

# Disruptive Technology: Investing in Exciting Times

## Manager Call with Canterbury Consulting and Sands Capital Management

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*On September 26, 2017, Tom Trentman addressed the exceptional growth in technology and innovation and its impact across entire economic sectors and industries. Mr. Trentman addressed the powerful themes driving above-average growth in the markets. Topics ranged from current technology trends to the impacts on commerce and productivity.*

### **THE EVOLUTION OF THE TECHNOLOGY SECTOR AND THE REDUCTION OF TRANSACTIONAL FRICTIONS**

- Technology hardware and its associated computing power has been commoditized, and thus its relative advantage in the sector neutralized. By contrast, software technology and owners of large data sets now enjoy an advantaged position. The commoditization of computing power can largely be attributed to Moore's law, which predicts that every 18 months, computing speed should double.
- Google is a good example and at the heart of leveraging large data sets and software. The company uses algorithms and data to drive advertisement delivery. When it went public in 2004 it had 1% of the advertisement market. Today it has about 10% ownership of the market and has enabled advertisers to be more targeted and efficient with their advertisement budgets.
- The combination of computing power, the portability of it (smartphones, tablets, laptops, etc.), and ubiquitous cellular and Wi-Fi connections continues to reduce the frictional costs in transactions. Examples include purchases made on mobile devices through Amazon and purchases of travel and hotel accommodations on those same devices. In both examples, there are fewer middlemen involved in the transactions, and in conjunction, an evolution in the delivery of advertisements has taken place.

### **ARTIFICIAL INTELLIGENCE**

- We are still in the early stages of artificial intelligence's (AI's) development, and the biggest changes have yet to come. Furthermore, most of our exposure to AI or machine learning is largely unnoticed by the general population. For example, it is a part of and informs our online search query results, is embedded in the voice recognition software for Apple's Siri or Google's smart assistant (it oddly enough does not have a name), and queues up movie suggestions for us on Netflix.
- What will AI impact the most? The jobs market, and as a result will invariably be highly politicized. However, while technology (in its various forms over the decades) has rendered scores of job lines obsolete, it has also created scores of new ones. Agriculture is a good example to illustrate the degree of change. Today, about two percent of the working population is employed by the agriculture industry. By comparison, it was close to 50 percent in the late 1800s, and yet unemployment is below four percent today.
- Transportation is the next sector to experience a material impact from AI, and the impact will be the largest it has experienced since we placed a man on the moon. The impact will be particularly evident in the transportation of goods, and the challenge will be how to retrain the displaced drivers.
- Lastly, the issue will be less about the number of jobs eliminated than about the velocity at which they are eliminated.

## **Q: HOW TO ADDRESS THE SHORTAGE OF SKILLED LABOR?**

- The highly skilled jobs in the technology sector pay very well, and as a result the demand will be there. The issue will be training and developing the skills for the positions. On that point, universities have begun to adjust curricula to accommodate the demand for new technical skills, particularly in programming. In the end, it will be a matter of time (when) and not if.
- The real issue will be for the older cohort of the population and their ability to retrain for the new jobs. Politicians will need to pay close attention.

## **Q: HOW WILL LEGACY SOFTWARE COMPANIES SURVIVE?**

- Most will need to move to the software as a service model (SaaS), and this will be a big change. Legacy hardware companies will be the most challenged, as this portion of the industry has generally been commoditized.

## **Q: WHAT ARE YOUR VIEWS ON VALUATIONS IN THE TECHNOLOGY SECTOR?**

- There is a portion of the technology sector that seems reasonably priced given historic and expected future growth. Companies in this space include Google and Alibaba. Alibaba, for example, on the surface looks expensive but is actually reasonably priced given they are expected to grow at 20-45% over the coming years.
- Then there is a portion of the technology sector — such as the Amazons and Netflixs — where it can be argued it is expensive. However, a layer deeper reveals these same companies have very profitable core businesses that have been funding the next highly profitable business line. Both companies have shown this approach can pay off well. In Netflix's case the margins are great in the U.S. but negative in their overseas markets. Five years ago, the U.S. was where the overseas markets are today, which means we should expect Netflix's non-U.S. markets to turn profitable in the not-too-distant future.
- The final category is software companies who look very expensive on a price-to-earnings basis but reasonable on a sales-to-price basis. These companies typically have very high cost-of-goods-sold ratios because the cost of sales typically happens up front and the revenue comes in over multiple years. In time, as the cost of goods sold comes down, these companies should look less expensive.
- In closing, prices of technology companies are well off their 2013 peaks.

## **Q: WHO IS ON THE WRONG END OF MOORE'S LAW?**

- Apple could be. They derive a significant portion of their revenues from hardware sales. The power or edge in technology is moving more and more to those who own the data and are able to mine it and sell the results.
- On-premise software and combinations of on-premise software and hardware solutions. Paying for big software installations at once or over a short period is very costly and cumbersome. There is also less money in hardware, which has been commoditized over the decades. That said, on-premise software is generally a “sticky” product.

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### **Thomas H. Trentman, *Portfolio Manager***

Thomas H. Trentman, CFA, is a Portfolio Manager and Senior Research Analyst at Sands Capital. As the co-sector head of technology, he oversees the entire technology research team, with a primary focus on consumer Internet and software-as-a-service companies. Tom joined Sands Capital in 2005. He holds bachelor's degrees in chemistry and physics-engineering from the Washington & Lee University. Tom is based in Arlington, Virginia.

### About Canterbury

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