

**Steve Leimberg's Estate Planning
Email Newsletter Archive Message #2517**

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Subject: Keith Schiller & Estate Planning At The Movies(r): 2001 and Beyond Now a Professional's Odyssey - Commentary for Professional Practices in the Future

"I must confess. My mind has been blown, and not by drugs.

Rather, in the past three months, through divergent and uncoordinated events, the specter of artificial intelligence (AI) and its impact on professional practices, taxation and our relationship to clients has appeared with growing clarity. Will this apparition resemble Scrooge's bleak visitation or friendly Casper? The impact of AI will alter the lives of people in most walks of life, and professional practices are no exception. I am not writing these comments from a sense of gloom and doom, though some may experience that. After all, with most any technological advancement there are winners and losers. Rather, technology will present both new challenges and opportunities. It will change how we work and the value of our work. In turn, it will alter how we best serve clients, who wants to be our clients and how we are perceived by our clients. Since providing value to clients remains the cornerstone of service, various questions may be asked. Among them are, 'What value will professionals bring?' 'How will that best be done?' and 'How will our practices change?'"

Keith Schiller has authored a host of **LISI** newsletters respecting federal estate and gift tax law and the preparation of the Form 706. Among his most intriguing contributions is a blend of poetry or art with estate planning, including:

- Ode to the Estate Tax Return: A Poetic Approach to Form 706, Audits, FLPs, and Estate Planning. ([Estate Planning Newsletter #724](#)).

- Estate Planning At The Movies®¹: Estate planning and taxation explained with cinematic references to ease communication and understanding ([Estate Planning Newsletter #1326](#)).
- Estate Planning At The Movies®: *Ted 2* Inspires Analysis of Administrative Expense Deductions for Pre-Distribution Pet Care ([Estate Planning Newsletter #2362](#)).
- Estate Planning At The Movies®: *Willy Wonka, La La Land and Why the Death of the 2704 Regulations Should Not Become Your Shared Dream* ([Estate Planning Newsletter #2509](#)).

In this newsletter, Keith discusses advances in Artificial Intelligence (AI), reports on expectations of technology leaders and suggests impacts that the growth of AI may have on estate planning, law and accounting practices, future relationships with clients, and changes that may be needed with how taxes are raised.

Keith Schiller, Esq., shareholder of the **Schiller Law Group**, a PLC, of Alamo California, has more than 42 years of experience with taxation, and estate and business succession planning. Keith works with clients and consults on estate planning, tax compliance, business succession and trust administration.

Keith is the author of the award-winning book, *Art of the Estate Tax Return — Estate Planning At The Movies®* (“706 Art”). The book reveals Keith’s best practice pointers, his insights from co-teaching with the IRS for greater than thirteen years, and practical recommendations from over a dozen leading practitioners across the country who contributed to the book. The Second Edition of *706 Art* is published by Bloomberg, BNA Books and is available at <http://www.bna.com/bnabooks/aetr>. Keith is a member of the Advisory Board for Bloomberg BNA’s *Estates, Gifts and Trusts Journal* and the Consulting Board for the *Leimberg Information Services, Inc.* (“LISI”) Newsletter. He has taught 11 courses for the CalCPA Education Foundation and received the 2000 and 2010-2011 awards for Outstanding Course Materials. From passion, Keith chaired the Yosemite License Plate Campaign, during which he lobbied passage for the law approving the Yosemite License Plate and directed the state-wide marketing and sales campaign. The Yosemite License Plate has

raised in excess of \$35 million for the preservation of Yosemite and California conservation.

Now Available: In addition to the Second Edition of *Art of the Estate Tax Return* the 2016 Supplement to the Second Edition is available through Bloomberg BNA (go to <http://www.bna.com/bnabooks/aetr>). Also, you can stay current on estate tax law by subscribing to the author's Update Service for 2017. To learn more and to subscribe, visit: <http://shop.estateplanningatthemovies.com/2017-Authors-Update-Service-2017-Authors-Update-Service.htm>.

Here is his commentary:

EXECUTIVE SUMMARY:

The film classic, *2001: A Space Odyssey*,² presents a race between humankind (portrayed by Dr. Dave Bowman) and a computer (HAL 9000)³ that takes control of the space craft, in the quest for a monolith that the audience sees as sourced to human development but which may have a greater connection to the universe as a whole. In the almost 50 years since the release of Stanley Kubrick's classic vision, the ability of computers to interact, and in some instances dominate human capabilities has grown. We stand on the threshold of even greater change. Technological advances have exploded—in some respects exponentially. The growth of the Internet eases communications while reducing the cost of access to information. Expanding computer-based capabilities to produce documents streamline clerical tasks and offer greater freedom of action. Developments with virtual reality bring people closer together and will change the way we confer with clients and others and even see the world.

Most recently, the growth of AI to store and analyze information, to make strategic assessments and diagnoses and the growing capacity of machines to replicate human activity and even assess human emotion are changing the way in which we acquire and require goods and services, resolve disputes, and undertake a variety of intellectual planning and physical activities once reserved for humans. The impact of AI will alter the lives of people in most walks of life, and professional practices are no exception. This article surveys a variety of examples in

which AI-learning machines have advanced, the progress being made by the largest professional service entities in association with major tech companies, the enhanced service capabilities that exist now to assist (and in some cases replace professionals), studies by employment experts on the future of the employment base for the general public and professions, and reveals all with particular emphasis on the impact of these advancements on the accountancy and legal professions, particular attention to estate planning, and discussion of some of the implications of these changes for society and the way in which tax revenues are generated.

The scope of this article is extensive and numerous written and personal sources were consulted in its development. Those seeking the most explanation and analysis in reaching the summary conclusions that follow this paragraph will review both the text and endnotes (which contain further content):

- Prospective clients with generally simpler affairs will turn increasingly to AI-supported technology for planning alternatives and documentation while choosing to not engage an attorney. Self-help measures which exist will expand significantly.
- Virtually every walk of life, from the laborers (such as machinists, truckers, data entry jobs, cashiers, janitors) to CEOs and all professionals and virtually everyone in between will have some (or all) aspects of their work performed by AI technology.
- For estate planners, the training of younger or less expensive attorneys on less complex matters that commonly offer excellent training opportunities will become less frequent, thus, creating a dearth of experienced talent to handle more complex matters in later years from lack of personal experience.
- Staff and professionals at all levels will need to become more efficient with technology to maximize its benefits.

- Estate tax planning as a focus for AI platforms is safe for the time being because the continuation of the estate tax is uncertain. Moreover, that uncertainty will provide a useful tool for AI platforms that generate modeling and alternative scenarios because “what if” illustrations and analysis may be created with greater efficiency and from repetitive uses.
- AI supported technologies have already shown to outperform some associate attorneys in matters of legal research and document review. AI technologies provide added insights that the professional may miss. In the near term, the technologies will be more supportive than competitive with estate planners, though the time of job losses will arise.
- Individuals performing repetitive tasks, data entry and document reviews, among others, are at the greatest risk of job loss. For example, over 90% of audit jobs are projected to be able to be competently performed by AI technology.
- Advanced AI, which is currently accessible only to the biggest players who can afford to develop customized platforms, will become more affordable over time with the expansion of cloud based AI services to professionals and firms in all sizes.
- The tasks required of paralegals and junior attorneys in support of a completed project will become increasingly achievable by AI technologies, thus requiring either the retraining of staff to adapt to the technology, staff reductions and reduction in job openings.

Not So Hidden Opportunities. In the film *Hidden Figures*, the “human computers” (what the women at NASA were called who did the mathematical computations) were being replaced by an IBM system that could do the computations much more quickly. The solution for one of the characters was to learn all about the IBM and the first computer language designed by IBM called FORTRAN. She then

taught all her colleagues so that they would not become obsolete.⁴

- AI platforms will assist attorneys with a host of probability assessments and simulations currently not available, thus making those attorneys with a qualified client base⁵ more productive and comprehensive in service capabilities. For example, illustrations will be efficiently run using numerous variable of possible change to assess risk and upsides (such as what if the estate tax again become law after a repeal, when is the best time to make gifts, what if a child predeceases the parent, what will be the upside/downside if a business succession plan is not implemented, what are the relative risks of different investments, among many other points of inquiry). Firms of smaller size will have access to power research tools that dwarf current services once the economies of AI technology reach a broader base.
- Estate planners who prepare basic wills and trusts as the mainstay of their practices will lose a larger and larger share of business to publicly available computer programs and AI technologies for needs assessment and document production.
- Individuals who invest under \$1 million are predicted turn to on-line services for investment advice.
- Some tasks regardless of employment level will be able to be performed by technologies (not merely AI) thus freeing some to do more productive work and leaving others with little work (or the need to find other employment).
- A significant battle will ensue between the state bar associations (and/or the ABA), who want to protect the exclusivity of their professional licensing, on the one hand, and the technology service suppliers, on the other hand, over control of the systemization of legal services in general (and estate planning documents in particular) and the allowance to render legal advice. Each side will appeal to

the public while debating quality control, relative value-added by the professional and whether historic licensing exclusivity (or some adjustment thereto) will be appropriate in light of advances in technology that narrow, if not eventually eliminate, the distinction between technology based and human based advice.

- Technology currently provides and in the future will offer enhanced service capability and assistance with mistake avoidance for professionals. AI may help the public spot issues and the need for an attorney. It will also provide insights in a variety of forms that would otherwise be missed.
- Litigation attorneys will receive new types of cases because the technologies create more new ways for the public to be injured, such as from insufficiencies in the technology-based intake or analysis, failure to adequately warn the public (whether to consult an attorney or other limitations of self help), improper labeling and personal injury from the use of technology (such as with virtual reality).
- Technologies available to the public may alert some that issues are complex and that the assistance of a professional will help. In this regard, clients can enter the initial meeting better prepared and aware of the issues. This can reduce the time needed for the attorney and make flat fees even more attractive.
- Professionals will need to better market how they market services and differentiate themselves from direct use of AI platforms to solve problems.
- The hourly rate charged by attorneys does not foster comfort for the public that the most direct path is taken to solve problems and places the risk of uncertainty on the client. That same model was enjoyed by taxi drivers for decades in which inefficiencies (or small tires) are rewarded, protected they thought by licensing laws.

However, Uber disrupted the taxi business and the value of a license. Hourly-rate service and product producers face a similar risk of economic disruption when compared to an efficient technology-driven competitor that can predict pricing and value within acceptable parameters and provide fixed contract service to whose businesses and individuals to whom cost containment is important.

- Speaking as a “non-techie,” professional life is easier for me at 68 years of age than it would be at age 48 or younger. (There is little in life in which such a statement can be made.)
- The greater technology advances into the realm of analysis and judgment offered by the professional, the less the professional’s abilities mean to the final product. Thus, will the public need licensed professionals with their self-regulating associations to secure a higher and more ethical level of service when much, and in some cases all of the work, will eventually be able to be done by technologies? Even if some level of currently professional-level service is needed, will that residue justify the status and exclusivity of service currently enjoyed by professional classes?⁶
- While the merger of CPA and legal firms has not received favor in the United States, the capacity of AI technologies to analyze and eventually recommend courses of action or particular documentation are not limited by licensing laws (at least not yet). Assuming the arena of value-added for both the attorneys and CPAs narrows with expanded technologies, should members of the two professions be allowed to merge practices in order to maintain a higher level of overall value-added service? Custom and some considerations (such as confidentiality) are against the joinder of the two professions in business. However, the owners of particular firms may find mergers feasible (especially with smaller and middle sized firms that do not dominate markets) and enable them to provide more comprehensive service for clients while creating a better

defense against either professional becoming obsolete in material respects.⁷

- Sources for the raising of revenue will change because labor will become a decreasing source of money to provide government services as a result of technology and the aging population.

And now, the rest of the story:⁸

FACTS:

AI advances in which computers have the ability to store and analyze virtually unlimited data, and with developing capabilities to make predictions, diagnoses and recommendations from that data and guidance provided reflect the inevitable progression in the evolution of technology. Alan Turing, the English mathematician whose vision and extraordinary capabilities led to breaking the German secret codes during World War II and who has been cited as the father of the modern computer,⁹ made the following prediction in *The London Times* on June 11, 1949:

I do not see why it (the machine) should not enter any one of the fields normally covered by the human intellect, and eventually compete on equal terms. I do not think you even draw the line about sonnets, though the comparison is perhaps a little bit unfair because a sonnet written by a machine will be better appreciated by another machine.¹⁰

The following examples provide several groundbreaking moments where AI capabilities went beyond merely replicating human intellect to actually outmatching it:

- In May, 1997, Deep Blue, a computer developed by IBM, defeated the reigning world champion chess player, Garry Kasparov, in a tight match.¹¹
- In February, 2011, IBM's Watson, a more advanced computer than its earlier chess-champion ego deflater successfully differentiated nuances in language (though

not perfectly) in the process of defeating all-time Jeopardy winners, Kenneth Jennings and Bryan Rutter.

- Then in a victory of quantum leap, AlphaGo, programmed by DeepMind, defeated Lee Sedol, the world Go champion, 4-1. AlphaGo was programmed to be “capable of teaching itself, not just carrying out a set of fixed moves or activities.”¹² Go is known to be the most complicated of all games and which requires elements of intuition.¹³

Wired magazine best summarizes the magnitude of AlphaGo’s accomplishment in defeating the Go champion, who was a national hero in Korea:

The win puts an exclamation point on a significant moment for artificial intelligence. Over the last twenty-five years, machines have beaten the best humans at checkers, chess, Othello, even *Jeopardy!* But this is the first time a machine has topped the very best at Go—a 2,500-year-old game that’s exponentially more complex than chess and requires, at least among humans, an added degree of intuition.¹⁴

AI and Technology

AI is but one form of technological advancement. The future for professions will be influenced and restricted from a variety of causes and innovations with technology in general. As used in this article, AI refers to “the simulation of human intelligence processes by machines, especially computer systems.” These processes include learning (the acquisition of information and rules for using the information), reasoning (using the rules to reach approximate or definite conclusions), and self-correction.”¹⁵

Advances in technology, generally, including expansion of the Internet; software programs that enable users to prepare agreements, estate planning documents, tax returns, deeds and a variety of documentation has exploded in recent years. In turn, these alternative sources to access legal and accounting commodities and higher education have

become less expensive and easier for the general public to access. Consider the following examples cited by Oxford Professors Richard Susskind and his son, Daniel Susskind, in the book *The Future of the Professions* (herein referred to as “*Susskind Future*”) ¹⁶:

- In 2014, United States tax authorities received electronic tax returns from almost 48 million people who had used online tax preparation software rather than a tax professional to help them.
- In one calendar year, more people enrolled for Harvard University’s online courses than attended all of Harvard’s classes since the founding of Harvard 379 years ago.
- In preparation for litigation, intelligence search systems can outperform junior lawyers and paralegals in the review of massive documentation and the evaluation of what is relevant.¹⁷
- Online dispute resolution (ODR) is used to settle disputes. In one application of e-dispute resolution, eBay users are able to resolve over 60 million disputes a year through ODR (“more than three times the total number of lawsuits filed in the entire US court system”).¹⁸
- AI developments that enable massive documentation to be reviewed and analyzed are outperforming expert litigators in assessing likely results in court decisions and patent disputes.¹⁹

Carl Benedikt Frey and Michael A. Osborne authored an extensive analysis of the relationship of employment to advances in technology in their article, *The Future of Employment: How Susceptible Are Jobs to Computerisation?* (herein called the “*Frey Report*”).²⁰ Of the 702 occupations ranked for vulnerability of job loss to computerization, including AI, auditing and accounting ranked 113th most vulnerable (589th placement of safety) and booking, accounting and auditing ranked 31st most vulnerable (671st placement of safety).²¹

McKinsey Global Institute released a report in January, 2017 in which over 2,000 activities rendered by 800 occupations were reviewed for feasibility to automate these jobs through advancements in technology (not merely AI but also including robotics and other platforms).²² The

fundamental conclusion is that automation will transform the way in which virtually everyone works in most every business and profession, though actual job displacement will be more gradual than previously reported.²³ The McKinsey report offers the following summary of comparative job efficiency as a result of historical advances with technology and the prospects for automation (robotics, AI and machine learning):

Type	Period	Increased Productivity
Steam engine	1850-1910	0.3%
Early robotics	1993-2007	0.4%
IT	1995-2005	0.6%
Automation	2015-2065	0.8-1.4%

The McKinsey report concludes:

More specifically, our research suggests that as many as 45 percent of the activities individuals are paid to perform can be automated by adapting currently demonstrated technologies.²⁴ In the United States, these activities represent about \$2 trillion in annual wages. Although we often think of automation primarily affecting low-skill, low-wage roles, we discovered that even the highest-paid occupations in the economy, such as financial managers, physicians, and senior executives, including CEOs, have a significant amount of activity that can be automated.

Data extraction, including in the law office, is considered fully replaceable by demonstrated technologies with data collection (a different alternative task in the study) only slightly less replaceable by technology. The capacity of existing technology to store, analyze and make probability projections if not act on the information obtained already exceeds human capabilities in some reported instances.²⁵

Overall, the report expects that very few occupations will be automated in their entirety in the near term.

COMMENT:

Onset of a Journey—My Eureka! Moment

Some readers may be skeptical that AI will have an impact, or if so, believe that it will not be relevant to them. I had not thought about the impact of AI to my practice until disconnected events occurred in October and November, 2016:

First, I was asked during a speakers' dinner for The Southern California Tax and Estate Planning Forum²⁶ in October, 2016, by Frank Wu, Chancellor and Dean, UC Hastings College of Law, my view of the future role of attorneys in the preparation of estate planning documents. My response was that the more the service of the attorney resembled a commodity rather than a value added, the more easily replaced the attorney is, and the greater the pressure is to reduce fees. For longer than a decade, the advancement in systems to generate documents from response inputs (e.g., check box A and paragraph 1.1 pops up) has eased document production. Moreover, the time spent on drafting by higher-paid/priced attorneys has been reduced by paralegals who provide cost efficiency for a range of documents. Thus, for both technological and better staffing utilization, the time spent by attorneys on routine aspects of estate planning has declined.

With this prelude, the next day (at the Friday session of conference), I attended a presentation by Professor Richard Susskind, Esq. OBE of Oxford University regarding the impact of AI on the legal profession. Professor Susskind OBE is an author, speaker, and independent advisor to major professional firms and to national governments. His main area of expertise is the future of professional service and, in particular, the way in which information technology and the Internet are changing the work of lawyers and other professionals.

As an aside, in 1995 Professor Susskind predicted that most attorney-client communication would be provided via e-mail. In response, England's legal professional scholars declared that Professor Susskind was so off base (I believe the British word is "daft") that he should not be allowed to speak in public. Since then Professor Susskind and his son, Daniel, have written books, consulted extensively and spoken on the impact of AI and the Internet on the future of professions.²⁷

For only the third time in my life I sat in a classroom and had my fundamental vision of the future altered.²⁸

Then, in mid-November I had the opportunity to speak with the CEOs of several of the largest corporations in the Sacramento Valley of California regarding business succession planning and opposition to Proposed Regulations under Code §2704. However, before starting, I asked the group a two-part question: “What impact do you believe artificial intelligence will have on your industry; and, what impact do you believe it will have on your business?”

One of the attendees had just returned from a Wall Street Journal conference with the CEOs of the largest corporations in the country. He had spoken with the CEO of IBM about AI and Watson. He was told that IBM was looking to expand the uses of Watson.²⁹ Upon his return from the conference, my attendee believed that AI could improve customer relations for his major consumer product and service and take over significant parts of the janitorial function.

Moore’s Law: More for Some, Less for Others

Professor Susskind cites *Moore’s law* to summarize the growth in computer capacity during the past half century. According to Moore’s law, the 1965 observation of Gordon Moore, a co-founder of Intel, “the number of transistors per square inch on integrated circuits had doubled every year since their invention.” The current rate of doubling is estimated to be every 18 months.³⁰ The eventual impact of the rate growth reflected by Moore’s law, or any adjustments, while unknown, have incentivized spirited debate.³¹

Kira Systems³² offers an insight to the connection of fulfilling a need to advancements with AI that have only begun to grow. One of Kira’s co-founders (and now its CEO), is Noah Waisberg, who was formally a mergers and acquisition (M&A) attorney. M&A require massive document reviews as part of the due diligence by both parties, but particularly the buyer who seeks to learn more about the target company and its assets. M&A legal work normally requires exhaustive document reviews by large numbers (a legal army) of associate attorneys at high hourly rates, though some review can be undertaken by paralegals. Kira was then created to bring greater efficiency, lower cost, and improved

accuracy to the M&A process. This enables Kira to replace, where appropriate, or complement the document review and analysis done otherwise at greater expense by humans (and non-AI technology) alone.

With the learning capabilities of Kira Systems, it is not necessary to conduct a specific word search to locate documents or provisions on point. The neural network and algorithms that Kira employs enable the system to learn from data fed and locate relevant phrases and sections of leases and other documents based on the presence of inputs and patterns that do not include a particular word or phrase at issue.³³

Advances toward Affordable AI Technology

Kira Systems has also launched Kira Quick Study, which is designed to identify most any phrase in a variety of languages in the view of immense documentation and is customized for the particular user. Thus, a given firm's particular needs can be addressed and customized through AI learning capabilities. As a result, work of a routine or rote nature or the review of massive materials will be consumed more by AI advancements.³⁴

FinancialForce (a technology company in which Salesforce has an investment), provides, what in layman terms is called "back office support" (such as accounting, financial management, project management, and time and expense automation) plus support for sales and marketing by marshalling information using cloud technology. FinancialForce's core market is professional service and high-tech firms of ordinary size as well as well-known publicly-traded companies. Stated more technically, FinancialForce designs and sells Cloud ERP with apps built entirely on the Salesforce Platform. The company's Financial Management, Professional Services Automation (PSA), and Human Capital Management (HCM) offerings provide services-centric businesses with a platform that organizes sales, services, finance, and human resources to revolve around their customers. Kevin Roberts, Director of Platform Technology for FinancialForce, considers AI to be "in its early days." Mr. Roberts sees major enhancements coming, "with natural voice technologies, interaction between systems, predictive actions, enhanced technologies for forecasting and guiding sales." In an important observation for many professionals, Mr. Roberts states:

New sets of technologies are being developed but they are not yet feasible for the average user. Right now, the uses are for the 'big boys' who put together technologies for a solution. Companies are looking for AI compatibilities that don't require an army of data scientists and programmers to implement.

He adds, "As the market matures, it will become more feasible and less expensive to use AI." He compares development of cloud technology to that of AI. Roberts observes, "A few years ago the prediction was that cloud technology would reduce jobs in IT. However, it created other opportunities and freed up executives and other employees for a higher level of performance." He concludes with the observation, "There are always winners and losers."

Consistent with the goal of broadening the base of IT and AI applications, Jason Freidenfelds, Senior Communications Manager at Google, notes several instances of job creation and need as a result of expanded AI applications such as Tensorflow™ developed by Google.³⁵ In one of the more hopeful comments for the future and a development that should not be lost on educators, Mr. Freidenfelds cites a European Union estimate that 900,000 digital skill jobs will go unfulfilled due to lack of trained workers.³⁶

Implications for Accountants, Tax Professionals and Auditors

Advances of the Internet make information more accessible and create easier availability of content to the public via electronic sources.³⁷ The unique and special knowledge of professionals will be less unique and special. However, judgment and the ability to assess and weigh variables, to know when clients are sharing their true feelings and asking the right questions remain a bulwark of the truly added value. However, judgment is not necessarily related only to humans. AI-supported computers can perform facial recognition and discern with growing ability whether someone is telling the truth. As yet this technology is embryonic.

Of particular significance to accountants, attorneys, and other estate planning advisors is the rapid growth with medical evaluations and

diagnosis.³⁸ The *Frey Report* references the following inroads in the legal and financial services:

- Sophisticated algorithms performing tasks normally handled by paralegals, contract and patent attorneys.
- Law firms now relying on computers that can scan unlimited numbers of documents, court decisions, legal briefs and authorities as part of pre-trial preparation.
- Expanded use of language analysis and patterns as part of due-diligence review with mergers and other document-intensive functions. They cite a 2011 article, now four years old, that references the ability of Symantec's Clearwell system to analyze or sort more than 375,000 documents in two days.³⁹

Interviews with officials from Kira Systems and Google⁴⁰ indicate a belief that AI will be largely complimentary with professional services rendered by humans rather than replacing them, at least in the next few years. *Susskind Future* arrives at a similar assessment for professionals citing general compatibility near term with a likely prospect for upheaval and even threat to existing professional state licensing and exclusivity rights long-term.⁴¹

The capacity of the technology to read and identify anomalies in massive documents will significantly reduce audit employment openings for some while increasing the quality of the audit work done by those whose jobs are not replaced by the technology.⁴² In March, 2016, KPMG engaged IBM's Watson cognitive computing technology to focus on auditing services and enhance its business services in other industries.⁴³ As part of that initiative, KPMG is now feeding Watson credit files for banks and, in effect, teaching AI to analyze credit ranking.⁴⁴ Ms. Kris McMasters, a consultant to accounting and other professional services organizations and the former Co-CEO of CliftonLarsonAllen LLP (the tenth largest accounting firm in the United States) notes, "Thus, rather than auditors looking at a small population, they can review aspects of the entire population of credit files."

The Wall Street Journal (WSJ) reported in March, 2016 on the increased use of AI to support audits.⁴⁵ One audit division reported a 25% reduction in audit costs. In a brighter assessment than offered by *Susskind Future*, the *Frey Report* or the McKinsey study, the WSJ concludes that auditors “won’t become superfluous. Instead, technology will free them to spend more time on investigating red flags.”⁴⁶

While adaptation to technology will save or expand jobs for the educated and flexible, net job losses should be expected including among professionals. *Susskind Future* is particularly unsettling in its assessment of the future for professionals, generally and attorneys in particular. For some in the country-club set, advances with AI and technology may mean that their golf clubs will join the rust belt.⁴⁷

Protection of the future for professional practices, particularly firms other than the world’s largest (which can take care of themselves) is on the minds of the professional associations. McMasters serves on the Council of the Chartered Institute of Management Accountants (CIMA) based in London, whom along with the AICPA in the US recently formed a new global accounting association, the Association of International Certified Professional Accountants.⁴⁸ McMasters asserts, “Profound advances in technology will transform most professional services firms, especially law and accounting firms.”⁴⁹ She sees the transformation beginning slowly at first, in the next few years, however she predicts “monumental changes” in the next 10 years or so. The investments being made with AI to “see, hear, learn, predict and correct” with human abilities is massive in amounts and depth across all industries and professional practices.⁵⁰ By 2020, \$15.3 billion is anticipated to be invested in the robot and AI market, of which \$14.33 billion is considered to have “disruptive impacts” in manufacturing, salary costs and efficiency gains.⁵¹

What then can professional practices beneath the size of the very largest CPA firms do to compete for the best clients and retain their best clients while maintaining efficiency and marketing presence? McMasters observes:

It will be very difficult for other than the largest firms to afford the investments required to implement these advanced technologies in the auditing function. Regional and smaller

firms will likely need to form alliances for sharing costs or purchase the capabilities from outside service providers that will eventually surface.⁵²

McMasters reports that the AICPA is also working on ways they can assist their member firms in this transformation. The AICPA has entered into a research initiative with Rutgers Business School to facilitate ways to further integrate data analytics into the audit process, with a goal of enhancing audit quality.

The *Frey Report* identifies that the job functions least under threat are those in which creativity is most needed. However, research and analysis and the ability to predict have been demonstrated to fall within the capability of AI computer learning.⁵³ Accordingly, the higher functions of human involvement (creative, strategic and planning) are not likely to be replaced in the near term and in varying respects in the long term according to the reports and studies referenced in this article.⁵⁴ In these respects, AI provides an additional resource. However, the general public may become satisfied with simply using AI and Internet supported services available at a fraction of the cost of personal professional advice. Moreover, as *Susskind Future* observes, a substantial element of tax planning arises from the results at research, which is a function of proven and growing ability with AI capacities.⁵⁵

“Begin with the end in mind,” is a quote created by Stephen Covey as a central theme to his publications on planning and effectiveness in life and business.⁵⁶ Apart from starting a day thinking about what you want to achieve, the concept also applies to identifying the objective and the reasoning back to the present circumstance (set of facts) to determine what is needed along the road in reverse. The author was introduced to this type of thinking in college as part of a course that included political planning in which adaptations were taken from military objective taking.⁵⁷ Thus, why can't AI adapt to this more sophisticated form of learning?

Moreover, AI has begun to make inroads with assisting businesses with negotiations. Horacio Falcao, INSEAD Senior Affiliate Professor of Decision Sciences, reports that AI applications can more readily identify shared interests and increase trustworthiness among people.⁵⁸

The McKinsey report and most other sources referenced in this report believe that AI will create new opportunities for professionals. Moreover, the technological advances enable both the public and professionals to negotiate an increasingly complex and regulation-driven society with less stress and better access to information. Though not specifically referenced in the McKinsey report, advances in technology have opened up new careers for attorneys and accountants to work in technology firms and advise customers who call with difficulties using the software and obtaining the best results from its capabilities. In addition, professionals will be engaged to consult in the design of the software.

Battleground over Standardization

Susskind Future describes a core force to its predicted decline of professions as movement from the *craft* (the art of professionals) to standardization and eventual systemization with its ease of access via the internet (free and no-charge services) in particular.⁵⁹ Professionals will want to control the standardization process, which is a goal of Interactive Legal⁶⁰ with its core of expert consultants, legal document form consistency and logic-tree questions to lead to desired alternatives. Internet competitors focus on providing standardization directly to the public at lower cost and reliance that its products and growing sophistication of AI (and eventual capacity to not only present alternatives but to make recommendations) will lead the public to make sound choices. Within growing competency and reach of the technology and the art of the professional rests the perceived value-added by the accounting, tax and attorney resides.⁶¹ *Susskind-Future* predicts that this next level (i.e., making recommendations/advice) from technology will arrive. He calls it the “next wave” of AI.⁶²

Robert Zampetti, a leader with Ernst & Young’s (now referred to as “EY’s”) People Advisory Services Practice makes the following cogent observation regarding business practices generally, which will have application to estate planners:

This whole arena that we are broadly calling artificial intelligence is actually a sea change, it’s not a bolt-on; it’s more profound – it’s the culmination of the information revolution; just like assembly lines became a paradigm in the industrial era,

artificial intelligence will become a paradigm in the information era.⁶³

Based on a review of the studies and writings reported in this article and the comments of its contributors, this author sees pressure being especially acute in two phases:

- First, businesses, in particular and the executives and major investors in them, will become more attracted to larger accounting and law firms that are able to afford AI-driven technologies because of the competitive advance those firms will have at least in the short run before effective AI platforms become more generally available. The earlier comments of Kevin Roberts of FinancialForce hint at that impact. Thus, accountancy practices smaller than the major four accounting firms and law firms below the largest who are making AI investments will be particularly at risk to lose their best clients unless they develop, either alone or collectively, AI capabilities that enable them to compete, remain cost efficient, and provide a higher level of value-added services.
- Second, in the long term, and to some extent in the near term, the general public will turn increasingly to Internet based (or robo) services for document and tax return production. Existing services or new ones should be anticipated to offer more and more sophisticated services to handle a broader range of documents and tax returns. Small firms and practitioners who cater to the general public will face increasing price point pressure in the battle to provide value-added guidance (that the client recognizes as being of additional help) while seeking to retain a viable client base. Thus, practitioners will need to emphasize not just the product (the “commodity”) but the necessities of professional experience to develop the best documents and advice in the circumstance.

A major arena over evolving stress will evolve around standardization and the delivery of the “commodity”/documentation that the client seeks. Will it come from AI or the professional or some degree from both? This

issue is address with greater depth in the section pertaining AI in estate planning. Since the technology companies will want to expand applications while the licensed professionals will want to defend their turf, your author anticipates that the more likely demarcation of business expansion will arise over regulations or new statutory law. Push-back from the legal profession to narrow the reach of AI for direct public use in the legal arena has already begun.⁶⁴ Consumer advocates may argue against excessive restrictions out of concern that attorneys are often viewed as overpaid; that the information, research and forms used by attorneys are easily accessed through the internet; that AI (and its higher functions) can develop to provide improved levels of analysis and assessments of suitability for action; that the public should be given broad choices; and that notices can be given to warn the public of the use of the technology.⁶⁵

Your author believes that the more the technology delves into planning and document production beyond simple drafting and routine paperwork into nuanced choices and alternatives, the greater becomes the need for professional guidance. Will the technology refer the public user in that instance to a professional or will the platform provide documentation to implement? Will members of the public recognize that issues are complicated and that some level of professional assistance would be beneficial? For example, when creating a complex contract, lease or estate planning document, are there some projects that the technology should decline and recommend counsel to assist (and perhaps suggest counsel from a list) rather than providing documentation to complete an assignment?

Likely, some users will be displeased and want to sue the technology company for negligence. Your author anticipates that service providers will have to have increasingly extensive contracts and limitations to address expanded service capabilities.

Alas: Each new breakthrough to do good provides the opportunity for people to mess it up or encounter one problem or another... or worse as part of a group...which then feeds future tort litigation and disputes over the effectiveness of contractual limitations and waivers. In fact one area ripe for dispute will be whether a provider of AI-generated legal documentation and advice/recommendations will be able to

limit liability when such liability could not be waived or so limited if provided by a human attorney. Disputes have been the result of technological advances since the first caveman rolled the first wheel over the child of the village chief. Then, of course, rather than being sued the wheeler simply died.

Estate Planning and AI

Technology has already made significant advances in taking over tasks formally performed by attorneys. The public has access to basic estate planning documents through Legal Zoom® and other sources. AI developments will likely increase the sophistication of provisions in agreements and the options open to the public. Higher functioning software programs offered to practitioners to facilitate tailored planning for the individual are offered, including InnovativeLegal Systems.

Michael L. Graham, Esq., the, CEO of InterActive Legal (the creation of Graham and his partner, **Jonathan Blattmachr**⁶⁶) anticipates that artificial intelligence and intelligence assistance (IA) will be of increasing assistance to those who simply would never pay for actual legal services, either because they cannot afford such services or because they do not understand their need for them. Graham anticipates that the systems will develop into collectors of fact, analyzing the client situation, and then creating the documents for those with simple situations. At the same time, he anticipates that a well designed system will advise those with more complex situations (multiple marriages or spendthrift children) to seek legal counsel, and the reasons for why they should do so. Graham hopes that the better online technologies will halt implementation of an online plan in favor of making a recommendation to a professional in complex situations. He is of the belief that in such situations, the computer would simply refuse to prepare the documents.

Even today, Graham observes, such a system could be combined with a referral system to lawyers for those potential clients with problems that exceed simple computer generated documents. Thus online document generation systems could actually increase the work of lawyers by being an educational tool for those who don't understand their issues (who don't know what they don't know). The corollary he believes, is that there is a litigation risk to those companies who do not have a methodology to determine who is appropriate for an automated system

that does not anticipate these problems.⁶⁷ Your author sees this progress as moving far more quickly than most of us imagine.

Your author anticipates a wider and more extensive direct-public use of AI supported technology for evaluation of legal need, assessment of alternatives, recommendations and document production than merely simple documentation or attraction for people who would never (today) pay for legal advice. With growing capability, sophistication and familiarity, a wider percentage of the population will likely turn to the advanced technology for primary legal assistance.

Mr. Graham presents an excellent example of the current capability of artificial intelligence, including intelligent analysis. Watson can analyze massive data, look for anomalies, interpret responses and consider what the response might have meant even if that is not the apparent meaning. Graham adds, "Watson can tell you probabilities of various alternatives. But it cannot make a recommendation as to what the decision or which alternative to apply. However, that may come in the near future, as AI simply becomes more dependable."

As the technology expands in capacity and familiarity, the line between simple documentation and more intricate or nuanced paperwork may become blurry. Will the general public be sufficiently informed and warned to know the difference. The technology companies will run risks of not asking the right questions or misconstruing a response and there after make a questionable recommendation. Consistent with the earlier discussion of risk, decades of litigation may arise from errors in the program, incorrect assessments, presentation of insufficient options and all the other errors in judgment (or issues missed) that lead to litigation against human advisors will be forced upon technology companies.

The decline in estate tax filings has reduced the number of law students taking estate and gift tax courses, has lessened the number of times these courses are taken, and has reduced the number of professionals taking continuing education classes relating to estate tax, gift tax and generation-skipping transfer (GST) tax. The future of estate tax is uncertain and the prospects for a later populist cry to tax dynastic wealth may bring about its return in another political era.

The plus side of this uncertainty is that estate tax planning should be a less inviting target, at least in the short term for enhancements of AI.⁶⁸ However, advances in technology and the access of the public to estate tax related law, articles and documents should continue to expand. Revenues for online document production (not limited to estate planning) have reportedly doubled from 2006 to 2015.⁶⁹

Of course, significant estate planning issues exist wholly unrelated to estate tax, or any system of taxation for that matter.⁷⁰ Issues such as elder abuse, asset management, fundamentals of distribution, business succession, blended families, drug addiction and other frailties of the human spirit create their own issues regardless of wealth. Thus, to the extent that members of the general public see a problem that they feel they cannot solve through available resources other than online advice and documentation services the pool of opportunities for professionals will be preserved. However, like the lakes of the Serengeti as the dry season approaches, the size of the pool will likely shrink.

The Haves and the Not-Enough Haves

The reduced cost associated with information and product access through technology, and especially with advancements in AI, is predicted to lead most of the public to technology-driven platforms for financial planning and basic document and tax related services in the future. Careful consideration to market presence, cost control, fixed rate billing, reduced overhead, and greater efficiencies may spell the difference for thriving or pulling up stakes.

From the standpoint of financial and insurance planning services, Richard Weber, the President of the Ethical Advisor, states that those with \$1 million or more will want personal advice and those with \$100,000 or less will be all online or “robo” with those in between choosing between these sources. McMasters believes that the break point for those receiving personal financial planning services could be significantly higher than \$1 million.

Perhaps, the dream of AI contributing to a more successful and vibrant society may prove joyous to those who best adapt. Voice recognition software, advanced data assembly and analysis, predictive applications, full back-office support and improved robo clerical assistance may drive

planning and deliverable production to new levels of ease and lower overhead. This more optimistic view has proven to be the case for the winners with past technological improvements. Looking forward we may recall the pleasures in an even more advanced time in the future when the orgasmatron (the word defines itself) became available to create many happiest places on earth in the film *Sleeper*⁷¹ starring Woody Allen.

Putting aside such dreams for the moment, the following are among the implications arising from the foregoing:

- There will be reduced opportunities for beginning-entry attorneys to learn basic drafting and conduct of interviews because there will be fewer basic estate plans to document as prospective clients with simpler affairs turn more toward AI-enhanced and other technologies available. Margaret Hand, Esq.,⁷² expressed particular concern for this development for long-term prospects. Many of us may have experienced this phenomenon since fewer estate planning attorneys with 7-12 years of experience in taxation appear on the market as a result of (i) increase in the federal estate tax exemption; (ii) decline of law school enrollment in estate tax courses; and, (iii) withdrawal of some large law firms from the estate planning practice. Susskind-Future cites the same concern.⁷³
- Estate planning practices will not be immune from the capabilities of AI-based platforms to provide enhanced and more thorough analysis, recommendations and document production. Firms will be divided between the haves and the have-nots in which those who do not embrace and invest in the technological advancements will be rendered either a more expensive or less effective service for clients. Prospective clients with greater wealth will seek out the firm that renders the best service and will recognize that AI improves the potential advice and product even if it does not displace the value-added professional. Law firms and the major CPA firms most clearly announce proudly their alliances with corporations

offering AI platforms. They do not view AI as a machine. Rather, it is advertised as progress for enhanced service with ongoing capacity to adapt and expand and with better and more value-added utilization of the employees at the firm. Those members of the public who want and can afford professional advice (rather than relying on the improved “robo” platforms for recommendations and document production) will want to know those AI capabilities of the firm being hired.

- On the positive side, AI applications with technology will become more affordable for attorneys regardless of the size of practice. Advancements will not be relegated only to the biggest firms. Thus, for the preferred clients (those who will still want to consult a professional), practitioners in sole or smaller practices will be able to afford AI technology and will be helped by the benefits of issue spotting, problem avoidance, intake efficiency and document production that the technology will offer. Along this line, an “AI lawyer” has been announced for available service by Ross Intelligence.⁷⁴
- Estate planning attorneys who do not service the high end of the market will be under the most threat because of competitive benefits with technology-based services. At this time only the biggest corporations can afford the investment for significant AI platforms. However, companies such as Salesforce and FinancialForce, Kira Systems, and more refined services such as publishers of financial forms and estate planning support will need to continue to develop AI capabilities – and specifically ones that efficiently service a broad market.
- Litigation attorneys will make more money to the extent that increased online or other technology-driven documents create problems that must be resolved after death or execution to the extent that technology-based self-generated documents create problems for the members of the public relying solely on that resource without professional oversight.

- Younger attorneys who are more adaptable to change, especially technological, may have an advantage over older attorneys who are less willing to adapt. Of course, broad generality will have its many exceptions.
- Universities providing legal, tax and accounting education will need to expose students to a broader and more practical curriculum. Wenli Wang, whose position as Moss-Adams extensively considers AI implications for that firm and as part of a consortium, believes that more people will need comfort working with software and that majors will be more cross disciplinary. In addition, she sees the firm in the not too distant future as wanting to hire more experienced practitioners rather as many entry traditional entry level positions as more job slots are filled by AI capabilities. Ms. Wang anticipates that in the long run there will be reduced hiring as a result of AI advancements.
- Some CPA firms are reported to have already reduced entry level positions in favor of contract workers and lateral hires.⁷⁵
- Consistent with the foregoing, workers whose jobs are replaced by machines may be able to keep their jobs if their education allows them to service and monitor the technology. Ms. Wang is firm in her recommendation that those entering the accounting field need to have solid grounding with technology and understand how they can best work with the systems used by the employer. She urges inter-disciplinary education in college including the subject matter of greatest career interest, technology and computer science and problem-solving skills. Without this technical expertise, the account receivable clerk, document production assistant and yes, attorneys will find their jobs at risk or at best their productivity falling when compared those of comparable education and general substantive experience.⁷⁶

- Small and medium sized law and CPA firms will be under the greatest challenge because they cannot afford to invest in AI. To combat this factor, either of two approaches may be considered: (i) hope that the online service companies (such as legal text publishers, online research and document-production services and litigation support) develop cost-efficient AI-driven technology that is useful for the firms that do not have their own AI systems or partnerships with major providers, or (ii) join forces as part of a technology association with other firms (with suitable privacy protection) to access suitable AI capabilities. As with most technologies, costs tend to reduce over time. Hopefully, that will occur over time. Meanwhile, those planning ahead should have a leg up on the goal to deliver effective service. The strides earlier reported in this article being made by the AICPA with Rutgers University to protect the broad professional market and not merely the elite firms should be replicated by state bar or the ABA to protect their members.
- Added Comment: The McKinsey report makes the following recommendation consistent with the foregoing:
- “All this points to new top-management imperatives: keep an eye on the speed and direction of automation, for starters, and then determine where, when, and how much to invest in automation. Making such determinations will require executives to build their understanding of the economics of automation, the trade-offs between augmenting versus replacing different types of activities with intelligent machines, and the implications for human skill development in their organizations. The degree to which executives embrace these priorities will influence not only the pace of change within their companies, but also to what extent those organizations sharpen or lose their competitive edge.”
- Attorneys have available services such as Interactive Legal, which uses logic trees (an application of AI) in which practitioners answer a series of questions that can

be asked to clients in plain English, which in turn, alternative planning recommendations and draft documents. The capacity of Interactive Legal77 and likely other online services for attorneys will expand with the growing capabilities of the technology. Thus, affordable AI assistance for attorneys with estate planning will likely increase. This may lead to cost savings and streamline document delivery to clients.

- Members of the public who rely upon online recourses will also lose (unless the service provides it) personal reminders that nudge the client (or patient) to act. Similarly, seeing a human professional commonly causes the patient/client to want to “look to” (i.e., to have teeth flossed, to lose some weight before going to the doctor or doing the homework to advance an estate plan). Will the loss of human connection decrease motivation? To the extent the public sees the professional as a friend and benefit merely from the connection, the professional can have an advantage against the machine. This consideration may have marketing potential for the professional.
- Practitioners should broaden their service capabilities, particularly in the areas of management, planning, and consultation in order to add value for time spent for the client. The routine elements of estate planning are more easily replaced by technology and foreign workers. In fact, paralegals will be under greater threat in the view of several commentators cited in this article in view of the more routine and AI-replaceable nature of their work.
- Attorneys become upset when accountants or others perform legal services. CPA firms, particularly in Europe but to a lesser though nevertheless significant extent in the United States, engage attorneys to assist the consultative services of those firms. Planning and analysis have always held the high ground. Professionals in one field might classify the professionals in the other as a “scrivener” or “number-cruncher”. To the extent that one

professional performs tasks that are more rote rather than creative, such as analysis or requiring higher function of understanding of what is really being said, their work becomes more easily replaced or left to mere review after the analysis and plan are developed by the other professionals and the AI platforms that assist those who remain. This relationship exists to some extent now, though the better practitioners are collaborative. To the extent that AI enhances productivity in the area of assessment and planning, the more reduced will be the significance of the other professional absent true sharing of the higher-end function. Though AI has made inroads and will continue to make advancements with planning and analysis, the creative process will be the arena in which AI is likely to enhance though not necessarily replace the professional in the foreseeable future.⁷⁸ Will the expansion of CPA firm capabilities from AI investment in these value-added services further erode the value-added services needed from the attorneys? Will the attorneys keep up with the CPAs?

- Anticipate that more tax returns (including gift tax and estate tax, if it remains) and basis reporting forms will be made subject to e-filing. At some point in time, the IRS should want equivalent efficiency for transfer tax filing on a par with income tax returns. This would also facilitate cross-information and fraud detection. Once these other forms become accessible to e-filing and in view of expanded AI capacity, this author expects more of these returns to become subject to TurboTax-type return preparation in which clients directly with AI-supported assistance prepare and file these returns. While the estate tax return may be the least susceptible due to the size of the estate, AI can drive down preparation time and filing expense.

Implications for Great Dinner Discussion and the Future

I now address two of among the myriad of potential implications for advancements in AI applicable to estate planning, taxation and legal and

accounting firms. One pertains to whether law firms and accounting firms should be allowed to merge. The other is the implication of tax revenue raising as a result of advancement in technology, particularly if reduction in jobs results in the aging population.⁷⁹

In-depth analysis of the issue of the merger of legal and accounting firms is beyond the scope of this article. Certainly there are major hurdles created by client privacy and confidentiality issue. That may be enough of a hurdle for some to conclude that the attorneys will not allow multi-disciplinary practices to arise.⁸⁰

However, the capabilities of AI do not respect boundaries. Machines and technology will do what they are trained or informed to do and venture in directions that their neural capabilities and algorithms lead. To some extent, the analysis in one discipline could overlap the working of the other. Thus, if the key to future success is the delivery of value-added benefit to the client that cannot be performed at as high a level without technological advances then why limit the ability of a given business to provide the best service it can? Perhaps the answer is merely ongoing teamwork between the accounting and legal professions.

While that sounds wonderful in the abstract, accounting firms are not being marketed as merely accounting firms. Companies that began as auditors have expanded to a vast array of advisory services that transcend traditional accounting or tax reporting. The “trusted advisor” role is cross-disciplinary.

The McKinsey report reveals that some of the tasks performed and thus some of the time spent by even the most high functioning and creative people can be performed by AI. This will free the professional or executive to better use his or her time for truly value-added purposes. I would expect that will include looking for new areas of client development and service. In that context, an AI-enhanced law firm may seek more opportunities for planning and strategic benefit to the client. This would relegate the other profession (perhaps the accountant) to a lesser role. More likely, however, the large accounting firms will expand even more the areas of work they perform while benefiting from the increased capabilities and staff efficiencies that AI imports.

Thus, for human beings to have a stronger platform for services by people, perhaps the organization base upon which services are rendered should not be restricted to the barriers imposed against a given entity performing both legal and accounting services. As matters currently stand, the largest CPA firms in Europe hire thousands of attorneys. Attorneys also hold positions in many CPA firms in the United States.

This author agrees with the assessment concluded in an article published by Wharton University that the likely reason for the opposition to cross-disciplinary practices is the concern that the accounting firms will control the field. Accounting practices hold the strategic benefit of being ranked highest by business owners as the “trusted advisor” among all professionals.⁸¹ Moreover, wealthy clients are forced to work with accountants to fulfill certain regular needs, including some tax returns, perhaps with audits and other financial reviews. Whether mega-multi-disciplinary firms are socially desirable is another issue. The advances in technology will, however, drive businesses and the way we work in new directions. Increasing the service capability of humans makes real people less “replaceable” and more productive.

Future of Tax Revenues

The aging population in the United States and assumption of work by existing technologies and their advancement will reduce the number of people working and, therefore the capacity of the working population to pay income taxes and employment taxes from labor. The McKinsey report includes the following points relevant to the foregoing summary statement:

- Half of current work activities could be automated by 2055 (plus or minus 20 years in either direction) depending on various factors, in addition to other economic conditions.
- Declining birthrates and the aging population, “mean that peak employment will occur in most countries within 50 years.”

- Approximately “half of the sources of economic growth from the past half century (employment growth) will evaporate as populations age.”⁸²

These job loss estimates dwarf losses in the manufacturing sector experienced in the past 40 years. From both aging and technological advances employment is projected to decline. From where will the revenues to sustain government be derived?

In the course of a discussion in November this author had with the CEOs of among the largest corporations in the Sacramento Valley, California, I asked the group what the future of taxation may bring. If labor declines in significance (whether from jobs outsourced, reduction of income or loss of jobs net from technology), then will not income taxes for labor and employment taxes also decline as a revenue base?

I do not pretend to predict the amount of revenue loss or when it will occur. To believe that it will not occur, or scapegoat the blame to others misses the point. Technology changes revenue sources. Consider what the electric car has done to gasoline taxes. Highway construction and maintenance is supported primarily by petrochemical tax revenues (i.e., the fuel at the pump). However, the revenue base has declined with the growth of hybrid and electrical cars. As for me, I get over 116 miles per gallon of gas with my Ford Fusion (plug in hybrid).

Yet, fuel-efficient automobile drivers (including your author) are not paying our fair share to maintain the roads. Either the tax laws need to catch up with technological advances or the fisc⁸³ will deplete reliance on a reduced revenue base.

The same will be the case with labor-related tax revenues. From where will the replacement of revenues arise? Will robots be taxed? Will higher sales taxes and property taxes be imposed on technology? Should capital gain taxes be increased on certain assets? Of course, anyone who has to pay more taxes and the companies that develop the technologies society wants will scream bloody murder if taxes are increased. Will all problems be solved by a hoped-for revenue shift? Those who resist all tax raises but do not want to see any reduction in their benefits may want a virgin sacrificed on some altar if only that

would do the trick.⁸⁴ These concerns and implications are non-partisan since real problems and changes in society will need to be addressed.

One of the executives at the Sacramento event declared to the group that the discussion changed his view of the future. He sees AI as growing and that society will need to adapt. So, too, he recognized that taxation laws will need to change. I am not saying the change will be immediate. However, adaptation will arise and needs to arrive with time.

Will the elected representatives look beyond any given two-year cycle and develop changes in taxation laws that address changes in technology and our aging population?

Conclusion

*Technology that exists when we are born is natural.
Technology that is invented when we are 30 is progress.
Technology that is invented when we are 60 is against the laws of
nature⁸⁵*

The extent to which advances in technology, in general, or AI will create job displacement or create new opportunities, or both, in the professional and legal communities overall and for those within the estate planning community can be debated. None of the academic and professional consulting services consider the implication and future to resemble the status quo. Will you and your practice be ready for that change?

When I walk in the bank and see the teller, I am often asked why I do not use the ATM. I say, "It is because I want you to have a job." Now at the airport, automatic check-in booths speed the process and reduce staffing needs. Airplanes fly mostly on automatic pilot with pilots actually flying about 7-10 minutes a flight.⁸⁶ (Of course those minutes are crucial, as evident by *Sully*.)⁸⁷

It is the hope of this author that this article will stimulate discussion and encourage you and your business to plan for students to demand curriculum that enables them to enter the profession with a higher level of proficiency, that you reflect on the value you truly bring to clients and what work you do that can be done by AI to enable you to be more

productive, and consider the implications of the advancement in technology, in particular AI and machines that can learn.

HOPE THIS HELPS YOU HELP OTHERS MAKE A *POSITIVE* DIFFERENCE!

Keith Schiller

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The author also extends his appreciation to the many people who gave of their time to help the author better understand the functions, operations and capabilities of AI, its implications, guided the author to resources to review and/or shared their thoughts regarding the implications to AI to professional practices generally and/or attorneys, accountants and financial planning, in particular. Jason Freidenfelds, Senior Communications Manager, Google; Richard Susskind, OBE, Esq. (more fully introduced in the article who kindly shared his thoughts during lunch with my wife, Michelle Stone and me); Michelle Stone (who assisted with this article and made many helpful and nuanced modifications); Wenli Wang, CPA (more fully introduced in the article); Kris McMasters (more fully introduced in the article); Kevin Roberts, Director of Platform Technology with FinancialForce;

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²*2001: A Space Odyssey*. Metro-Goldwyn-Mayer (MGM), Stanley Kubrick Productions ©1968. All rights reserved. Directed by Stanley Kubrick who was also the co-author with Arthur C. Clarke of the partially adapted screenplay.

³The letters of HAL, the computer, are each one away from the letters “I.B.M.” The author is not the originator of that observation. HAL is short reference to “**H**euristically programed **A**lgorithmic.”

⁴First, a big shout out to Michelle Stone of the Schiller Law Group for suggesting this reference and text. *Hidden Figures* © Levantine Films, Chernin Entertainment, Fox 2000 Pictures. All rights reserved. The film has been nominated for best picture at the Academy Awards.

⁵A qualified client is one who both needs and can pay for professional services within the competency of the professional service provider.

⁶This issue is a central theme of the book by Richard Susskind and Daniel Susskind, *The Future of the Professions-How Technology Will Transform the Work of Human Experts*, Oxford University Press, 2015; and, Richard Susskind’s book *The End of Lawyers?: Rethinking the Nature of Legal Services*, Oxford University Press, 2008.

⁷The largest CPA firms have closed the gap already by hiring attorneys to perform tax related work and consult in a wide range of matters pertaining to litigation support, mergers and acquisitions,

estate planning and among other services. See, Linda Galler, *When Lawyers Work at CPA Firms*, *New York Ethics Reporter*, [Originally published in NYPRR February 1999].

⁸With thanks to the late Paul Harvey.

⁹Professor Turing's exploits, and tragic life end, were presented in the acclaimed film, *The Imitation Game*.

¹⁰Timeline of Computer History, <http://www.computerhistory.org/timeline/1949>.

¹¹Kasparov won the initial match, 4-2, played in 1996, but lost the next year 3.5 to 2.5. From Wikipedia and see Daniel King, *"Kasparov v. Deeper Blue: The Ultimate Man v. Machine Challenge"*. Batsford. ISBN 0-7134-8322-9. (1997)

¹²Jon Russell, 3/15/16, *Google AI Beats Go World Champion Again to Complete Historic 4-1 Series Victory*, <https://techcrunch.com/2016/03/15/google-ai-beats-go-world-champion-again-to-complete-historic-4-1-series-victory>;

¹³ <https://gogameguru.com/what-is-go/>.

¹⁴The article went on to state: "The victory is notable in its own right. But this week's events are even more significant when you consider that the machine learning technologies underpinning Google's machine, known as AlphaGo, are pushing their way into real-world applications. Some help drive services inside Google and other Internet giants, helping to identify faces in photos, recognize commands spoken into smartphones, and so much more. Other techniques at the heart of Google's AI are poised to remake everything from scientific research to robotics."

¹⁵<http://searchcio.techtarget.com/definition/AI>. The foregoing source adds the following sentence not quoted above, "Particular applications of AI include expert systems, speech recognition and machine vision." The Meridian-Webster online dictionary defines artificial intelligence as a "branch of computer science dealing with the simulation of intelligent behavior in computers" or "the capability of a machine to imitate intelligent human behavior."

¹⁶Richard Susskind and Daniel Susskind, *The Future of the Professions-How Technology Will Transform the Work of Human Experts*, Oxford University Press, 2015.

¹⁷A virtual quote from *Susskind Future*, p. 69. to which they cite Grossman and Cormack, *Technology-Assisted Review and e-Discovery Can Be More Effective and More Efficient Than Exhaustive Manual Review*, *Richmond Journal of Law and Technology*, 17:3 (2001), pp. 1-48.

¹⁸*Susskind Future*, p. 70, citing references at footnote 161. The eBay website provides additional information. In the European Union seller have an obligation to refer customers to the ODR platform.

¹⁹*Ibid*, p. 69.

²⁰<http://www.oxfordmartin.ox.ac.uk/publications/view/1314>. September 13, 2013. The author thanks Wenli Wang, the Partner in Charge of the San Francisco and Walnut Creek, California offices of Moss-Adams, LLP for her suggestion of and reference to this article.

²¹The *Frey Report* evaluates 702 occupational classes of employment within the United States. The study uses the United States Bureau of Labor Statistics (BLS) categories of occupation in its analysis. The BLS system includes Accountants and Auditors (herein called “A & A”) in the same category. There is also a separate category for bookkeeping, accounting and auditing (herein called “BAA”).

²²*Harnessing Automation for a Future that Works*. <http://www.mckinsey.com/global-themes/digital-disruption/harnessing-automation-for-a-future-that-works>. The McKinsey report analyzes a variety of different general areas of work and the time spent on average to perform different tasks (from predictable physical work and data extraction, on the one end, to applied expertise and management, on the other end).

²³Steven Lohr, *Robots Will Take Jobs, but Not as Fast as Some Fear*, *New Report Says*, *New York Times*, January 12, 2017. <https://www.nytimes.com/2017/01/12/technology/robots-will-take-jobs-but-not-as-fast-as-some-fear-new-report-says.html?smid=tw->

[share& r=0](#). The report is authored by James Manyika, Michael Chui, Mehdi Miremadi, Jacques Bughin, Katy George, Paul Willmott, and Martin Dewhurst. Mr. Manyika served was appointed by President Obama to serve as vice chair of the President's Global Development Council at the White House (2012-2017).

²⁴The report defines “currently demonstrated technologies” as ones that have already exhibited the level of performance and reliability needed to automate one or more of the 18 capabilities required for carrying out work activities. In some cases, that performance has been demonstrated in a commercially available product and in others as part of a research project. This endnote is a direct quote from the report.

²⁵*Susskind Future* notes a poignant example of job replacement at the University of California San Francisco Medical Center where one robot fills prescriptions, having filled over 2 million orders reportedly without error. (See, *Susskind Future*, p.49.) In contrast, human pharmacists are cited to make errors about 1 percent of the time. (Ibid at page 49. Citing Christopher Steiner, *Automate This*, (New York, Portfolio Penguin, 2012). A recent edition of *60 Minutes* reports that IBM's Watson has advanced from breaking the egos of the brilliant to reading all of the medical journals and providing medical diagnoses and recommendations to the medical profession. Doctors at the University of North Carolina use Watson as a consulting tool in diagnosing cancer. In some instances, the leading physician interviewed for that program noted that the computer has done a better job than the medical experts.

²⁶This conference is held each year in October in San Diego. For additional information call 1-800-332-3755, <https://www.clenet.com>.

²⁷See, www.susskind.com.

²⁸The first occasion was as a freshman in a philosophy class in which distinction was drawn between situations and problems and the application of these distinctions to justice and problem solving. This altered how I have analyzed issues for the remainder of my life. The next occasion was at a CalCPA Education Foundation conference session in 2003 when the IRS statistics on federal estate tax filings

were discussed. It changed my practice to thereafter expand and focus on business succession planning as the primary growth area. As you might guess, the presentation by Professor Susskind was the third time.

²⁹Since then, the author was informed by Michael L. Graham, Esq., who is working on Watson applications with a variety of elder law and financial assistance recourses for the growing baby boomers, informed the author that IBM has rearranged interface with Watson into different segments to increase access and eventually reduce cost for its service. Mr. Graham will be introduced later in this article.

³⁰Moore's Law Definition | Investopedia
<http://www.investopedia.com/terms/m/mooreslaw.asp#ixzz4W9wEJbmc>; See, Tom Simonite, *Moore's Law: Is it Dead. Now What?* MIT Technology Review, May 13, 2016. Although the rate of growth with traditional computer chips may be slowing, Mr. Simonite references the massive investments that are being made with AI enhanced chip capabilities to continue the growth, if not at the same rate, in computing capacity.

³¹Professor Steven Hawking³¹ made the following assessment in December, 2014 in an interview on the BBC:

"It (referring to AI) would take off on its own, and re-design itself at an ever increasing rate. Humans, who are limited by slow biological evolution, couldn't compete, and would be superseded."

(Source and comment: Stephen William Hawking, CH, CBE, FRS, FRSA is an English theoretical physicist, cosmologist, author and Director of Research at the Centre for Theoretical Cosmology within the University of Cambridge. He was the subject of the major motion picture, *The Theory of Everything*, and whose portrayal by Eddie Redmayne garnered the Academy Award for Best Actor (2014 film).)

As reported by BBC News, even the more optimistic predictions are merely eerily hopeful, when Rollo Carpenter, creator of Cleverbot, is quoted in juxtaposition to Professor Hawking:

"I believe we will remain in charge of the technology for a decently long time and the potential of it to solve many of the world problems will be realized."

(Source: Rory Cellan-Jones, Technology correspondent, BBC News, December 2, 2016, article entitled Stephen Hawking Warns Artificial Intelligence Could End Mankind.

<http://www.bbc.com/news/technology-30290540>.)

³²Kira Systems. <https://kirasystems.com>.

³³Interview by the author on background of a marketing executive with Kira Systems. As a separate reference, according to an article by Ben Kepes, *Business Software in the App Age*, Computer World, March 16, 2016, "Deloitte has a reported 3,000 active users of Kira, and has trained the platform to identify thousands of different data points. Kira has, apparently, been used on over 100,000 documents."

<http://www.computerworld.com/article/3042536/big-data/big-four-accounting-firms-delve-into-artificial-intelligence.html>

Waisberg reported in March, 2016, that recent innovations are graduating machine learning to new levels of accomplishment. In announcing an alliance between Deloitte and Kira Systems, Waisberg states,

"Artificial intelligence" has arrived to a point where machines can scale human expertise by extracting information from complex documents. It accurately identifies information by learning from examples versus just reflexively identifying pre-programmed clauses." (From the March 8, 2016 press release of Deloitte announcing an alliance with Kira Systems to bring to enhance Deloitte's capacity to review contracts and other documents while "freeing" employees from these tedious tasks.)

³⁴This can free the human workers to perform higher levels of service, assuming they are sufficiently trained, experienced, and capable.

³⁵In one of the more personal and applicative examples of its benefits cited by Mr. Freidenfelds is the case of a cucumber farmer in Japan who wanted to relieve his aging mother of the work of sorting cucumbers by hand. TensorFlow™ trained an automatic cucumber

sorter to relieve her of that burden while getting the product to market. According to Google, TensorFlow™ is an open source software library for numerical computation using data flow graphs. Nodes in the graph represent mathematical operations, while the graph edges represent the multidimensional data arrays (tensors) communicated between them. TensorFlow was originally developed for the purposes of conducting machine learning and deep neural networks research, but the system is reportedly general enough to be applicable in a wide variety of other domains as well.

³⁶Google plans to train one million Europeans to help close that gap. Google also cites its support of entrepreneurial enhancement and financial support for a range of start-up companies and campuses around the world to connect and build companies that will create jobs and, yes, change the world.

³⁷This is a central thesis of *Suskind Future* in which he questions whether the so-called “grand bargain” between local laws and the granting of professional exclusivity for designated arena for advice and service will continue in the long term when advice and problem solving become more readily available than now to the general public without the necessity of paying high fees for attorneys, accountants and other licensed professionals.

³⁸The *Frey Report* states that oncologists at Memorial Sloan-Kettering Cancer Center are using IBM’s Watson to provide chronic care and cancer treatment diagnoses having gleaned knowledge from 600,000 medical evidence reports, 1.5 million patient records and clinical trials, and two million pages of text from medical journals.

³⁹Ibid. p. 17.

⁴⁰Interviews not for attribution.

⁴¹*Susking Future*, p. 290 among others.

⁴²**Food for Thought:** If credit reports were capable in the last decade of being submitted in mass to AI-based platforms for analysis, would the failure to detect over-rated housing loans have been caught and prevented from bundled packaging? Or would the system have been programmed to ignore deficiencies? Or would the investment bankers

have been aware of the deficiencies and chosen to disregard them anyway to proceed with the high-commission sales?

⁴³Press release, March 8, 2016 by KPMG. <https://www-03.ibm.com/press/us/en/pressrelease/49274.wss#feeds>

⁴⁴Interview with Kris McMasters, *supra*.

⁴⁵The world's largest accounting firms are investing hundreds of millions of dollars to improve audits, save costs, harness "bid data" and utilize the enhancements to expand business and applications to a variety of client needs.

⁴⁶Wenli Wang, the Partner in Charge of the San Francisco and Walnut Creek, California offices of Moss-Adams, LLP, observes that technology has reduced clerical needs since paperwork has been reduced through electronic copies and clients receiving and sending information through the client's portal with the firm. Employees who performed paper-driven clerical tasks either adapted to new assignments or "moved on."

⁴⁷The following statement is also included in the foregoing article in *The Economist*, "Automation is now 'blind to the colour of your collar', declares Jerry Kaplan, another Stanford academic and author of 'Humans Need Not Apply', a book that predicts upheaval in the labour market."

⁴⁸As a consultant, Ms. McMasters advises accounting firms and other organizations on a variety of strategic issues, including trends and transformational events arising from technology.

⁴⁹Data extraction, robotics, and AI technology Ms. McMasters predicts will replace processes currently performed manually or using very basic computerized tools. Professional service opportunities will increasingly focus on higher level services involving more critical thinking, analysis, and interpretation.

⁵⁰See, Bank of America, Merrill Lynch, *Global Semiconductors- Deep Learning and the processor chips fueling the AI revolution- a primer*, October 2, 2016 in which a ten fold increase in the addressable market for accelerator chips is expected to grow ten times from \$1

billion to \$10 billion between 2015 and 2020. This growth is only part of the rapid expansion in AI development across the economic front. According to a report from the European Commission, the global market for AI is set to grow from €700 million in 2013 to €27 billion by the end of 2015. (See, Bhumi Jariwala, Editor, IFAC Global Knowledge Gateway | June 1, 2015 | <https://www.ifac.org/global-knowledge-gateway/finance-leadership-development/discussion/exploring-artificial-intelligence>.)

⁵¹Beijia, Ma, *Thematic Investing-Robot Revolution-Global Robot & AI Primer*, 11/3/2015, https://research1.ml.com/C?q=wN7r!oPAWMaihCX8keuzGg&e=joseph_castagnola%40ml.com&h=9D-2EQ.

⁵²McMasters enjoys extensive management experience with a top-ten sized CPA firm and works with international accounting firm management

⁵³See, Paul Lippe and Daniel Martin Katz, *10 Predictions about How IBM's Watson Will Impact the Legal Profession*, posted October 2, 2014, American Bar Association Journal, in which they cite a study in which AI-driven applications could predict 70 percent of the Supreme Court's ultimate decision.

⁵⁴The McKinsey report makes the following assessment that is hopeful for those professionals whose jobs require creativity and the ability to sense emotions that are noted as "core to the human experience" and therefore difficult to automate:

"The amount of time that workers spend on activities requiring these capabilities, though, appears to be surprisingly low. Just 4 percent of the work activities across the US economy require creativity at a median human level of performance. Similarly, only 29 percent of work activities require a median human level of performance in sensing emotion."

⁵⁵*Susskind Future*, p. 89.

⁵⁶See, www.stephencovey.com.

⁵⁷That course and concurrent reading created my first Eureka moment referenced in this article.

⁵⁸*Can Computers Negotiate? Win-Win Negotiations In A Virtual World*, Forbes, November 13, 2013. INSEAD is a graduate business school with campuses in Europe, Asia, and the Middle East. It offers a full-time MBA program, among others, with its principal office in France.

⁵⁹*Suskind Future*, pp. 195-202

⁶⁰InterActive Legal is the creation of Michael L. Graham and his partner, Jonathan Blattmachr.

⁶¹*Suskind Future* anticipates major changes in the relationship of the public with professionals and a reduction of the prerogatives and exclusivity of advice that professionals enjoy within their licensed disciplines. That this aspect of the Suskind analysis is beyond the scope of this article, it is not difficult to imagine a time when computers will be able to make recommendations in fairly complex situations to which members of the public may seek merely the input of a legal assistant rather than an attorney to check a limited scope of questions. An attorney would be needed for a lot less. None of this is immediate. However, all resources I have read for this article anticipate computers advancing further into the capability of human decision making abilities even if not reasoned in the same manner.

⁶²*Suskind Future*, p. 160.

⁶³See more at: <http://aibusiness.org/ernst-youngs-robert-zampetti-ai-is-a-paradigm-shift-not-a-bolt-on/#sthash.eM0yliee.dpuf>. Mr. Zampetti also states:

“At EY we actually think that the promise of AI created by human beings will have the kind of impact that will require us to rethink how we work entirely, because it is a disruptive technology and by its very nature will disrupt and change the way we go about business.

But we can only really talk about it right now by way of example – it hasn't crystallised into a new total algorithm for working. What we have is different aspects—neural networks, pattern recognition, etc – and each of these things is descriptive of a different way of thinking and doing, but it hasn't matured yet into something with a common underlying essence; we are still in that disruptive period. You have companies that get on board with it, and they have a lot of false starts, but they keep going because they recognise the step change, and you'll have companies that don't – they'll see AI features as add-ons, whereas those who succeed will see it as a fundamental change in the way that they operate.”

⁶⁴See, Debra C. Weiss, *Artificial intelligence in the legal profession should be regulated*, Op-ed in the ABA Journal, June 16, 2016, http://www.abajournal.com/news/article/artificial_intelligence_in_the_legal_profession_should_be_regulated_op_ed_a.

⁶⁵Thus, users could be encouraged to consult with an attorney. Whether the consumer chooses to do that or not is another matter. An array of legal forms currently available (certain kinds of deeds, pre-printed real estate contract forms, powers of attorney, etc.) that are currently signed by the public include warnings to consult an attorney.

⁶⁶Mr. Graham reports that InterActive Legal is used by thousands of lawyers every year. www.interactivelegal.com. Tel: 321-252-0100.

⁶⁷Technology may give rise to litigation in other settings. For example, virtual reality devices enable groups of people to experience meeting together or traveling around the world in the comfort of the office or other location. For most people and with the better systems, the experience is effective, thrilling and eye opening. However, Brittany M. Doyle, former Editor of the Harvard Law School Journal of Law and Technology, reports that some users have experienced dizziness, fall or have had other medical events. To the extent injuries or damage occurs, lawsuits will arise and the litigators will benefit from the mishaps. Attorneys consulting with businesses using artificial intelligence will need to develop agreements, new forms and

lobby legislatures and regulators to achieve desired ends. The McKinsey report also notes that regulatory, social, and tort litigation barriers will slow progress.

⁶⁸Observation suggested by comment to author by an anonymous professor.

⁶⁹Cathy Hill, *Don't Buy Legal Documents Online Without Reading This Story*, Market Watch, November 27, 2015, citing IBIS study. <http://www.marketwatch.com/story/dont-buy-legal-documents-online-without-reading-this-story-2015-11-23>.

⁷⁰The increase of the estate tax exemption allowance from \$60,000 in 1976 to \$5,490,000 at the onset of 2017 has reduced estate tax filings from 7.5% (750 in 10,000) in 1995 of all deaths to about 0.2% (20 in 10,000) of all deaths in 2015.

⁷¹ *Sleeper*. ©1973 Jack Rollins and Charles H. Joffe Productions MCMLXXIII (on print); Jack Rollins and Charles H. Joffe Productions (in copyright registry). All rights reserved.

⁷²Hartog, Baer & Hand, PLC, Orinda, Ca. Interview by author.

⁷³*Susskind-Future*, pp.244 and 259-262.

⁷⁴See, <https://re-work.co/blog/the-worlds-first-artificially-intelligent-lawyer> and <http://www.rossintelligence.com/>. The author merely references the announcement and link to this service.

⁷⁵This statement is not attributable to Ms. Wang, who reports that the facts reported are not the situation at Moss Adams.

⁷⁶The author thanks Lauren Leonard (who currently works as a Solutions Engineer with FinancialForce and who was formerly the Office Manager for the Schiller Law Group, a PLC and the General Manager of Innovative Estate Planning Productions, Inc., the first publisher of *Art of the Estate Tax Return* for her many helpful comments to this article including special reference to this point. In addition, the points regarding education recommended by Wenli Wang are near to her, not only as a Partner in Charge with Moss

Adams but as a parent whose daughter will enter college in 2017 and who is in the process of making important educational choices.

⁷⁷www.interactivelegal.com. Tel:321-252-0100.

⁷⁸See *Frey Report* and *Suskind Future*.

⁷⁹I added the reference to aging population after reading the McKinsey report discussed in this article.

⁸⁰In 2000, the House of Delegates of the American Bar Association voted 314 to 106 against the establishment or formation of multi-disciplinary practices (MDPs). Source: Knowledge at Wharton (Wharton University of Pennsylvania), *Should Law and Accounting Firms Be Allowed to Merge?*, July 19, 2000.

<http://knowledge.wharton.upenn.edu/article/should-law-and-accounting-firms-be-allowed-to-merge>.

⁸¹*American Family Business Survey, 2007*, conducted by MassMutual and others. <https://www.massmutual.com/mmfg/pdf/afbs.pdf>

⁸²From the McKinsey Report, executive summary.

⁸³ Fisc refers to “a state or royal treasury.” Meridian-Webster dictionary online, *supra*.

⁸⁴ Reference to virgin sacrifice is not meant to be glib. Rather, in pagan times virgins were sacrificed in the hope for better weather for the crops and a healthier economy. Virgin sacrifice in modern times is more subtle. It involves the trade-off between the desire for economic growth for the many with sacrifices for the fewer (or even the many) in the form of allowances for environmental damage (dirtier air, ground-soil contamination and polluted soil) in the hope for better economics.

⁸⁵Provided by John Hartog, Esq., Hartog, Baer and Hand, PLC, Orinda, CA.

⁸⁶McKinsey report, *supra*.

⁸⁷*Sully*. Flashlight Films, Kennedy/Marshall Company, Malpas Productions © 2016. All rights reserved.