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How the Singularity is Rushing in the Golden Age for CPAs

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Abstract

We at American Professional Network (APN) consider the impact of the Singularity on the CPA profession. The Singularity is that point in time when all the advances in technology, particularly in artificial intelligence (AI), will lead to machines that are smarter than human beings. We credit Ray Kurzweil (American futurist and Director of Engineering at Google) with producing the seminal work on the Singularity in his groundbreaking book “The Singularity is Near: When Humans Transcend Biology” (2005). This book led to the founding of the Singularity University (SU) in Silicon Valley in 2008 by Kurzweil and Dr. Peter Diamandis. Fast forward to 2017...Kurzweil and SU have created an ecosystem all over the world that has provided a litany of definitions, books, training, guidance, etc. surrounding the concept of the Singularity. With this paper, we at APN are attempting to raise awareness in the CPA community about the Singularity, its impact on the accounting profession, and where the opportunities might lie. We have analyzed two reports issued by the AICPA (The CPA Vision Project [1996] and the Horizons 2025 report [2011]) and contrasted that information with opportunities provided by the Singularity. Lastly, we are focusing on the Chinese “Sputnik event” of March, 2016 to provide focus and clarity on a new subset of Artificial Intelligence (AI) called Deep Learning. We believe a subset of Deep Learning called British

AlphaGoist which emphasizes a hybrid approach (AI = Deep Learning + Reinforcement Learning (RL)) represents the most disruptive exponential technology to date. The most successful creation to date is the Go playing system AlphaGo, created by Google. We believe that the paper released October 18, 2017 regarding AlphaGo Zero will go down as one of the most significant technological events in American history.

Introduction

"I would not want to be a CPA right now. I would not want to be an accountant right now. I would rather be a philosophy major."¹

Mark Cuban

In this paper I hope to prove Mr. Cuban 100% wrong. I believe the truth to be exactly the opposite. And nothing against Mr. Cuban's desires to be a philosophy major btw...the Singularity actually is sort of like a philosophy in and of itself. Cuban however is an extremely accomplished entrepreneur. As a self-made billionaire, owner of the Dallas Mavericks, maverick investor, and celebrity star on ABC's "Shark Tank"....Cuban knows stuff. He also says things like this which I concur with 100%:

***"The World's first trillionaires are going to come from somebody who masters AI."*²**

***"Whatever you are studying right now if you are not getting up to speed on Deep Learning, neural networks, etc., you lose"*³**

Cuban is wrong about CPAs but he is certainly right about the need to get up to speed on all things Deep Learning. Cuban is an ENTREPRENEUR. He looks at things differently. I think he has his own personal issues with accountants because he thinks differently than they do. One of my favorite stories about Cuban is about how he instituted a new towel policy when he became owner of the NBA Dallas Mavericks basketball team. He insisted that the players on his own team and players from the visiting teams get first class plush cushy towels. Some accountant pointed out to him that not only was this going to increase expenses, but the opposing players will probably steal them. "Why would you want to do that Mr. Cuban?" the accountants would say. Cuban responds "Free Agency...think it through my dear accounting friends!".

My name is Robert Boespflug and I am the Chief Strategist at American Professional Network (APN) located in downtown Portland, Oregon. I am a Singularity Consultant. I know classical management consulting having taught its applications to 1st year MBA students as a teaching assistant at the

Cornell University Johnson Graduate School of Management. I am familiar with everything Harvard Strategy guru Michael Porter ever wrote having been trained by his Harvard protege Herman Daems at Belgium's KUL Business School. I am an average accountant at best (scored a passing 305 on the "Big Quiz" under the old paper and pencil system). But I have presented to or worked with over 10,000 CPAs in my 32 year career as a tax consultant with Arthur Andersen, Investment Banker in New York City and in LA, and a builder of CPA platforms helping CPAs perform high end financial planning services for their clients. I was there in the mid 90's harnessing the power of Microsoft's Visual Basic platforms helping CPA firms create digital "Scorecards" for their clients. In the 00's I have created 21st century ownership solutions with Tom Brady in helping CPAs. I have seen it all. I have made some of these CPAs millionaires using my methods. Particularly the entrepreneurs. At a minimum, most achieved significant, sustainable increased cash flow in their practices. **But in all that time, I have never seen anything that rivals the opportunity CPAs have right now in the way of Artificial Intelligence(AI), its subset Deep Learning, and all things related to the Singularity.** I honestly believe that the 1.25 million CPAs and Accountants in the United States can lead the charge in this field. Help their clients and help themselves. It's going to take some training and awareness. It's going to take some entrepreneurial ambition. And they are going to have to become Singularity Consultants. All it takes to do this is:

Harness what CPAs of all stripes already do in helping their clients by applying their talents, expertise, experiences, and other relevant attributes to improve their client's condition ⁴



Familiarize yourself with the contents of Ray Kurzweil's book "The Singularity is Near" and keep abreast of what is happening at the Singularity University (www.su.org)



Gain understanding of AI Deep Learning algorithms and why CPAs need to understand the extreme significance of a computer being able to beat a human (and later, itself) at the ancient...Chinese invented...3,000 year old strategy board game called "GO"



Singularity Consultant

The outline of the rest of this paper is as follows:

- I. What's in the basic toolbox of a Singularity Consultant?
- II. Why does China's "Sputnik Event" impact American CPAs?
- III. Where is the CPA profession at today and is it worth understanding all things AI and its related Deep Learning algorithms?
- IV. Where do we go from here?

I. What's in the basic toolbox of a Singularity Consultant?

"Technological change is exponential, contrary to the common-sense 'intuitive linear' view. So we won't experience 100 years of progress in the 21st century—it will be more like 20,000 years of progress."

Ray Kurzweil
Co-founder, Singularity University

"The Singularity is the point at which all the change in the last million years will be superseded by the change in the next five minutes."

Kevin Kelly
Co-founder of Wired Magazine

The above quotes are my best attempt at simplifying what a Singularity Consultant (SC) thinks about. For brevity sake, at this point think of the Singularity and the related term Technological Singularity as the same thing. The Technological Singularity simply means that technology is infinite...the software is writing the software at an extremely fast pace...and unenhanced human brains will be challenged to keep up. Another way to put it is the Singularity is that point in time when all the advances in technology, particularly in artificial intelligence (AI) will lead to machines that are smarter than human beings. A few other things to consider at this point:

- Another way to think about the Singularity is:
Singularity = Infinity
- As a SC...and a CPA...we are all sipping from the "fire hose" of information. That information is infinite...and the fire hose is going to evolve into sort of like an unending tidal wave flying through the Grand Canyon. There is a great book called "Drinking from the Fire Hose" by a couple of clever guys (Christopher Frank and Paul Magnone) who can help you frame and optimize this issue.

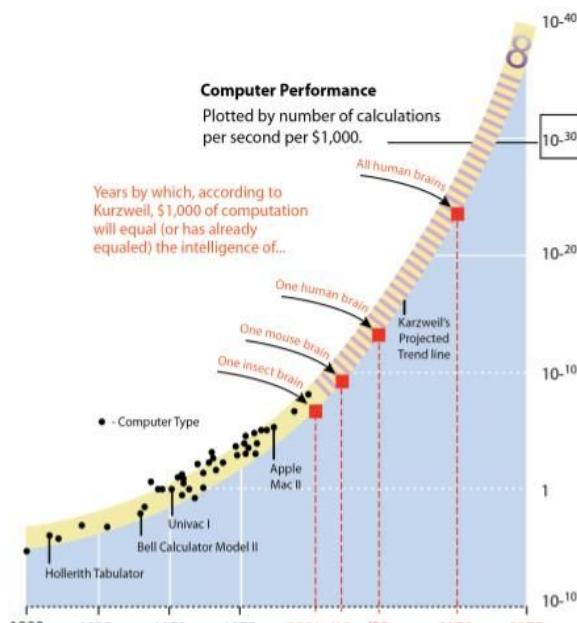
- A SC should be aware of a term called “impedance mismatch”. It is a phrase borrowed from software engineering to mean difficulties encountered when there is a conceptual difference between a sender and recipient off information. There is however another kind of impedance mismatch in the form of the speed of delivery of information and the ability of a recipient to digest the information. The quantity of new ideas that a user has to digest can be enormous. SCs and CPAs will have a big role to play in the future in managing this “impedance mismatch” for their clients. They will be instrumental in managing “progressive disclosure” as it relates to automated systems. This is simply due to the reality that humans are much slower in our ability to digest new information. Automation needs to be designed to disclose information at a rate that a user can effectively consume. It is ineffective to build automation that just dumps new information and expect a user to drink from a fire hose of information.⁵

A. Kurzweil Curve



THE RAY KURZWEIL CURVE

Moore's Law is just the beginning: The power of technology will keep growing exponentially, says Kurzweil. By 2050, you'll be able to buy a device with the computational capacity of all mankind for the price of a nice refrigerator today.



SOURCE: DATA FROM RAY KURZWEIL.

The Kurzweil Curve serves as the conceptual framework for all SCs. It is a picture that needs to be permanently planted into a SC's subconscious. There are thousands of Kurzweil Curves on the internet. This is the original from the bible of the SC..."The Singularity is Near" (SIN). All 652 pages contained in the SIN intersect with this curve somewhere. It serves as a visual representation of Kurzweil's core thesis, a little thing called "the Law of Accelerating Returns" or "L.O.A.R.s Law" if you prefer. It simply states that "fundamental measures of information technology follow

predictable and exponential trajectories". Put more simply, it's a picture of when computers will be smarter than humans.

There are 17 definitions of what the Singularity is by technologists and philosophers, past and present.⁶ First a quote (yes, by now, I am sure it is obvious to all that I love quotes):

"If I have seen further than others, it is by standing upon the shoulders of Giants."

Sir Isaac Newton

Kurzweil stood on the shoulders of geniuses like Newton, Albert Einstein, John von Neumann, and Alan Turing writing SIN and his other books. He has made 147 predictions since the 1990's about technology and has an 86% accuracy rate. And the 14% where he says he got it wrong, I personally think he got it mostly right...I'll give him a pass when he erroneously predicted self driving cars by 2009. He was a year off in predicting when technology would beat the greatest chess player in the world. It's worth noting that Einstein was elected Person of the 20th Century by Time magazine (and note...Time magazine chose "technology" as the appropriate hopper to pick a candidate from). Like Einstein, it is widely circulated that Kurzweil should be named the first "Person of the 21st Century". Meaning the greatest contributor to the first "technology century" in the 21st Century. We still have 82 linear years to go and 19,999 technology centuries to go. There will be roughly 19,999 "Einstiens" and "Kurzweils." to come. Guys like Einstein and Kurzweil are rare of course...outliers if you will because they have 4 sigma IQ's (IQ north of 160) and, most importantly, incredible imaginations. A 160 IQ (for simple math...let's call the standard deviation 15) has a rarity of 1/31,560. Imagining riding along a light beam or having the imagination and confidence to predict the Singularity...that's the 1 out of a million stuff. For easy math....let's just call it 1 in a million. It just so happens that approximately 5 billion more people on this Pale Blue Dot we live on are going to get smart phones and an internet connection over the next 5-7 years. $5 \text{ billion} \times \frac{1}{1,000,000} = 5,000$ "Kurzweils" coming online over the next 5-7 years. Thomas Friedman's "The World is Flat" turbo charged. Among other things, CPAs who are also SCs are going to be heavily involved in helping to identify these "Einstiens" and "Kurzweils" that will be working on the exponential technology that leads us to the Singularity. And they shall collectively make the world more ABUNDANT!

Lastly, Kurzweil's original definition of the Singularity he articulated in SIN still holds today. Kurzweil defined the Singularity as:

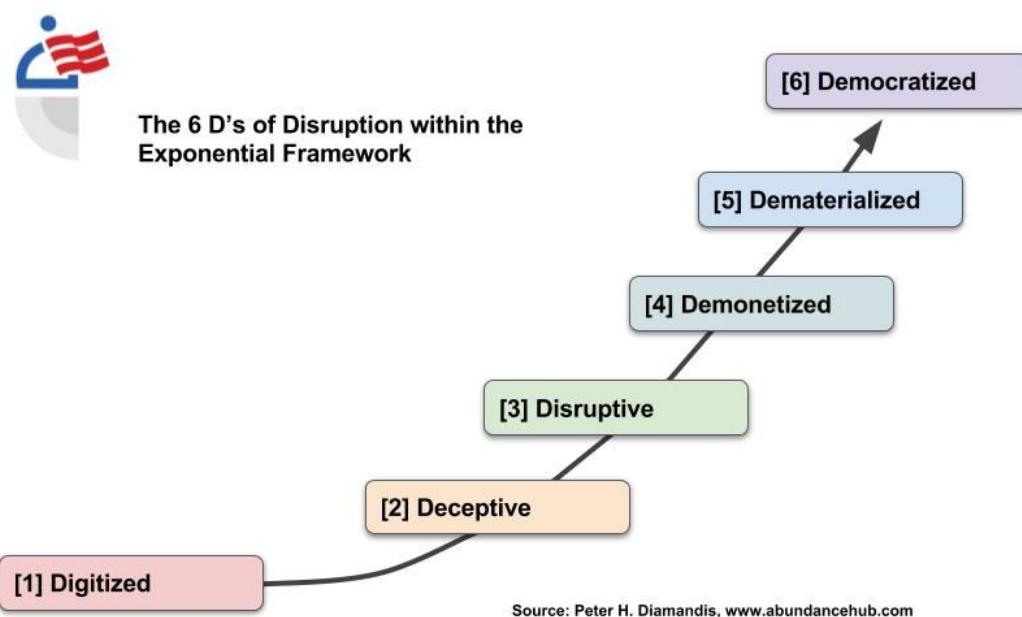
"... a future period during which the pace of technological change will be so rapid, its impact so deep, that human life will be irreversibly transformed. Although neither utopian nor dystopian, this epoch will transform the concepts that we rely on to give meaning to our lives, from our business models to the cycle of human life, including death itself."

As recently as October 5, 2017, he still stands by his original predictions regarding the dates this will all happen:

"By 2029, computers will have human-level intelligence," 2029 is the consistent date I have predicted for when an AI will pass a valid Turing test and therefore achieve human levels of intelligence. I have set the date 2045 for the 'Singularity' which is when we will multiply our effective intelligence a billion fold by merging with the intelligence we have created."⁷

Thank you Ray.

B. The 6 D's of Disruption Curve



This is the famous Disruption Curve created by Singularity University co-founder Dr. Peter Diamandis. He discusses this at great length in his book "Bold" (2015) he co-wrote with fellow futurist Steven Kotler. It's the second picture a SC has to upload into her subconscious. Whether a CPA wants to be a SC or not...this curve is going to be in the back of her mind when a client asks her when exactly self driving cars are going to be here for everyone. This curve serves as a guide to help a SC plot out exponential technologies...where they are coming from and where they are going. Dr. Peter Diamandis, co-founder and chairman of Singularity University, coined the term "exponentials" to describe a category of technology innovations that are accelerating faster than Moore's law; that is, their performance relative to cost and size is more than doubling every 12 to 18 months. The rapid and deceptive growth of exponentials has significant implications. These powerful technologies—including artificial intelligence, robotics, additive manufacturing, and

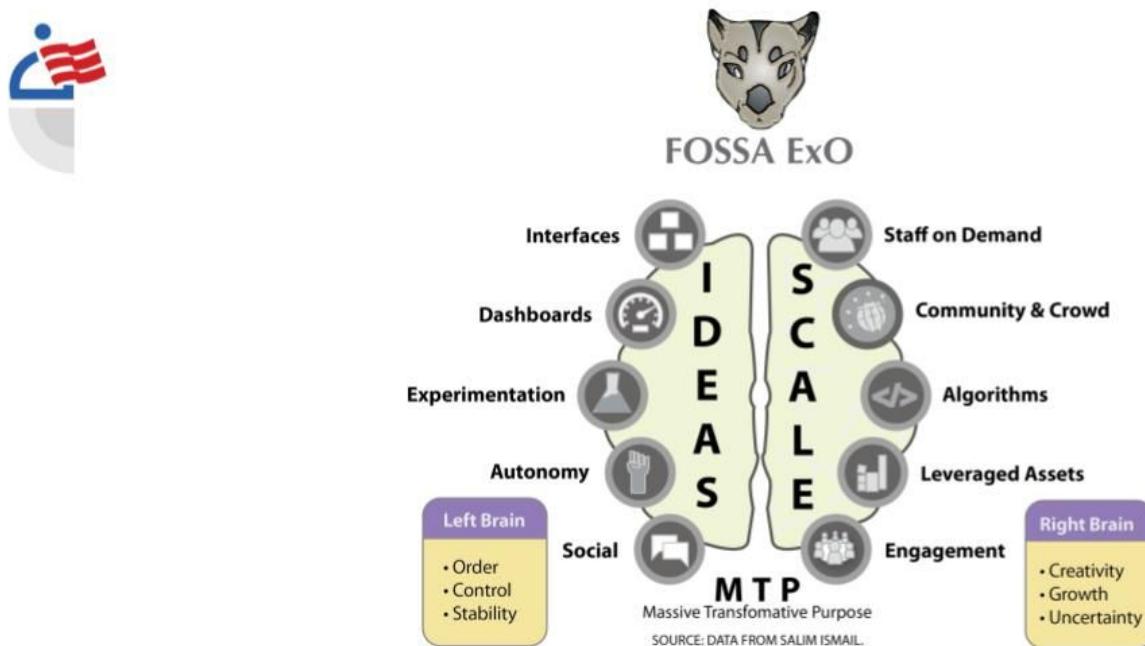
synthetic or industrial biology—are ushering in new and disruptive competitive risks and opportunities for enterprises that have historically enjoyed dominant positions in their industries.

- 1) **Digitized.** Once a process or product transitions from physical to digital, it becomes exponentially empowered. My favorite bookstore in downtown Portland, OR was Border's. I even bought my first copy of SIN there in 2006. Border's couldn't imagine how fast ebooks were going to go up this curve. They were disrupted, went bankrupt and are no longer with us. I sure liked their coffee.
- 2) **Deception.** This is a period during which exponential growth goes mostly unnoticed. This happens because the doubling of small numbers often produces results so minuscule they are often mistaken for the plodders progress of linear growth. Take for instance solar power. From a world market share standpoint, it currently sits roughly around 2% market share. It's been doubling about every 2 years for the last 20 years. No one pays attention until it hits a "whole number" like 1 or 2%. But now, if that pace keeps going, solar power only needs 6 doublings over 12 years and it has a theoretical market share of something close to 100%. Don't take my word for it, ask Kurzweil. We'll never hit 100 percent of course because some people will still want to drive their own gas powered vehicles in the future and some countries that rely on fossil fuels will keep that straw in the ground as long as they can if they can still get some marginal revenue out of it. Offshore drilling in the future? Say it loud and say it proud CPAs...STRANDED ASSETS!
- 3) **Disruption.** In Simple terms, a disruptive technology is any innovation that creates a new market and disrupts an existing one. Thus, it means the exponential technology in question (ebooks, digital music, solar power) is starting to cause some pain. We live in an exponential era. This kind of disruption is a constant. For anyone running a business - this goes for both start-ups and legacy companies - the options are few: Either disrupt yourself or be disrupted by someone else.
- 4) **Demonetization.** This means the removal of money from the equation. Google gives away its browsing service for free. Craigslist demonetized classified advertising. Wikipedia is still free and Encyclopedia Britannica misses the glory days of the past.
- 5) **Dematerialization.** Ok, now things are getting interesting. While demonetization describes the vanishing of the money once paid for goods and services, dematerialization is about the vanishing of the goods and services themselves. Think about a smart phone. Believe it or not, while we still pay up to a grand for the latest Iphone or Android...that object has \$902,809 of toys in it.⁸ Watch, digital voice recorder, mega pixel camera, video player...it's all in there. This figure includes the cost of video conferencing and GPS in 1982 which swells the price by \$369,900...but you get the picture. When these phones are rolled out to the

next 5 billion people on the planet...the marginal cost for these phones and the internet connection is going to approach \$0....which gets us to...

- 6) **Democratization.** Obviously this chain of vanishing returns has to end somewhere. Democratization is what happens when those hard costs drop so low they become available and affordable to just about everyone. The smart phones going to those 5 billion people won't actually ever become "free", but you have to take a step back and think about why Google or Facebook wants to wire up the whole world. That organization or country that has all the data wins in the coming AI arms race.

C. ExO Organization



The most important takeaway from this paper is the "Brain" you see pictured above. It is the brainchild of a Salim Ismail, the author of the book "Exponential Organizations: Why new organizations are ten times better, faster, and cheaper than yours (and what to do about it)". This book describes how the velocity of technological change occurring today in the world is unprecedented. This fact has given rise to the "exponential entrepreneur" and "exponential organizations" (ExO). Salim Ismail is the Singularity University global ambassador and former head of innovation at Yahoo. Salim Ismail defines an exponential organization as one whose impact (or output) - because of its use of networks or automation and/or its leveraging of the crowd - is disproportionately large compared to its number of employees. Contrast this to a linear organization - lots of employees and lots of physical processes and facilities. For all the twentieth century, exponential organizations did not exist and linear companies were protected from upstart

intruders by sheer size. Those days are now gone. The folks at SU posit this observation in a rather creative way. Think of 20th century Fortune 500 companies as dinosaurs. Think of exponential technology as the meteorite that took out the dinosaurs. And the animals that dominated from that point....the mammals...more optimal body type, MUCH MORE NIMBLE...the exponential organizations (ExOs) are the mammals.

It doesn't look like it, but the ExO model shown above is where people like Elon Musk and Reid Hoffman and Peter Thiel get a big chunk of their competitive advantage. It's their secret sauce as it were, in addition to their obvious intellect. What Salim Ismail (along with Michael Malone and Yuri Van Geest) did was, in a sense, codify the "PayPal Mafia".

"PayPal Mafia" is a term used to indicate a group of former **PayPal** employees and founders who have since founded and developed additional technology companies such as Tesla Motors, LinkedIn, Palantir Technologies, SpaceX, YouTube, Yelp, and Yamme, The PayPal Mafia is sometimes credited with inspiring the re-emergence of consumer-focused Internet companies after the dot-com bust of 2001.

So not only is Silicon Valley exporting its exponential technology, it is exporting its organizational structure. I think CPAs that can really understand this and know how to apply it can provide tremendous value for their clients and themselves.

We at APN have created a CPE course (see section IV.) that teaches the nuances of this brain. How a CPA firm can harness it, and how a CPA aspiring to SC status can help their clients harness it. Because of the fast paced world of exponential technology, it has been predicted that in 10 years 40% of existing Fortune 500 Companies will no longer survive.⁹ Richard Foster of Yale University estimates that the average lifespan of an S&P 500 company has decreased from 67 years in the 1920s to 15 years today. And that Lifespan is going to get even shorter in the years to come as these giant corporations aren't just forced to compete with, but are annihilated...seemingly overnight...by a new breed of companies that harnesses the power of exponential technologies, from groupware and data mining to synthetic biology and robotics. And as the rise of Google portends, the founders of those new companies will become the leaders of the world's economy for the foreseeable future.

II. Why does China's "Sputnik Event" impact American CPAs?

(Hint: this all about AI and its fast moving component called "Deep Learning")

Many younger readers may be unfamiliar with the history of Sputnik. The Soviet Union's achievement in launching the first manmade satellite (i.e. Sputnik) in 1957 had an outsized effect on the American psyche. Sputnik created the urgency for America to upgrade its science and

technology infrastructure. Sputnik also contributed directly to a new emphasis on science and technology in American schools.

Sometime in March, 2016 I recall my business partner Kanaan talking on the phone with our APN team in Liuzhou, China. I guess they called us. Kanaan tells me that our Chinese friends were having a bad day. They were emotional. Some of them were crying. Kanaan tells me that some computer beat a guy in "Go". I said, "Do you mean that board game they play over there?". Kanaan said he didn't know. I knew a little about the game as I used to play golf with some of my fellow Japanese students while at Cornell....they were obsessed with the game. Heck, they'd break it out right on the golf course. It was last Summer when I finally figured out what happened in China that day. It turns out that Google had set up a challenge match with Lee Sedol, the 18-time world champion GO player. This event transpired over a six day period (March 6 - March 15, 2016) in Seoul, South Korea.. Lee Sedol against AlphaGO, a computer Go program developed by Google DeepMind. AlphaGo won 4-1. IBM Deep Blue beat Garry Kasparov in chess in 1997. IBM Watson beat Chris Jennings in Jeopardy in 2011. Ok, that was impressive and launched IBM as the first company to brand artificial intelligence. But Go? That is off the charts. People outside of Google didn't think this was happening for another 10 years at the least. Heck, even Sergey Brin, the co-founder of Google, one of the top ten richest persons in the world, admitted in January of 2017 that he did not see AI coming. Particularly the flavor developed under his own roof.

Go is an ancient, 3,000 year old complex board game that requires intuition, creativity and strategic thinking. It has long been considered a difficult challenge in the field of artificial intelligence and is considerably harder than beating a human at chess or Jeopardy. One of the main reasons is that...there's a lot of moves to consider. Like....more moves than there are atoms in the known Universe. How much more? Try almost a GOOGLE OF UNIVERSES filled with atoms! You know...a Google...the largest number with a name. A 1 with a hundred zeros after it. Expressed as 10^{100} . The number of potential moves in a 19 x 19 Go board is 10^{171} . Atoms in 1 universe is 10^{80} . Let's just say that traditional AI brute force wasn't going to get this job done. Alpha Go had to learn human intuition. And it did so handsomely.

Let's just say China was upset (as well as Korea and Japan). The game of go has a special reverence in China, it's a 3,000 year old game that is traditionally considered one of the four arts that aristocrats considered as essential accomplishments. It is extremely woven into their cultural and psychological DNA. To have a Western developed automation arrive and vanquish a legendary player like Lee Sedol certainly shocked many Asian populations to its core. There was so much social disruption (as in crying) that Chinese authorities had to impose a country-wide ban on the live-streaming of the game. To put it in perspective, it would be like a junior varsity high school football team from Minot, North Dakota, without 7 of their starters, coming into Foxborough Stadium and leveling the NFL's Tom Brady and the New England Patriots 40 to 10. Impossible. No way. But yet it happened.

So while the United States was figuring out how to get back into the coal business, the Chinese got organized. They were upset. They focused. What exactly was the technology that made this happen? That Summer, the government of Tianjin, an eastern city near Beijing, said it planned to set up a \$5 billion fund to support the AI industry. They funded AI startups all over the place. 10 times more than what you find for US and European AI start-ups. Americans don't even talk about it. US Treasury Secretary Mnuchin has cavalierly dismissed concerns that automation will displace US workers; the Office of Science and Technology Policy lies in shambles, and the State Department's science envoy recently resigned. Because of the severe lack of government subsidy in the U.S., academic institutions are forced into selling their souls to private corporations. Corporations want to lock-in the intellectual property as fast as possible. And the best way to do that is to lock-up the Deep Learning researchers. Meanwhile academic institutions with the smarts are starved of government research and are forced into indentured servitude. Note how IBM just teamed up with MIT in a \$240 million effort to rule the AI world. Houston...we got a PROBLEM!

Fast forward to October 18, 2017. Google releases a research paper online about how their new version of AlphaGo called AlphaGo Zero beat the original AlphaGo algorithm 100 games to 0. It did it *tabula rasa* meaning "from scratch". No human intervention. Like giving a new born baby the rules to the game of Go and saying "alright kid" you got 3 days to learn this by yourself. Give it your best shot". It sure did. Here is the abstract:

- *Nature* **550**, 354–359 (19 October 2017)
- doi:10.1038/nature24270
- Received:07 April 2017
- Accepted:13 September 2017
- Published online:18 October 2017

A long-standing goal of artificial intelligence is an algorithm that learns, *tabula rasa*, superhuman proficiency in challenging domains. Recently, AlphaGo became the first program to defeat a world champion in the game of Go. The tree search in AlphaGo evaluated positions and selected moves using deep neural networks. These neural networks were trained by supervised learning from human expert moves, and by reinforcement learning from self-play. Here we introduce an algorithm based solely on reinforcement learning, without human data, guidance or domain knowledge beyond game rules. AlphaGo becomes its own teacher: a neural network is trained to predict AlphaGo's own move selections and also the winner of AlphaGo's games. This neural network improves the strength of the tree search, resulting in higher quality move selection and stronger self-play in the next iteration. Starting *tabula rasa*, our new program AlphaGo Zero achieved superhuman performance, winning 100–0 against the previously published, champion-defeating AlphaGo.

Why is all of this so important? Because AlphaGo Zero represents the most disruptive exponential technology ever devised by a machine that was created by humans. Kurzweil's Curve just moved to the left. Before October 18, 2017 machines were already better at radiologists in scanning xrays. Heck, not only are they better at scanning xrays for cancerous tumors, the machines can tell you where the cancer came from. Put another way, IBM's Watson is very helpful at tax compliance. But it's kind of like it is still playing with paper and pencil, like in the 80's. Once the extremely bright MIT grad student who lives and breaths Deep Learning figures out how to harness it's power, that is the exact moment you tell your daughter "Hey Cindy, instead of that Master's in Tax Program you were looking at to complement your CPA, why don't you consider getting a Master's in Deep Learning Algorithms and apply your CPA talent in harnessing the power of AI for your clients."

Deep Learning is a very exciting and interesting subject. It involves the interplay of Computer Science, Physics, Biology and Psychology. In addition to that, it has the potential to be extremely disruptive, not just technologically but also in how we view society and even our own humanity. There is currently very little written about it.

One subject that continues to perplex everyone is the question of how to apply Deep Learning in an enterprise context. Just because technology is disruptive does not automatically imply that the development of valuable use cases is automatic. For years, many people could not figure out how to monetize the WWW. We are somewhat in that same scenario with Deep Learning. The developments are mind-boggling but the monetization is far from obvious. But that is going to change lightening quick. Deep Learning is the new electricity. It will underlie basically all exponential technologies. It is behind the steering wheel right now driving all of mankind to the Singularity.

The world urgently needs a new mindset and toolset to overcome the challenges of technological disruption. We at APN empower business owners, world governments, nonprofits, startups, and others to solve problems by helping them develop this mindset—an exponential mindset—and apply emerging technologies to create an equitable and abundant future.

III. Where is the CPA profession at today and is it worth considering Singularity Consulting and understanding all things AI and it's related Deep Learning algorithms?

Ok, this is the part where I have to prove Mark Cuban wrong.

To review, we now know that:

- a) Deep Learning (the particular flavor currently personified by AlphaGo Zero) is the most disruptive exponential technology ever created. We're not sure exactly what's next, but it's

coming. As mentioned in section II., there is very little Deep Learning talent to be had. And right now the best talent goes for around \$6,000 to \$12,000 per hour. We at APN are going after Deep Learning talent all over the world. Entrepreneurial CPA firms that want to increase the value of the services they provide to their clients are going to have to do the same.

- b) We know that 40% of all businesses are going to be taken out by nimble ExO organizations that understand exponential technologies. Note this estimate of disruption was before the release of the research on AlphaGo Zero.
- c) We know that as traditional CPA services are continuing to be enhanced by automation, these services are going to ride up the 6D's of destruction curve. If Watson finally truly marries Deep Learning, the second most lucrative service in the CPA ecosystem, all things taxes, is going to quickly enter the disruption and demonetization phase. Democratization isn't far behind. Note that the most lucrative service is management consulting of course.
- d) It is well known that the CPA profession had it's hey day in the middle of the 20th century. Massive expansion so that American CPA's could perform the necessary audits on global companies. That's a good thing. The attest function is tightly woven into the meme of CPA culture. We don't use calculators on our Certification Test. We are the walking taxing tax codes...we can recall FASB's chapter and verse. We compete with each other on being correct. That's why CPAs are considered by far the most trusted business advisors. It's no coincidence that they are at the top off the trusted profession list, right between clergy and Psychiatrists. They are the Priests, the Rabbis, the Imams. Their flock tells them everything. They are the Gods of managing data. Getting it. Processing it. Explaining it. Delivering it.
- e) The problem however with having an attest culture and practicing listed services, is that it interferes with things like experimentation and collaboration. Without practicing these attributes, the ExO model doesn't work. In Silicon Valley, the motto is to Fail early, fail often, and fail forward. This can be done in my opinion with value based billing. And being very clear with clients on what the deliverables are...what exactly are the expectations.
- f) I think the major points in the CPA Vision Project and the Horizons 2025 report very much support going after Deep Learning and Singularity Consulting. There is no other profession that has the talent, the numbers, and the employee ecosystem that fosters a learning culture like the accounting profession. Here are a few things from the Horizons 2025 report that support that:

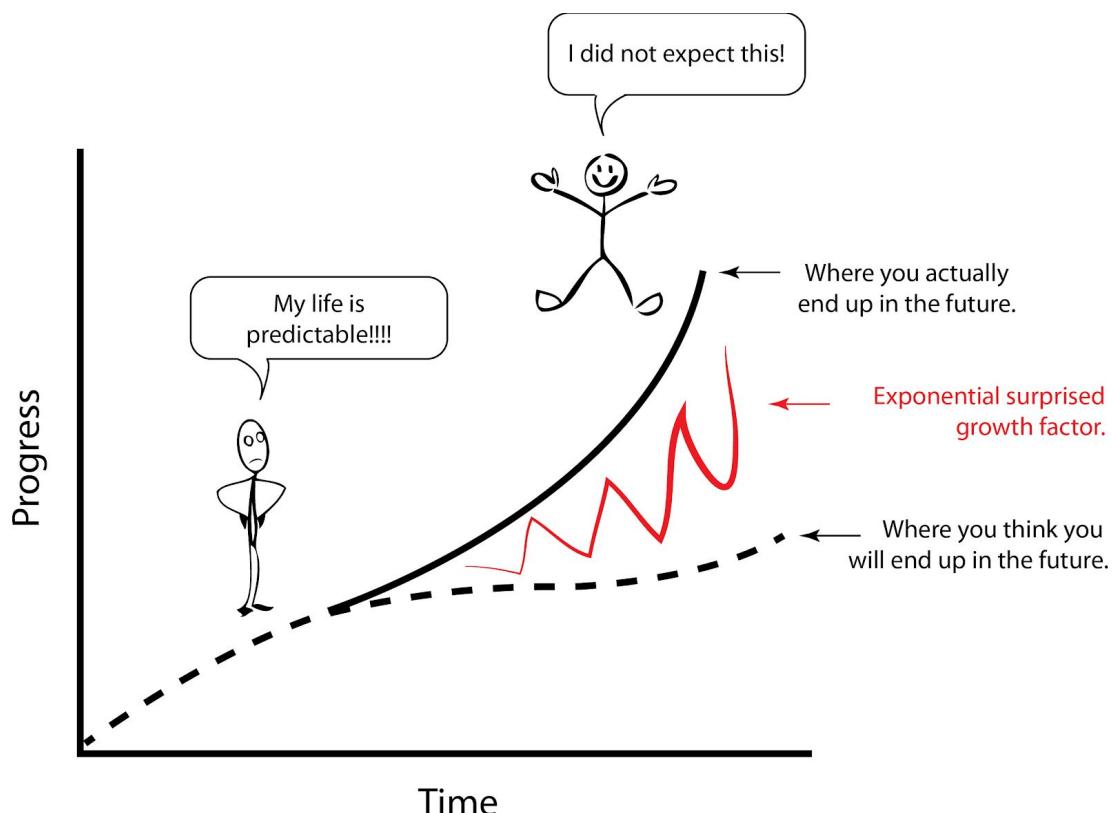
>***Core Purpose is “CPAs...Making Sense of a changing and complex world”.*** (Nothing in the past even remotely compares with the velocity of change coming in the next 10 years. Whether CPAs like it or not, every time a client asks them to make an estimate about when a technology could disrupt them, they are wearing the SC hat.)

>***Technology. CPAs understand and leverage relevant technology in conjunction with Core CPA Competencies to deliver superior services.*** (There is no exponential technology that rivals the

importance of Deep Learning right now. Over the next 12 years it will add \$30 trillion to global GDP. The next trillionaire will come from harnessing these ideas. Theoretically, 40% disruption of the S&P 500 creates \$16 trillion in ExO entrepreneurs. That's a 1,000 billionaires created inside 10 years. These folks are on the collective CPA rosters. And it's important to note that for the first time in history, the race from \$0 to a billion in market cap is dropping below 1 year.

>***The profession must find solutions to offer investors and stakeholders up-to-date, real-time financial information and to increase transparency.*** (at the end of the day, the CPA clients want to know what is going to disrupt them, and when. Deep Learning is a field that is advancing so fast that the textbooks are outdated the minute they are published. The CPA profession has got to identify, package, and deliver this information in real time. We at APN believe there are many unique ways to do this.)

>***Value Proposition. Increase the visibility off the profession's value proposition by demonstrating the profession's Core Values in multiple areas of business and society.*** (I think the schematic below says it all. CPAs must simply hold their client's hand and pull them up the Kurzweil Curve. Help identify the Singularity and all related exponential technologies that impact their industry and their business. Get them to look up in an exponential way. Not in linear way like everyone else. The area in the red is the increased value proposition. CPAs can charge value based fees and be paid well in doing so.)



"We can judge our progress by the courage of our questions and the depth of our answers, our willingness to embrace what is true rather than what feels good."

Carl Sagan

IV. Where do we go from here?

"The future ain't what it used to be."

Yogi Berra

Summary

>The material introduced in this paper is complex and fast moving. As if CPAs weren't busy enough sipping from their collective fire hoses, it would appear daunting learning all things Deep Learning and reading a book as dense as *The Singularity is Near*. We at APN believe these challenges can be met. We offer a CPE 1 credit course entitled: "How the Singularity is Rushing in the Golden Age for CPAs" and we will start teaching that course to CPA firms in the metro Portland Area starting December 13, 2017. This course will provide some guidance on how CPA firms can be more like ExOs and how to optimize the Employee Ecosystem (Ex) so that firms can provide value added services like Singularity Consulting.

>Note that this paper is the first draft. It was designed to be released on the 76th Anniversary of Pearl Harbor, December 7, 2017, to build awareness surrounding the incredible opportunities Deep Learning will provide us. We at APN believe the paper released on October 18, 2017 regarding AlphaGo Zero should serve as a rallying cry for the 400,000 CPAs that are members of the AICPA. The CPA profession should be the ones that lead our nation in Deep Learning.

>In the Spring of 2018, APN will be done with renovations on a 3,000 square ft. Korean Church located in downtown Portland. It is being designed as a business incubator as well as a gathering spot where CPAs and Accountants of every stripe, entrepreneurs, students, data scientists, people that simply care about how to make the world better....can gather and talk about how to harness the power of the Singularity. We aspire to achieve a quality such that we perhaps can usher in Portlands very own Singularity Hub. Seems fitting as we are already the Silicon Forest.

If interested, please send an email to robert@apn.ai and we will be sure to send back an electronic version of this paper. If you are interested in having us present to your CPA firm our CPE course let us know. Thanks for your time in reading this draft. And finally...

Soar with L.O.A.R. !

Sources

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