A Data Scientist's Perspective on Investment Hype Surrounding Innovation

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As we enter into a new decade, innovate or perish is the mantra amongst the many technical thought leaders within their cocoon of innovation hubs. Arrogance reigns supreme with increasing number of "God Complexes" emerging as the flow of capital and investment continues unabated. The digital disruption of our economy continues to permeate the need for innovation with an almost limitless supply of funds towards start-ups. In a way, is history repeating itself as this frenetic approach of investment was demonstrated in the dot.com bubble of the early 2000's. Many were called but few were chosen to quote a Bibical phrase in terms of the actual success rate of these dot-com start-ups. Yet, despite the short-term memories of this bygone era, investors still await that next "Facebook or Shopify" while accepting their many failed investments. But I might argue that for many investors that Facebook or Shopify moment never materialized with many investors realizing negative returns. So what really drives this behaviour in the 2020's recognizing the small probability of achieving any significant positive return? A longer term view of history might provide some better perspective here.
At the turn of the 20th century, the term "Luddite" emerged which described a group of English workers who destroyed machinery that they believed were threatening their jobs. Instead of adaptation or reinvention, the workers chose destruction as their course of action, but the tide of technology was not turning back. The same scenario exists today as no one wants to be left behind which includes investors from all sectors including major businesses and government. No business or organization wants the tag of Luddite as its main perception to other organizations. Meanwhile, the siren song of "technology" with its new products or platforms represent the hypnotic incentive for more investment. Certainly, companies such as Shopify and Uber have provided the catalyst in the creation of more e-commerce and uber-sharing type companies. The insurance and retail sectors are examples of this e-commerce disruption while restaurants adapt their menus to accommodate these new uber-sharing organizations such as "Skip the Dishes".

The business model for many of these start-ups is to facilitate or to actually enhance the consumer experience as it relates to purchase behaviour. Yet, the one common element in all these businesses is that data is being captured with any interaction between the consumer and the platform. In fact, for many of these digital start-ups, this is the "elephant" in the room as the real oil of their business is data and how they can best use it for potential monetization. It is no surprise that virtually all these organizations have data scientists as a core group of employees. For many of these start-ups, this will be the key to their longer-term success. Facebook which began with their model as a social-media sharing platform, soon recognized the "oil" they were sitting on and leveraged it the tune of billions of dollars in ad revenue. For the start-up, it's about using the information to generate more revenue in terms of more targeted products and/or services.

If the key trend in the digital economy is data, organizations are realizing that in most cases, there is not a sparsity of data but rather the opposite. With more and more data now being accessible, the field of artificial intelligence (AI) has loomed as the next investment frontier. The success of AI emerged 5-7 years ago with its ability to leverage Big Data thereby improving model performance. The classic example of this was image recognition which went from 45%-50% accuracy to 90%+ accuracy. Big Data was simply the oil while AI was the engine in delivering these improved performances.

Investors now research all types of AI start-ups in the hope of generating a significant positive return. Is there a platform or product that is saleable to organizations. Let's delve into this question as this is the real issue. Investors are typically reluctant to invest in consulting companies due to the fact that there is always a type of ceiling in terms of revenues such as hours worked. This is not the case with companies where revenue is generated by a product or platform. Here the revenues have no cap or ceiling as products or platforms can be replicated quite easily to consumers. But in creating an AI platform, one needs to think of the audience.

If I am looking at using consumer information in social media and web search, there is no need for these new start-ups as the tech behemoths such as Facebook, Twitter, and Google can very easily provide the necessary AI technology and would be more advanced that any new tech start-up. So, what would be the business model of the AI start-up? The key differentiating feature from the tech behemoths is that their AI prowess would be directly applied to a client organization's own data. Is there something flawed with this model? First, these AI start-ups don't own the data like Facebook, Google, or Twitter. The business model in terms of generating revenue would rely on organizations to purchase this software to be used on their own data. But this software would compete with many of the other big name players such as IBM, Data Robot, SAS and a range of other software vendors. At the same time, many AI algorithms are now available in the open-source platforms such as R and Python. Most data scientists are aware of the many commercial software as well as open source tools that are available and which all have AI as a machine learning option.

But with these above constraints and conditions outlined above, how do these start-ups generate revenue. Without naming these start-ups, these companies generate revenue for the most part not on directly selling the platforms but rather for the most part on "consulting". In other words, the data is extracted to the AI start-up's platform where their data scientists then build the AI solution. This is essentially no different than hiring a boutique data analytics firm to build a predictive model to target people to buy a given product. In fact, one AI company with over 500 employees, many of them data scientists, has only generated $10MM in revenue, all of it in consulting.

So will investment in AI continue? As a data scientist, I will say "it depends". It is still early days as AI becomes more mainstream and as we all know, change is inevitable. But in the current environment, more knowledge is needed especially in what is really required in this area. All experienced data science and analytics practitioners understand that the real demand is for data science or data analytics hybrids. This demand is epitomized by the ability to identify business problems, create the right data framework in addressing these problems, and to then use the right tools (maybe AI) in providing a solution. "Consulting" type services is the required business model to meet this demand. But, as stated above, the so-called "person-hours" revenue model lacks the investment attractiveness of a platform or product. Yet, this is where the need is. The need for this citizen data science approach is best exemplified by a Gartner study which has forecasted that these type of roles will grow five times more rapidly than the ranks of the more tech-oriented data scientists.

There is no question that lack of knowledge in this area is preventing a "more prudent" approach to investing. The high P/E multiple in AI products or platforms is the enticer when compared to the lower multiples exhibited by the consulting type models. Nevertheless, investors need to acquire much more knowledge in not only the AI space but the data science and data analytics space. The key trade-off for investors is to then weigh in on the lower probabilities of success for an AI platform which can be sold directly to client organizations versus the higher probabilities of success of consulting services or a citizen data science approach which are attuned to the real demands of the marketplace.