calculated an overall AI impact score for each sector, with 1 being the lowest and 5 the highest.

Let me summarize the key findings for several of the sectors:

### Healthcare

*AI impact score: 3.7.*

*Highest potential use cases:* Supporting diagnosis in areas such as detecting

small variations from the baseline in patients' health data or comparison with similar patients; Early identification of potential pandemics and tracking incidence of the disease to help prevent and contain its spread; Imaging diagnostics (radiology, pathology).

*Adoption time frame:* near term - 37%; mid term - 23%; long term - 40%.

### Automotive

*AI impact score: 3.7.*

*Highest potential use cases:* Autonomous fleets for ride sharing; Semi-autonomous features such as driver assist; Engine monitoring and predictive, autonomous maintenance.

*Adoption time frame:* near term - 35%; mid term - 47%; long term - 18%.

### Financial Services

*AI impact score: 3.3.*

*Highest potential use cases:* Personalized financial planning; Fraud detection and anti-money laundering; Process automation—not just back office functions, but customer facing operations as well.

*Adoption time frame:* near term - 41%; mid term - 59%.

### Retail

*AI impact score: 3.0.*

*Highest potential use cases:* Personalized design and production; Anticipating customer demand—for example, retailers are beginning to use deep learning to predict customers' orders in advance; Inventory and delivery management.

*Adoption time frame:* near term - 54%; mid term - 38%; long term - 8%.

### Energy

*AI impact score: 2.2.*

*Highest potential use cases:* Smart metering —real-time information on energy usage, helping to reduce bills; More efficient grid operation and

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storage; Predictive infrastructure maintenance.

*Adoption time frame:* near term - 39%; mid term - 44%; long term - 17%.

### **Manufacturing**

*AI impact score: 2.2.*

*Highest potential use cases:* Enhanced monitoring and auto-correction of manufacturing processes;

Supply chain and production optimization; On-demand production.

*Adoption time frame:* near term - 14%; mid term - 83%; long term - 3%.

Finally, PwC recommends four key steps to help firms realize AI's game-changing potential:

Work out what AI means for your business. Identify the key technological developments and competitive pressures in your industry, as well as how quickly they will arrive. Then put in place the right operational plan for automation and AI.

Prioritize your response. How can different AI options help you deliver your business goals? What's your readiness for change? Are you an early adopter, fast follower or follower? Are you trying to transform your business to keep up or to attempt to disrupt your sector?

Make sure you have the right talent and culture, as well as technology. As has been the case with other disruptive technologies, their costs will decline over time. However, the supply of data and how it's used are likely to become the primary asset. As AI adoption gathers pace, the value of skills that can't be replicated by machines will also increase.

Build in appropriate governance and control. AI needs to be managed with the same discipline as other transformative technologies. Trust and transparency are critical. Mechanisms must be put in place to ensure that data and AI management are integrated. "Transparency is not only important in guarding against

biases within the AI, but also helping to increase human understanding of what the AI can do and how to use it most effectively."

"The ultimate commercial potential of AI is doing things that have never been done before, rather than simply automating or accelerating existing capabilities," notes the report in conclusion. "Some of the strategic options that emerge won't match past experience or gut feelings. As a business leader, you may therefore have to take a leap of faith. The prize is being far more capable, in a far more relevant way, than your business could ever be without the infinite possibilities of AI."

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