

CORPORATE GOVERNANCE 2.0: THE ROLE OF ARTIFICIAL INTELLIGENCE IN FUTURE TRANSFORMATION

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Abstract

This study looks at how corporate governance is being impacted by artificial intelligence (AI). The feasibility, acceptability, along with the obligation to automate board-level collective decision making are assessed from the viewpoints of business, technology, and society. Five possibilities for AI governance are suggested in the article: aided, enhanced, amplified, autonomous, and autopoietic intelligence. We evaluate the strengths and weaknesses of both human and machine learning, and we examine the consequences for future governance. The study ends with a request for participation from board members in determining the direction of AI governance.

Keywords: Futuristic Corporate Governance · Artificial Intelligence & Machine learning · Board Level Decision making

INTRODUCTION

Business leaders now prioritize AI (Davenport and Ronanki 2018), despite its inception in the 1950s (Russell and Norvig 2016) and previous dismissal by Peter Drucker (Drucker 1967). It is currently recognized as "general purpose technology" (Mantas 2019) with the potential to a variety of issues in society, business, and management can be resolved. The suggested scenario analysis framework rate that assesses AI's impact on corporate governance practice (Libert et al. 2017). Corporate governance is defined as "the system by which companies are directed and controlled" (Cadbury 1992), while AI is defined as "making machines intelligent" (Nilsson 2010). An integrated perspective combines business and technology with legal and ethical perspectives to define the realm of responsibility. The article focuses on the impact of intelligent machines on decision-making by the board of directors. To understand AI's potential contribution to BoD decision making, we must define their key functions and decision archetypes. Then, we'll evaluate the predictability of these decisions due to the importance of predictions in AI.

2.Taxonomy of Board Decisions

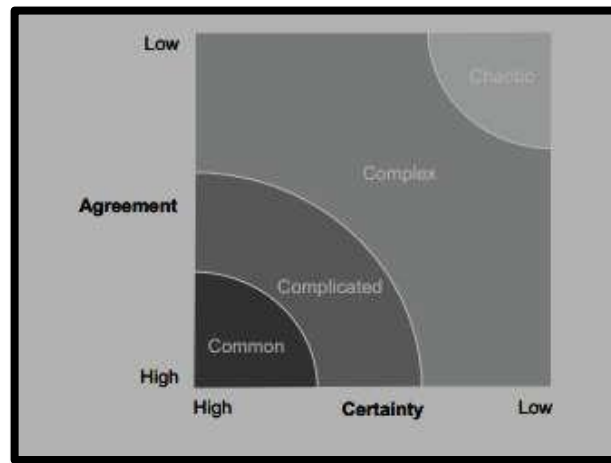
Cossin and Metayer (2014) identified three generic roles of BoDs: supervisor, co-creator, and supporter, extending the traditional perspective of direction and control. The BOD leads strategy with the TMT, sets objectives, and ensures compliance with laws, accounting codes, finance, and risk management Sharma, R. (2024). The BoD coaches and appoints TMT for effective leadership. AI impact on BoD decisions requires identifying key decision types (excluding crisis management and communication). Co-direction: BoD decides on innovation, collaboration, optimization, transformation, diversification/concentration, and internationalization. Control: BoD decides on target achievements, accounting, legal and ethical compliance. Coaching: BoD decides on executive appointments, development, compensation, and board composition. To benefit from AI, identify decision types by recognizing that decision-making involves choosing between options based on criteria. Still et al. (1958) outline three phases: conceptualization, information, and prediction. Further sub-processes include, framing of decisive-sensing information collection, adoption, and feasible identification

Figure .1

Phase	Sub-Processes
Conceptualization	Decision Framing
Information	Information Collection
	Information Selection
Prediction	Option Identification
	Option Assessment
Decision Outcome	Decision Sensing

(Decisions anatomy-1958, Still .et)

Figure. 2



(4 Decisions type 1992 Stacey)

The process of assessing the available alternatives and contrasting their merits in order to choose the best course of action is known as option evaluation. The thorough evaluation of each option and how it stacks up against the evaluation of substitute possibilities will determine the ultimate choice. The final alternative must fit the criteria determined during conceptualization and achieve the intended result.

Proposing Levels of Predictability for Board Decisions

Using Stacey's (1992) decision taxonomy, we assess AI use in business decisions based on four types depending on certainty and agreement (Fig. 2).

The different types of decisions can be classified as common, complicated, complex, and chaotic. Common decisions are typically simple and agreed upon by all decision-makers. Complicated decisions, on the other hand, require consideration of multiple perspectives. Complex decisions involve uncertainty or disagreement, and chaotic decisions take place in a constantly changing environment with varying viewpoints. Applying decision types to boards. Can AI drive board decisions?

	Conceptualisation		Information		Prediction	
	Decision sensing	Decision framing	Information collection	Information selection	Option identification	Option assessment
Co-direction						
Innovation	Chaotic	Complex	Complex	Complicated	Complicated	Complicated
Collaboration	Complex	Complex	Complex	Complex	Complicated	Complex
Optimization	Complicated	Complicated	Complicated	Common	Complicated	Common
Transformation	Complex	Complex	Complicated	Complex	Complex	Complicated
Diversification	Complex	Complex	Complicated	Complex	Complex	Complicated
Internationalization	Complex	Complicated	Complicated	Complex	Complex	Complicated
Control						
Target achievement	Common	Common	Complicated	Common	Common	Common
Accounting standards	Common	Common	Complicated	Common	Common	Common
Legal compliance	Complicated	Complicated	Complicated	Common	Complicated	Common
Ethical compliance	Complex	Complicated	Complex	Complex	Complex	Complicated
Coaching						
Executive appointments	Complex	Complicated	Complex	Complex	Complex	Complicated
Executive development	Complex	Complex	Complex	Complex	Complicated	Complicated
Executive compensation	Complicated	Complicated	Complicated	Common	Complicated	Common
Board compensation	Complicated	Complicated	Complicated	Common	Complicated	Common

Understanding AI types and evolution for board-level decision making. Rule-based and machine learning (ML) approaches include supervised (SL), reinforcement (RL), unsupervised learning (UL), and deep learning (DL). The next wave of AI may connect machines and minds, called Mind Machine Learning (MML). We focus on the impact of SL, RL, UL, and MML.

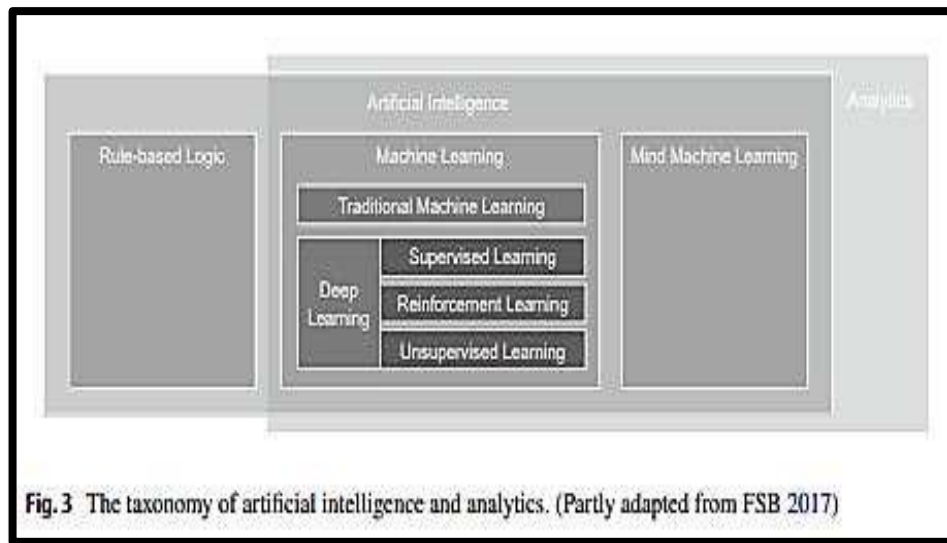


Fig.3 The taxonomy of artificial intelligence and analytics. (Partly adapted from FSB 2017)

When we compare the learning cycles of humans and machines, for common decisions, supervised learning is most effective, while reinforcement learning is best for automating complicated decisions based on past routines. Unsupervised learning may provide clues for complex decisions, but chaotic decisions are still challenging to handle with any known machine learning approach.

As society adopts AI, regulation lags behind technological development. Legal and Compliance matters & issues, are like to those raised in medicine in 1700s, are emerging. Five legal considerations will guide the board of directors in incorporating AI into processes and procedures.

The impact of AI on accountability in corporate governance is crucial. While delegation is key, a board member's core duties cannot be delegated, and there are legal uncertainties surrounding liability, business judgment, data

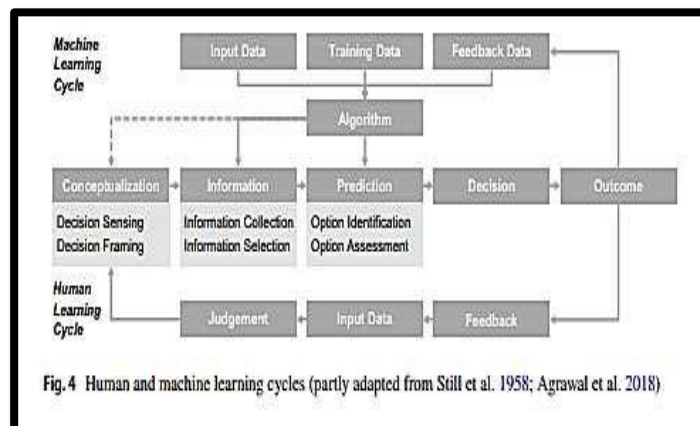


Fig. 4 Human and machine learning cycles (partly adapted from Still et al. 1958; Agrawal et al. 2018)

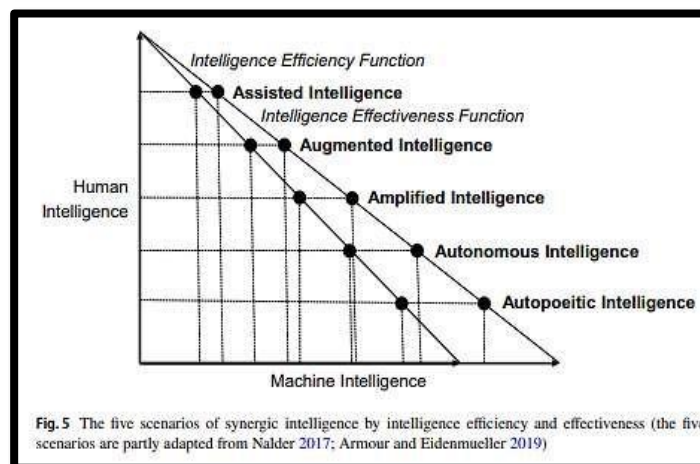


Fig.5 The five scenarios of synergic intelligence by intelligence efficiency and effectiveness (the five scenarios are partly adapted from Nalder 2017; Armour and Eidenmueller 2019)

protection, and regime heterogeneity. These are significant issues that require further examination. AI's ethical concerns extend beyond legal matters. Boards must tackle bias in and by AI, data ownership, monopolization of intelligence, moral principles, and autonomous decision-making systems that may restrict free will. As society calls for a just distribution of AI benefits, boards must modify their approach to AI.

The Holistic Approach to Sustainability: An Integrated Perspective" Corporate governance that is sustainable with AI

must take into account what is desired, practical, and ethical. The use of AI is dynamic and multifaceted, necessitating debates of potential outcomes. There is a dualism between the intellect and the machine in all aspects of AI, from opposing or related angles.

Synergic intelligence is a higher condition that results from the combination of human and machine intelligence. Synergic intelligence may occur in five different ways, from aided to autonomous to autopoietic. For each circumstance, there are different laws and societal discussions.

Enhancing Governance Efficiency through Assisted Intelligence in Board Operations.

Assisted intelligence tools can assist decision-making in corporate governance without altering board principles. They provide market and operational data to aid strategic direction while board members maintain control. Furthermore, the use of AI can automate corporate consolidation and reporting, leading to real-time data that enhances transparency for better control.

AI has limited impact on coaching due to the people-centric nature of the Board of Directors (BoD) and Top Management Team (TMT) relationship."

Augmented intelligence can enhance governance without reducing board power. It enables predictive models to aid strategic decisions, shifts controls to future-oriented forecasting, and enhances compensation through data-driven insights. However, amplified intelligence challenges corporate law on man-machine accountability, and while automation improves reliability, human management is still necessary for compliance. When dealing with risk and uncertainty, machines make most decisions, but human involvement adds validity to uncertain decisions. Coaching expands to training and maintaining machines, in addition to people, as part of board duties.

Autonomous Intelligence: Enabling Self-Governance in Corporations

Autonomous intelligence replaces some or all board members with robots - either governance robots or robo-directors - depending on legal changes. People still determine governance scope. Hong Kong has a case study using AI system Vital as a board member. Robo-directors make independent strategic decisions with certified algorithms. Coaching means machine development and maintenance.

Autopoietic Intelligence: Enabling Corporate Governance to Self-Evolve

Autopoietic intelligence automates corporate governance and drives its future development, eliminating the need for human intervention in setting agendas and making strategic decisions. Automated feedback system monitors and challenges set goals. Co-direction and control are linked. Self-development ensures improvement with effective coaching.

Implications of AI on Corporate Governance

Implications of AI in corporate governance require board members to consider opportunities and risks. Using the innovation horizon model, companies should focus on continuous innovation (Horizon 1), extending existing models to new markets (Horizon 2), and creating new businesses (Horizon 3). Governance of AI and governance with AI must be carefully considered. Exploit current AI to improve corporate governance (Horizon 1) with supervised and reinforcement learning. Governance of data is crucial, as it is a valuable asset for training and feedback data. Economic characteristics of data must be understood to mitigate risks, address governance at board level, and determine corporate culture. To leverage the potential of the "future cognitive company," boards need to be data-savvy (Libert et al. 2017). Horizon 1 prioritizes reporting and control, facilitated by AI, leading to improved predictive power and lower audit expenses (Mantas 2019). Nonetheless, such reliance also entails augmented liability risks extending beyond the firm's boundaries (Armour and Eidenmueller 2019).

The advancement of reinforcement learning and unsupervised learning in Horizon 2 will increase the influence of AI and promote enhanced, amplified, and autonomous intelligence. Collaboration between organisations in ecosystems will be essential as the algorithm comes to dominate AI governance. However, this will lead to legal and administrative problems, such as algorithm liability and antitrust law. Organisations will transform into self-organizing systems in Horizon 3 thanks to AI, which will help them manage and steer themselves more effectively. This will put into question the directors of limited liability firms' personal culpability and raise the bar for AI governance.

Conclusions

According to Girasa (2020), citing Stephen Hawking, the development of efficient AI may be the most important development in human history—or it may be the worst, given the unknowable effects. Companies must address their duty in employing AI and win society's confidence as the field of AI technology develops. AI's impact on corporate governance may result in new methods and structures that might benefit capitalism, limited liability companies, and the stock market. If they take the initiative, the board of directors can play a significant part in this process.

Table 2 The three horizons of artificial governance			
	Horizon 1 of artificial governance	Horizon 2 of artificial governance	Horizon 3 of artificial governance
Characteristics			
Learning focus	Supervised and reinforcement machine learning	Reinforcement and unsupervised machine learning	Mind machine learning
Intelligence focus	Assisted and augmented intelligence	Augmented, amplified and autonomous intelligence	Autonomous and autopoietic intelligence
Implications on the governance of AI			
Asset focus	Data	Algorithm	Mind machine interface
Unit focus	Corporation	Ecosystem	Self organization system
Implications on the governance with AI			
Mechanism focus	Control	Direction	Self-control and self-direction
Attention focus	Awareness for artificial governance	Application of artificial governance	Adaptation to artificial governance

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