

EVOLUTION OF CORPORATE GOVERNANCE TOWARDS INTRINSIC VALUE

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Abstract

How to cite this paper: Grove, H., & Lockhart, J. (2019). Evolution of corporate governance towards intrinsic value. *Corporate Law & Governance Review*, 1(1), 8-15. <http://doi.org/10.22495/clgrv1i1p1>

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ISSN Online: 2664-1542

Received: 24.01.2019

Accepted: 20.03.2019

JEL Classification: G30

DOI: 10.22495/clgrv1i1p1

The major research question addressed by this paper is how to evolve corporate governance beyond its traditional shareholder focus towards the broader perspective of a stakeholder focus with intrinsic value. Intrinsic value refers to the monetary value of a company, stock, currency, or product determined by fundamental analysis, without reference to extant market value. It is ordinarily calculated by summing the discounted future income generated by the company, stock, currency or product to obtain its present value. In this paper we observe the evolution of corporate governance towards an intrinsic, long-term value focus by the boards of directors, corporate executives, owners and shareholders, regulators and legislators, and other stakeholders. These major players are encouraged to develop more wisdom in order to assess the emerging threats, challenges, and opportunities from technology for intrinsic value, especially with the perspective of the public corporation as a separate legal personhood, as advocated by the European Parliament's Committee on Legal Affairs in 2015. The rapid increase in the development of artificial intelligence (AI) and other technologies has tremendous significance for these major players broadly contributing to effective corporate governance. To facilitate the development and evolution of intrinsic value for public corporations and other entities, these major players need wisdom for more effective corporate governance in challenging times. Accordingly, this paper discusses the evolution of corporate governance and board members' perspectives from a shareholder focus to a stakeholder focus with intrinsic value; the key success factor being wisdom for boards; the three-dimensional wisdom scale; and, the AI challenge, including the "Deadly Soul" of a new machine, to the wisdom of company executives and their boards of directors.

Keywords: Corporate Governance, Intrinsic Value, Wisdom

1. INTRODUCTION

Intrinsic value refers to the value of a company, stock, currency, or product as determined through fundamental analysis without reference to its market value. It is ordinarily calculated by summing the discounted future income generated by that company, stock, currency, or product to obtain its present value. For example, Warren Buffett, chief executive officer (CEO) of Berkshire Hathaway is well known for his ability to calculate the intrinsic value of a business and then buy that business when its market price or value, not its accounting book value, is at a discount to its intrinsic value (Wikipedia, 2018).

Larry Fink is the founder, chairman, and CEO of BlackRock, the world's largest asset-management

company with \$6.3 trillion under management and offices in 30 countries and clients in over 100 countries. In January, 2018 he sent a letter to all CEOs of publicly listed companies around the world urging them to start accounting for the societal impact of their companies and to focus upon economic growth that is sustainable and inclusive for the majority of people (Fink, 2018). Thus, there should be an expanded social and sustainable focus for the long-term intrinsic value of corporations with implications for the evolution of corporate governance towards that end.

The tremendous surge in AI and other emerging technologies is anticipated to have huge impact on the evolution of corporate governance and the development of wisdom for company executives and board members to enhance the

intrinsic value of their corporations. While agency theory has been the dominant perspective of corporate governance to date, the question of corporate purpose has been explained by one of two largely opposing theories. The first theory of purpose is that corporations have a sole responsibility to maximize shareholder value; while the second theory of purpose is that corporations have a responsibility to balance the interests of all stakeholders. Because these theories are understood as being mutually exclusive, the central focus of corporate governance, organizational purpose, has become increasingly opaque.

In 2015, a third alternative to corporate purpose was proposed by the European Parliament's Committee on Legal Affairs responding to the view that, "shareholders do not own corporations. Contrary to the popular understanding, public companies have legal personhood and are not owned by their investors. The position of shareholders is similar to that of bondholders, creditors, and employees, all of whom have contractual relationships with companies but do not own them" (Tunjic, 2017). Thus, this third alternative is not based upon corporations revolving around the interests of either shareholders or stakeholders, but, conversely, where shareholders and stakeholders move around the corporation which has interests in various capital, specifically human, intellectual, environmental, social, production, and financial. The corporation must then store and convert each of these sources of capital to maintain and enhance itself and focus on long-term intrinsic value creation, not short-term financial engineering to meet the numbers for executive compensation (Nocera, 2017). Theoretically, this cycle of capital creation continues into perpetuity, provided the corporate executives and directors demonstrate wisdom by not exploiting the very sources of capital, such as share buy backs or dividends, but instead by making effective capital expenditure and investment, especially in artificial intelligence technology; and, neither doing something remarkably stupid or detrimental to the firm's long term success, like ignoring such technology threats and opportunities (Tunjic, 2017).

In 2017, a broader perspective for both corporations and corporate governance was elaborated in a new book, *Stop the rot*, by Bob Garratt a company director, consultant, and academic whose career has focused on corporate governance improvement, board and director evaluation and performance, organizational learning and change, and strategic thinking. He stated that the major purpose of corporate governance is to drive an organization forward, namely, creating intrinsic value while maintaining prudent control. Consequently, he has argued that five major players are needed for effective corporate governance and national leadership: boards of directors, owners, regulators, and legislators, all reviewed by a fifth player, a national public oversight mechanism. He further argued that effective corporate governance has been clearly spelled out in the U.K. Companies Act 2006 through seven general duties of directors:

1. To act within their powers (the company constitution).
2. To promote the success of the company.
3. To exercise independent judgment.

4. To exercise reasonable care, skill, and diligence.

5. To avoid conflicts of interest.

6. To not accept benefits from third parties, and.

7. To declare interests in proposed transactions or arrangements.

These seven general duties of directors can be used by both company executives and boards of directors to guide the monitoring and development of the corporation's intrinsic value as a separate personhood as per the EU Parliament proposal. But such monitoring and development necessitates an evolution of corporate governance, especially the nurturing and expansion of wisdom for company executives and directors to meet the intrinsic value challenges. Accordingly, this paper is divided into the following key topics: the evolution of directors' perspectives towards intrinsic value, the key success factor for boards is wisdom, the three-dimensional wisdom scale, the AI challenge, including the "Deadly Soul" of a new machine, to the wisdom of executives and boards, and conclusions.

2. EVOLUTION OF DIRECTORS' PERSPECTIVES TOWARDS INTRINSIC VALUE

In his 2018 Letter to Shareholders, Mark Leonard, Constellation Software founder and CEO, focused on the role that boards play in the success of a company and the importance of a culture where employees are encouraged to realize their full potential. He argued that a board's real mission is to build long-term intrinsic value. One analyst observed that Leonard's sentiment acknowledged the source of value that corporations play in our society at large (Cunningham, 2018). Leonard (2018) also noted that it usually takes several years for a new board member to learn enough about a company to add real value as a director, offering directors a model for engagement to add value over long periods. His model sets out to instill a culture of ownership through senior managers and directors holding substantial equity in this publicly listed Canadian company. Long-term oriented Incentive programs rewarding profitability and growth, as well as director fees, must be invested substantially in Constellation common stock and held in escrow for an average of four years. Warren Buffett has a similar approach, using minimal director cash or bonus compensation but requiring director ownership in Berkshire Hathaway stock to develop this same culture of ownership.

Both companies have a corporate-wide commitment to near perpetual ownership of their acquired businesses resulting in a long time horizon for the creation of intrinsic value. Neither business is overwhelmed by short-term performance pressures, especially the quarterly financial metrics demanded by Wall Street. For example, both Constellation Software and Berkshire Hathaway, as well as JPMorgan Chase and Unilever, no longer provide quarterly or short-term guidance to financial analysts typically focused on whether quarterly targets/numbers are met. These companies argue that such guidance can stunt long-term investments. Constellation cancelled their quarterly earnings conference calls in 2018. Instead, investors (and

analysts) now have to go to its website and submit questions online (Marotta, 2018).

In the last five years both companies achieved significant increases in their respective stock price and market capitalization. Constellation's stock price increased 3.9 times from \$182 to \$704 with a market cap increase of \$11.1 billion to reach its current market cap of \$14.8 billion. Constellation Software has been the top performing stock on the Toronto Stock Exchange over the last eight years with a 25-fold gain (Marotta, 2018). Berkshire Hathaway's Class A stock price has increased 1.8 times from \$175,000 to \$315,000 with a market cap increase of \$228.9 billion to reach its current market capitalization of \$514.3 billion. This makes it one of the most highly valued companies in the world, and one less susceptible to the vagaries of quarterly market valuations, such as Apple.

In his 2018 Letter to Shareholders, Leonard reflected on the difficulty of recruiting outstanding directors able to go beyond the expectations of conventional corporate governance to add intrinsic value by mentoring a deep bench of managerial talent within the firm. For non-management directors, developing that valuable ability requires years of service, warranting long director tenures in contrast to emerging corporate governance guidance which advocates term limits for directors. Leonard drew parallels between the best directors and the best managers in an effort to explain managerial structures and goals at Constellation. He commented that qualified and competent directors are very rare, and not surprisingly, the track record of most boards is simply awful. Leonard cited a 2017 study of about 26,000 stocks since 1926 in the Center for Research Security Prices (CRSP) database that found only 4% of these stocks generated all of the stock market's returns in excess of one-month T-Bills during the last 90 years (Bessembinder, 2018). Therefore, only 4% of publicly listed company boards oversaw all the long-term wealth creation by markets during that period and, even more disturbing, the collective boards of over 50% of these 26,000 same companies saw their businesses generate negative returns during their entire existence as public companies.

To date, the rudimentary solutions for fixing the board problem have been advocated as director independence, diversity, and term limits, all of which have a degree of inherent appeal. However, for the 4% of genuinely high performing companies, Leonard stated that improving various dimensions of corporate governance is necessary but not sufficient. Helping extend the track record of these companies in building long-term intrinsic value is the board's primary function. Buffett too has given similar advice, saying his primary investment decision criteria is the intrinsic value of a company. Leonard said that building intrinsic value cannot be achieved by replacing proven directors of high performance companies with new ones who are statistically unlikely - highly unlikely - to have ever experienced anything like consistent high performance. He argued that directors need to intently study an industry and company over a period of many years to acquire sufficient relevant expertise in order to contribute more than basic corporate governance, like firing a CEO who has been involved in fraudulent financial reporting.

Leonard referred to this increased skill level as the coaching or mentoring role of a director and said his outside directors spend about 30 hours in board meetings each year and double that for preparation time. Engaged directors serving on committees, special projects, and extracurricular company activities could well provide up to 200 hours (or more) a year in person, and as much again in preparation, analysis, examination and review.

Leonard (2018) also observed that most directors are simply too old to make the transition from a monitoring/governing role to a coaching/nurturing role in a high performance company. Thus, the default role for most directors is being a relatively passive governor, not an engaged company mentor. Leonard concluded that if directors are not from the industry or the company, then they have no hope of coaching or mentoring unless they start in the director job when they are young. He said that Constellation Software likes to get directors in their 40s or 50s and keep them for 30 to 40 years or until their health deteriorates. Buffett, the chairman and CEO of Berkshire Hathaway is 88 years old, and has a similar attitude: the increased value of contributions to be had with age. His vice-chairman, Charlie Munger, is 94 years old. Leonard said that Constellation Software does not want to terminate its directors after they've served ten years, as many boards with director term limits do. In all probability such companies are part of the 96% group of underperforming companies in the last 90 years.

Constellation's objective is to be a great perpetual owner who cares about the long-term health of its many consolidated businesses in vertical market software, similar to Warren Buffett's well-known investment advice for a holding period being forever. Both companies focus on the development of high-quality managers for their many company investments. Leonard commented that both Constellation's top-level company executives and its board do have a fundamental (compliance) corporate governance role but if this role is consuming most of their time, it is a sad reflection on their competence. His expectation is that both executives and directors spend much of their time in coaching/nurturing roles, bringing along managers and their teams, and making sure there is a strong bench of talent in order to develop long-term intrinsic value.

3. THE KEY SUCCESS FACTOR FOR BOARDS IS WISDOM

How can Constellation Software, Berkshire Hathaway or any other company determine the performance of its long-serving directors of boards? To say nothing of the corporate governance research community. An assessment of director wisdom may be the key. Lockhart (2018) studied the 2017 business bankruptcy failures of formerly British listed company, Carillion, and New Zealand's listed company, Fletcher Building. He concluded that it was wisdom that was sorely missed on both boards. Carillion's board had "checked all the boxes" in terms of good governance: the majority of its eight directors were independent, the average age of its directors was 54 years, there were two women on the board, and no director was entrenched. Similarly,

a majority of Fletcher's eight directors were independent and there were two women on the board. Despite this supposed board capability in a published interview with the former Fletcher Building CEO (Mark Adamson), Adamson boasted that, "the board didn't really understand what he was doing but backed him anyway" (Smellie, 2018). In defense of the board, the former Chair, Sir Ralph Norris commented that, "the company's former executives should have been on top of many of the issues that have led to what has actually happened" (Harris & Reidy, 2018). The haste at which both parties sought to blame one another demonstrates an absence of wisdom from the organization, especially executives and directors. In the case of Carillion, now well scrutinized by analysts after the event, an absence of wisdom also appears to have prevailed. How directors, executives and management continued to approve reverse factoring (Higson, 2018), borrowing against future invoicing on a balance sheet where the single largest asset was actually goodwill (some £1.57bn) remains unexplained. Despite the British company having a strong record of dividend payments at the time of liquidation, it had destroyed all of its reported equity and was saddled in debt.

Lockhart concluded that, "it was wisdom that was so sorely missed on both Carillion's and Fletcher Building's boards, regardless of what their boards looked like". The wisdom condition is supported by an extensive analysis, including replication studies across multiple jurisdictions, by Kakabadse and Kakabadse (2008). They drew upon Ardelt's research on wisdom (2003, 2004, and 2005) and summarized their own observational, survey, and conversational studies with the conclusion that there is only one attribute of directors that can be consistently aligned to organizational performance: wisdom. It is supposedly wisdom that is the sole single common attribute of successful boards of corporate directors. However, while the presence or absence of wisdom among directors and corporate boards is inherently appealing, it is just like leadership, notoriously difficult to measure, select for, and operationalize. But unlike leadership, wisdom has received comparatively scant attention by academics and virtually none by corporate governance researchers to date.

4. THREE-DIMENSIONAL WISDOM SCALE

Ardelt (2003) observed that, "although wisdom is thought to be a strong predictor for many attributes of aging well, it still lacks a comprehensive, directly testable scale". To rectify this deficiency, she developed a three-dimensional scale. This same scale could be used by Constellation Software, Berkshire Hathaway, and other companies to assess the current status of wisdom amongst their executives and directors. Her methodology included, "quantitative and qualitative interviews with a sample of 180 older adults (age 52-plus) were conducted to develop a three-dimensional wisdom scale (3D-WS) and to test its validity and reliability." Interestingly, this 52 years-plus age focus closely aligns with Constellation Software's goal of developing younger, more effective directors in their 40's to 50's and keeping them for 30 to 40 years,

rather than seeking or mandating their retirement at 65 when wisdom may yet to peak.

In Ardelt's 2003 research, wisdom was operationalized and measured as a latent variable with cognitive, reflective, and affective effect indicators. Respondents completed a self-administered 3D-WS questionnaire, consisting of 39 statements: 14 cognitive, 12 reflective, and 13 affective, for the components of wisdom. This instrument used a five point agree/disagree Likert scale. Results indicated that the 3D-WS can be considered to be a reliable and valid instrument with 71% to 78% validity and reliability scores on each of the three wisdom dimensions of cognitive, reflective, and affective. Each of which are higher than the widely used Myers-Briggs Type Indicator (Boyle, 1995; Cizek, 2012). Thus, the 3D-WS is a promising measure of the wisdom variable in large, standardized surveys of older populations. With only 39 self-administered questions (all available in her 2003 research paper), this instrument should be easy for companies to use in order to assess the wisdom of their executives and board members. Accordingly, Constellation, Berkshire Hathaway, and other companies should be confident is using this 3D-WS self-administered questionnaire.

Ardelt's (2003) 3D-WS model is a three-dimensional personality characteristic, summarized as follows: cognitive, reflective, affective.

4.1. Cognitive

Definition: An understanding of life and a desire to know the truth, i.e., to comprehend the significance and deeper meaning of phenomena and events, particularly with regard to intrapersonal and interpersonal matters. It includes knowledge and acceptance of the positive and negative aspects of human nature, of the inherent limits of knowledge, and of life's unpredictability and uncertainties.

Operationalization: Items or ratings should assess:

- The ability and willingness to understand a situation or phenomenon thoroughly.
- Knowledge of the positive and negative aspects of human nature.
- Acknowledgment of ambiguity and uncertainty in life.
- The ability to make important decisions despite life's unpredictability and uncertainties.

4.2. Reflective

Definition: A perception of phenomena and events from multiple perspectives. It requires self-examination, self-awareness, and self-insight.

Operationalization: Items or ratings should assess:

- The ability and willingness to look at phenomena and events from different perspectives.
- The absence of subjectivity and projections, i.e., the tendency to blame other people or circumstances for one's own situation or feelings.

4.3. Affective

Definition: Sympathetic and compassionate love of others.

Operationalization: Items or ratings should assess:

- The presence of positive emotions and behavior toward others.
- The absence of indifferent or negative emotions and behavior toward others.

In summary, amidst the plethora of research outputs on corporate governance, and the composition of boards in particular, lies an increasingly compelling argument that it is wisdom (individual director & collectively boards) that is the sole requisite attribute of board and hence subsequent firm performance. Wisdom is observed to be the construct of three variables: cognitive, reflective and affective each of which are measurable by way of an already developed and published survey instrument, Ardel's (2003) 3D-WS Model. To be sure, while causality is yet to be scientifically established, it has considerable conceptual appeal, far more so than any of the typical visible attributes of directors, such as sex, gender, age, tenure, race or ethnicity, either solely or collectively being attributed to firm performance.

5. AI CHALLENGE TO THE WISDOM OF EXECUTIVES AND BOARDS

An emerging area and challenge for companies is artificial intelligence (AI) which demands wisdom as a key talent for company executives and boards of directors. There are key questions and issues about AI and its impact on the economy and corporations that boards of directors and corporate executives need to analyze and try to answer, such as (Lohr, 2017):

1. What can it do?
2. Where is it headed?
3. How fast will it spread?

Three new research reports suggest the following answers. AI is doing less right now than you think, but it will eventually do more in more places than you think, and will evolve faster than powerful technologies did in the past. The McKinsey Global Institute published a report in November 2017 about automation and jobs and emphasized the uncertainty about AI and its impact on global labor markets. A key finding was that up to one third of the US work force will have to find new occupations by 2030, ranging from a low estimate of 16 million to a high of 54 million, depending upon the pace of technology adoption. The higher 54 million projections suggested a more rapid transformation to the work force than prior change waves, when employment migrated from farms to factories and later from manufacturing to services (Lohr, 2017). McKinsey also observed that we need a major change in how we provide midcareer retraining and how we help displaced workers find new employment. A sentiment that ties into Garratt's (2017) argument that national leadership and public oversight are needed to deal with technology changes for corporate governance to be effective.

A second report by Massachusetts Institute of Technology (M.I.T.) and University of Chicago economists also published in 2017 suggested explanations of why current AI technology has so far had little impact on productivity. Two common themes (Artificial Intelligence, 2017) emerged:

1. Technology itself is only one ingredient in determining the trajectory of AI and its influence. Economics, government policy, and social attitudes will play major roles as well.

2. Historical patterns of adoption of major technologies, from electricity to computers, are likely to hold true for AI. But if the pattern is similar, the pace will be much faster and the social consequences could be far more wrenching than in past transitions.

These two AI themes are consistent with Garratt's (2017) advocacy for the need for five major players to achieve effective corporate governance and national leadership: boards of directors; business owners; regulators; legislators; and, a national public oversight mechanism which is not currently being provided by market mechanisms.

The third 2017 research report emphasized the need to monitor changes and trends in the development of AI technology (Artificial Intelligence, 2017). An AI Index was created collaboratively in 2014 by researchers at Stanford University, M.I.T., and other organizations. This index tracks AI development by measuring characteristics, like technical progress, investment, research citations, and university enrollments in AI and other emerging technologies. The goal of this project is to collect, curate and continually update data to better inform business people, scientists, policymakers, and the public, similar to Garratt's (2017) five major players for effective corporate governance, especially for the threats, challenges, and opportunities offered by AI.

Hilb (2017) has also promoted the need for annual board audits for various topics, such as an AI action plan. Results should be reviewed and approved, when appropriate, by the following major players, whom are not too dissimilar to Garratt's five major parties for effective corporate governance:

1. Self-review by board members.
2. Board review by top management.
3. Board review by shareholders.
4. Board review by researchers and analysts, and.
5. Board review by the media and the public. (Hilb, 2017).

Alongside AI are other technological advances that will require wisdom by company executives and directors to protect and enhance the firm's long-term intrinsic value. For example, a Google AI expert predicts that humans and machines will merge within 20 years. A chip could be inserted inside the human brain or neocortex to connect to the smart cloud by 2029. Also, robots (or artificial intelligence like IBM's Watson) are predicted to be on boards of directors by 2020 (Greene, 2017). Quantum computing projects are also underway at Microsoft and Intel as well as several Chinese companies. In August 2017, China launched the first quantum communications satellite, designed to establish ultra-secure quantum communications by transmitting uncrackable, cryptographic keys from space to the ground in China but it could also be a threat to any supposedly secure databases and networks in the world (Castelluccio, 2017a).

6. THE DEADLY SOUL OF A NEW MACHINE

That was the title of a New York Times article on December 7, 2018 by Timothy Egan. He wrote about

the Indonesian Lion Air Flight 610 which crashed 13 minutes after takeoff on October 29, 2018 and killed all 189 people on board. This new Boeing 737 MAX airplane had already been in service for two months and had flown 800 hours, including a safe flight the previous day. The pilots requested a return to the airport two minutes after takeoff as the advanced electronic brain in this airplane was forcing the jetliner down. The human pilots tried to return the plane to manual control and override the electronic brain in order to correct this downward plunge but the automatic pilot took control back from them and crashed the plane into the Java Sea. Egan's question is, "at what point is control lost and the creations take over? He answered: how about now?" As Stephen Hawking cautioned, "AI could develop a will of its own that is in conflict with ours" (Devaney, 2016).

Egan commented that all these artificial intelligence innovations are designed to make life easier and safer - or at least more profitable for their corporate owners. He cited another example where a driverless car killed a woman in a Tempe, Arizona crosswalk and noted that other driverless cars have been slower to react than humans. In nearby Chandler, Arizona, there have been 21 attacks by residents who have been slashing tires and throwing rocks at self-driving vans owned by a driverless-car company spun out of Google (Romero, 2018).

A report by the U.S. Federal Aviation Administration in 2013 found that 60 percent of flight accidents over the recent decade were linked to confusion between pilots and automated systems. What is the role of corporate executives and boards of directors in dealing with these technology advances? Satya Nadella, Microsoft's CEO, provided guidance at the company's 2018 annual shareholder meeting saying that, "big tech should be asking not what computers can do, but what they should do".

Egan agreed and commented that Facebook has never asked such a question, only focusing upon its own company growth, and has become a "monster of misinformation". He summarized that, "we are at the cusp of an age of technological totalitarianism and need to ask for more screening, more ethical considerations, and more projections of what can go wrong, as we surrender judgment, reason, and oversight to our soulless creations". Concerning Flight 610, he noted that, "it's equally haunting to grasp the full meaning of what happened: the system overrode the humans and killed everyone. Our invention. Our folly".

Shouldn't corporate executives and boards of directors be asking these more general questions and considering technology's impact on society in an evolving, intrinsic value focus, rather than just the narrow profitability impact on their own companies? Concerning future research, Google's AI approach could be used to assess digital ethics issues. There is a two-part mission: 1) solve intelligence; and, 2) use it to solve everything else. For which there are two prerequisites: 1) the work AI produces can never be used for espionage or defense purposes; and, 2) there must be an ethics board established to oversee the research as it approaches achieving AI (Castelluccio, 2017b).

7. CONCLUSION

The major research question of this paper is how to evolve corporate governance beyond its traditional shareholder focus towards the broader perspective of a stakeholder focus with intrinsic value. Accordingly, this paper has discussed the evolution of corporate governance and board members' perspectives towards intrinsic value, the key success factor of wisdom for boards, the three-dimensional wisdom scale, and the AI challenge, including the Deadly Soul of a new machine, to the wisdom of company executives and their boards of directors. The rapid increase in the development of AI and other technologies has tremendous significance for major players who are needed for effective and evolving corporate governance to enhance long-term intrinsic value: boards of directors, owners, regulators, legislators, and other stakeholders. These major players should be motivated to develop more wisdom in order to assess the emerging threats, challenges, and opportunities of technology, especially with the perspective of the public corporation as a separate legal personhood, as advocated by the European Parliament's Committee on Legal Affairs in 2015. To facilitate the development and evolution of intrinsic value for corporations and other entities, all these major players need to develop more wisdom for more effective corporate governance in these challenging times.

For an example of the need to develop more wisdom, the following major AI threats, challenges, and opportunities have been discussed: key questions and issues for AI; monitoring trends in AI development; digital board audits for AI action plans; AI robotic process automation; and, quantum computers with AI implications (Grove & Clouse, 2018). The National Association of Corporate Directors now has an ongoing effort to help corporate board members understand how the latest technology innovations and megatrends affect their industries. This effort includes four key questions that directors could use to press their management team for briefings on their strategic plans for technology advances and long-term intrinsic value development (Essenmacher, 2017):

1. Have we considered how these forces can provide a strategic advantage to us, either by creating new revenue streams or new efficiencies?
2. Have we considered the risks to our business, including how we could be disintermediated or how a particular disruptive force might create competition, including from unlikely or unforeseen sources?
3. How are we thinking about innovation? Are we good at fostering it in house or should we look to outside partnerships to supercharge our efficiencies, products, and capabilities?
4. What are we doing internally, including review of compensation and incentive plans, to ensure new ideas get an open and fair hearing and aren't killed off internally by managers who may not want to upset the status quo?

As a response to Timothy Egan's Deadly Soul technology issue, a new social contract for organizations has been advocated by Daniel Mahan which may evolve into more effective corporate

governance. This social contract is based upon on the following ethics:

1. The dignity of the human person - regardless of race, sex, background, or belief.
2. The importance of a common good that transcends individual interests.
3. The need for stewardship - a concern not just for ourselves but for posterity.

Mahan (2013) summarized these three ethical values, "together they offer a powerful, unifying ideal: valued individuals, committed to one another, and respectful of future generations. Following these values is both a personal and collective challenge". This challenge can be facilitated by the development of wisdom in company executives and boards of directors for evolving, effective corporate governance, especially for dealing with technology advances and creating intrinsic value. This challenge is also responsive to Larry Fink's letter to public company CEOs to start accounting for the societal impact of their companies and to focus upon economic growth that is sustainable and inclusive for the majority of people, namely, an expansion and evolution of the long-term intrinsic value concept. Paradoxically, the greater the rate and incursion of AI in our business systems the less likely will be the development of wisdom amongst executives and directors, being supplanted by that of machines. Which only serves to highlight the very urgency confronting both the understanding of effective

corporate governance and how it may be operationalized? For if it is individual director's and their collective board wisdom that causes exemplary firm performance, then the rate of that development must well exceed that of AI - or the social outcomes largely confined to science fiction may prove correct.

The major limitation of this paper is how fast technology is changing and its resultant impact on corporate governance and intrinsic value. Future research should address the issue of how executives and boards of directors can develop the wisdom necessary to keep up with all these ongoing technology changes, especially in field studies of specific companies' attempts to deal with strategic technology trends. For example, for the last several years, the global analysts at Gartner, Inc. have released their top ten strategic technology trends for the upcoming year. For 2019, they are autonomous things, augmented analytics, AI-driven development, digital twins, empowered edge, immersive experience, blockchain, smart spaces, digital ethics and privacy, and quantum computing (Castelluccio, 2018). Wisdom is needed for executives and boards of directors to understand and apply technology and information in unique and creative ways to outperform their peers which goes well beyond just the survival of companies, especially with the EU's perspective of a public company as a separate legal personhood.

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