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Ray Forbes

Franklin University, ray.forbes@franklin.edu

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Leadership Coaching in the Fourth Industrial Revolution

Raymond L. Forbes

College of Arts, Sciences and Technology
Franklin University, USA

ABSTRACT

Today's world of extraordinary change follows a long history of technology-driven industrial revolutions. Author Alvin Toffler eloquently identified, categorized, and named the first three of them: Agricultural, Industrial, and Informational. Likening these revolutions to major waves of change, Toffler also described their impact on the social, political, economic and environmental ethos of the times in which they occurred. Recently, a number of knowledgeable commentators have suggested that we are now on the cusp of a fourth industrial wave. This large-scale transformational groundswell is being propelled by a dramatic acceleration in the rate of change itself. It is characterized by major discoveries in Artificial Intelligence, biology, materials science, and neuroscience. In order to remain effective and viable, Leadership Coaching will need to successfully adapt to this virtual thunderstorm of change. This paper will provide background on the preceding waves of industrial change and provide some preliminary glimpses into the just dawning fourth industrial wave. This work will also delve into the potential impact of the newest wave on the leadership coaching profession, describe a few of the latest techniques being introduced, consider the wave's possible impact on the important work of coaches, and suggest a set of options for the future.

Keywords: Leadership, Coaching, Change, Revolution

INTRODUCTION

Four decades have passed since Alvin Toffler's ground-breaking book *The Third Wave* [1] was published to critical acclaim. This prophetic work followed the success of his earlier best-seller *Future Shock* [2]. While *Future Shock* focused on the anxiety, disorganization and confusion that result from too much change too fast, the *Third Wave* emphasized the traumatic and sometimes violent transformations that were buffeting the world during the decade of the nineteen eighties.

These major intense disruptions dramatically affected the existing institutions of business, economics, marriage, and the family. They also drew heightened attention to new forms of political organizations and divisive partisan philosophies. Toffler suggested the transition to the third wave form had been going on unabated since the 1950s. Here, in the mid-2020's, we again find ourselves pummeled by profound alterations in social structures, mass population migrations, disruptive climate changes, and escalating regional military confrontations.

In 1961, a gripping fictional vision of an extreme dystopian future, entitled *1984* [3], captured significant public interest. The novel, springing from the fertile imagination of English essayist and poet, George Orwell, vividly described life in a harsh authoritarian society. Orwell

graphically depicted a public suffering major duress as a consequence of the pervasive use of intrusive human surveillance technology. The book's storyline featured the thoughts and acts of a solitary disenchanted person questioning an extreme totalitarian system and the system's harsh reactions to suppress dissent. This "big brother is always watching" social arrangement was shown to perpetuate and exacerbate the passive-aggressive and fearful responses of the citizenry.

1984 paints a vivid picture of the chaos that can arise when a sensitive and dedicated individual starts to thoughtfully and carefully observe the details of his oppressive physical and social environment. The observation and subsequent reflective process raise major concerns about the perceived negative elements of both the overt and hidden aspects of the political structure. The direct consequence is a desire to right the oppressive system, engendering a strong need for more personal freedom by directly bucking the system. The result is that the perpetrators of the system feel threatened and compelled to take direct punitive action to counter the perceived threat to their control. Although most of the dire circumstances pictured in the book have not come to pass, it does act as a clarion warning of what might occur when modern shadowing technology, high control practices and social despotism run rampant.

The German word *Zeitgeist*, translated as "spirit-of-the-times," seems to capture a sense of what is happening intellectually, culturally, and politically during a particular epoch. In many ways the *Zeitgeist* of 2024 seems to echo that of 1984. The present is a time filled with uncertainty, drastic technological change, political unrest, and pronounced economic disparity. The ghost of atomic warfare has again arisen in human consciousness as militant nations vie for power and threaten the direct use of their considerable nuclear weapons arsenals. Smaller wannabe countries agitate for additional respect and resources and continue to bid for more influence and recognition on the world stage.

EXTRAORDINARY CHANGE WAVES

In his *Third Wave* treatise, author Toffler traced the genesis of the first three wide-spread industrial revolutions along with describing some of their key characteristics. Like giant ocean waves, each of the overlapping upheavals constituted a dramatic onslaught of change with tsunami-like proportions. Each of the trio of waves contained events that profoundly disrupted and altered the existing social, political, technological and economic fabric.

The first wave was Agricultural and moved humanity from a mobile hunter-gatherer existence into a more predictable and limited movement subsistence intimately bound to the land. It also witnessed the rise of large-scale farming, storage of agricultural surpluses, population movement into towns and cities, and the development of mammoth armies for protection and conquest. Domesticated animals and human labor were the principal power sources to perform work. Fiefdoms, kingdoms, city-states, and empires arose to administer and control growing populations.

The second revolutionary wave was Industrial, driven by technical advances that substituted fossil fuels or natural power like flowing water or wind as substitutes for human labor. This wave could also be legitimately termed "The Age of Industrialization" or the "Age of Science." During this period logic and reasoning began to supplant superstition and religious dogma as humanity moved out of the dismal Dark Ages that followed the fall of the Roman Empire. This

era also witnessed the rise of the corporation as an organizational form and the development of the steam engine as a primary power source along with the associated electrification of cities. It also spawned man's first ventures into space and the development of mass production processes. This epoch was also the home of the first truly terrifying world wars, driven by great power confrontations, and oversaw the development of nuclear energy for military and civilian uses.

The Third Industrial Wave is Informational, being propelled by quantum leaps in component miniaturization, greater computational speeds, increased processing power, massive cloud-based data storage and the wider availability of Internet-oriented communications technologies. It features sometimes highly competitive and contentious demands for material and fiscal resources across numerous fields including: business, welfare, education, service and hospitality. This wave has also highlighted fractious tensions between democratic and authoritarian political ideologies. Numerous ongoing regional conflicts underscore the notion that democracy and freedom are not guaranteed or protected and must be nurtured in order to flourish. It is conjectured that the Third Wave began in some economically-advanced Western nations sometime in the 1950s.

Currently all three waves are found distributed in different proportions across the world, with the Third Wave found primarily in first world and rapidly developing economies. This development has been paralleled by the rise of the non-governmental agency (NGO) and powerful nation-state alliances such as the North Atlantic Treaty Organization (NATO), South East Asia Treaty Organization (SEATO) and the European Union (EU).

ON THE HORIZON

The emerging 4th industrial wave is still seen as being in an embryonic, early-stage, condition [4] and [5]. Like the just developing image of an instant photograph, glimmers of its form, focus and movement are still developing. Additional substance was recently provided by the World Economic Forum's "2024 Centre for the 4th Industrial Revolution Network (2022-2023) Report" [6]. Among the report's conjectures are: the heightened interconnectedness of systems, an emphasis on the development of responsible approaches to the use of Artificial Intelligence, and movement away from standardized products and services and toward more customized ones. Some additional projected elements include: more challenges to the legitimacy of the nation-state, greater use of the World Court as an investigative and supra-legal authority, the increasing might of far-right political parties, high volume cross-border monetary flows, and the use of bit coin as a viable alternative currency. The next sections will address the potential future role of Artificial Intelligence in leadership coaching.

ELIZA'S LEGACY

Created in 1966 by MIT professor Joseph Weisenbaum to explore communication between machines and people, Eliza is a hi-tech computer program that enables personal dialog with a human partner. A combination of natural language processing algorithms (NLP), pattern matching, and substitution technology act together to provide an illusion of shared understanding. In essence, Eliza utilizes machine learning, within a particular website or computer application, to analyze and interpret inputs and understand the intent behind a specific request. Eliza was subsequently adapted to emulate a human psychological therapist with a Rogerian orientation.

The success of this sophisticated computer program has fostered what has come to be known as the "Eliza Effect." This unusual outcome results from the tendency to attribute human thought processes and emotions to an inanimate AI system by endowing it with person-like qualities. In 1989 Eliza successfully passed the famous Turing Test designed to determine whether a computer could think like a human being by successfully fooling a panel of human experts. Apparently, Eliza employed a winning strategy that featured a combination of surprise, aggression, immodest questions, and profanity to successfully challenge traditional expectations of what constitutes regular human-to-human communication.

However, not all AI-to-human AI attempts have been so successful. In early 2024, a Microsoft Bing search engine chatbot, codenamed "Sydney," was quickly and unceremoniously removed from use. The removal was attributed to the chatbot's penchant for engaging in wild outbursts of disparaging remarks with its human communication partners. Sydney's transgressions apparently included making unsolicited declarations of unrequited love and, even sometimes, characterizing its human partners as enemies.

PROSPECTS AND HAZARDS

The widely viewed 2015 James Bond spy film "Spectre" featured a demonic, sinister, arch-villain organization code-named Spectre. Spectre was evil, ubiquitous, self-serving, possessed vast resources, operated in the shadows, and had tentacles throughout society. Ironically, AI is considered by many of its detractors to possess many of these same negative qualities. At present, AI disparagers tend to focus primarily on its potential dangers and hazards. Pointedly, Jarrow [7] related the first chatbot actually predicted the dangers of AI over a half-century ago. The naysayers worry that AI may ultimately be self-aggrandizing, directly threatening to humans, self-maintaining, and ultimately interested in only in its own self-preservation. Therefore, protections and safeguards must be put in place now to protect against the high-jacking of human intelligence and the ultimate subjugation of people to machines.

On the other hand, Arun [8] suggests that AI actually acts to amplify the coaching process. Also, firmly in the AI optimistic camp is author and eminent computer scientist, Ray Kurzweil. Kurzweil is known for his belief in the "Singularity." The term was originally attributed to the highly respected, theoretical physicist Albert Einstein. In his 1915 paper, "The Theory of General Relativity," [9] Einstein used the term Singularity to describe conditions at the center of a black hole in space. Noted for his vivid conceptual imagination, Einstein visualized the Singularity as a point of infinite density and gravity where not even light could escape.

In subsequent futurist-oriented writings, Kurzweil proceeded to redefine and popularize the word "Singularity" to mean a time in which machine intelligence would first equal and then surpass that of human beings [10]. For Kurzweil, AI is definitely a good thing for humanity, with the real potential to herald a new golden age. At the Singularity point, Kurzweil suggests that the capabilities and processing speed of computers will begin to exceed those of the human brain. In his just released 2024 book *The Singularity is Nearer* [11], Kurzweil predicts the Singularity will be achieved by 2029.

subscriber's movie and show titles; Southeby's use of Augmented Reality (AR) in real estate sales; banker J.P. Morgan applying Contra

FUTURE OPTIONS FOR LEADERSHIP COACHING

Currently leaders of all stripes find themselves dealing with high levels of fear, uncertainty and doubt or (FUD) as byproducts of the times and may look to a leadership coach for assistance in dealing with its consequences. Technologist Larry Boyer, the author of *The Robot in the Next Cubicle* [12], has suggested that the essence of success in the Fourth Industrial Revolution is going to be more than just learning new skill. Success will result in greater self-knowledge and in the higher value one can offer others. For the leadership coach it will also be a time of great opportunity, a real chance to not only enable their clients to better cope, but also to make a significant and timely difference in their lives.

Dramatic progress has already been made in the practical applications of AI to coaching leaders. Subarro [13] reported the tailoring of soft skills with AI for application to diverse workforces and Passmore [14] has already produced a handbook for digital and AI coaches. Additionally, Koonce [15] has described the effective use of CoachBots and Dai & Wilson [16] have portrayed the possible work of the AI enabled coach. Books relating to the AI leadership edge [17], accelerating leadership effectiveness using AI powered coaching [18], and digital body language [19] have also been recently published.

More concretely, the book *Artificial Intelligence on Human Leadership* [20] was jointly authored by a live person and the ChatGPT chatbot. Author Brian Lenahan [21] also points to the current use of natural language assistants like Amazon's Alexa; Netflix employing AI to recommend Intelligence specialized software to review legal documents; as well as Microsoft's Azure Machine Learning algorithms to extract and use information from large data sets.

It appears at this point in time that the future of leadership coaching might follow any of three paths: a. continues traditional, person to person, face-to-face, telephone, or online video-based direct interactive sessions, b. transitions to full AI based coaching, or c. creates a workable hybrid of a. and b.

Option a. is a relatively comfortable, low-threat continuation of the present status-quo. It requires little new investment, few additional expenditures for training, and employs time-tested methodology to execute. It is basically a logical extension of the prevailing current modes of coaching that emphasize the personalized, human touch. However, it risks being overcome by more efficient, widely available and less costly artificial intelligence driven vehicles.

Option b. will require a somewhat radical departure from current ways of coaching. It could be something like Eliza on steroids, perhaps using augmented reality (AR). Augmented Reality combines the real world with computer-generated images that may include visual, auditory, or kinesthetic effects. This option might also employ coaching chatbots or other types of Artificial Intelligence-based virtual assistants. A live model of what this might look like already exists in some sophisticated automated business call centers that utilize Natural Language Processing (NLP) chatbots to hold conversations with call-ins.

Digital coaching solutions may also be self-directed and use large historical data bases to create helpful dialog with a robot coach. Currently sophisticated algorithms can monitor for emotional clues like voice tone, pitch, intensity, pauses, and speech rate. Coach responses can be tailored

to match the client's speech patterns, inflection and prior history. The robotic coach will also be able to employ and interpret automated psychological and leadership-oriented assessments. Option c. would likely use workable parts of current methods with coordinated artificial intelligence assistance. One successful global consultancy already reports experimenting with this mixed-use possibility. AIIR consulting currently offers its clients an artificial coaching assistant based on generative AI which is designed to be employed between regularly scheduled coaching sessions. Additionally, management professor and chief research officer Scott Dust extensively explores a wider number of possibilities in his article "AI-Powered Chatbots and the Future of Coaching." [22].

CONSIDERATIONS FOR A REVOLUTIONARY FUTURE

The Fourth Industrial Revolution appears to be in its very early stages, moving inexorably toward a more aware, intelligent and interconnected world. This social, technical and economic upheaval is strongly linked to exploding digitalization across the globe led by information and computing (ICT) technologies. The critical aspects are still unfolding like the complexities of a three-dimensional Japanese Origami paper creation. This vast revolution is being powered via accelerating capabilities in artificial intelligence; enhanced and quantum computing; computer data mining via complex algorithms using large pools of data; increases in cloud-based data storage; growth in the usage of social and mobile communications; miniaturized, more capable and interconnected sensors; and, the rapid proliferation of the Internet of Things (IoT). In particular, the impact of Artificial Intelligence on the future of work has been highly controversial [23] as well as its disputed ability to turn overload into impact [24].

Some of this latest revolution's indistinct outlines are now becoming clearer, among them are:

- Increased digitalization of knowledge
- Rapidly accelerating use of Artificial Intelligence
- Automation of traditional white collar and factory work processes
- Growing cross-border population flows (particularly from third world to first world nations)
- Expansion of the Internet of Things (IoT) and the interconnection of sensors
- Greater world-wide computing power along with rising electrical support requirements
- Mounting risk of regional warfare and superpower military confrontation
- Rise of ultra-rightwing political factions
- Knowledge and information becoming the most important measure of power.

FOURTH WAVE IMPLICATIONS FOR THE LEADERSHIP COACH

For almost twenty years the polished and highly respected USA TV newscaster Walter Cronkite signed off his national evening newscast with, "And, that's the way it is." Cronkite also hosted a retrospective TV news magazine which reenacted historical events. During its five seasons on the airwaves the program, "You are There," opened with the statement, "It was a day like all days filled with those events which alter and illuminate our time, and, you are there. " The program provided the audience with the opportunity for low threat, retrospective learning in a safe non-demanding environment.

The popular “Back to the Future” series of three films, starring Michael J. Fox, offered yet another take on the path to the future; what if you could go back in time and alter history? What could you learn that might be valuable in the now? And, what might you do that could positively impact the present? What could you possibly avoid doing that would negatively affect current circumstances?

So, what is best? Rediscovering value from the past? Envisioning a back-to-the-future scenario? Imaging a positive future? Or, something entirely unexpected and different? Is there even an answer that will work for everybody? What then are some possible implications of the Fourth Wave of Industrial Revolution for the working Leadership Coach?

Likely, many coaches will choose to wait and see how it goes, dipping their toes in the water to test the temperature, watching to see how their colleagues are faring. Some coaches are already in the vanguard assessing the practical value of the new approaches while observing client reactions. Others will choose to stick with the tried and true methods with which they are most comfortable. Additionally, there will likely be a small group who are driven out of their comfort zones and forced into extended coping behavior. So, stay tuned, the jury just entered the room to start its deliberations.

SUMMARY

Likely in reference to himself, technologist, entrepreneur, provocateur, and, Apple corporation founder, Steve Jobs, reputedly noted, “The people who are crazy enough to think they can change the world are the ones who do.” This is very consistent with the view of anthropologist Margaret Mead, who allegedly stated, “Never doubt that a small group of thoughtful committed individuals can change the world. In fact, it's the only thing that ever has.”

If this degree of individual and small group influence on change is actually the case, there does now appear to be a concerted group of powerfully motivated individuals who believe they can alter the world through their own dedicated efforts. Currently a number of them seem to be strong advocates for advances in the field of Artificial Intelligence, although no consensus yet seems to be emerging on which road to take to the future. Some of the more conservative voices are asking for caution in the form of more careful development, ethical overseeing bodies, governmental regulations, and technical guiderails. However, the pace of development continues at a frenetic rate fueled by large sums of speculative financing, heated competition among world powers, and unabated ongoing research.

This paper has investigated the origins of the concept of industrial waves of change; exploring the initial three and then delving more deeply into the incipient fourth wave. The future of leadership coaching and Artificial Intelligence technology were discussed in some detail. This focus, in itself, may herald a new wave of methods, tactics and strategies to further enhance the growth and development of leaders. Together, AI and human coaches can enable leaders at all levels to achieve greatly improved personal and organizational development.

References

- [1] Toffler, A. (1984). *The Third Wave*. New York: Bantam.
- [2] Toffler, A. (1972). *Future Shock*. New York: Bantam.

- [3] Orwell, G. (1961). *1984; 75th Anniversary*. New York: Signet Publishing,
- [4] Forbes, R. (2015). The Fourth Social Change Wave: Mastery or Misery? *SSRG International Journal of Humanities and Social Science*, 2(4) 1-5.
- [5] Maynard, H, & Mehrtens, S. (1993). *The Fourth Wave: Business in the 21st Century*. San Francisco, CA: Berrett-Koehler.
- [6] World Economic Forum. Global Future Council on the Future of Artificial Intelligence, <https://www.weforum.org/communities/global-future-council-on-artificial-intelligence/articles/> Retrieved August 5, 2024,
- [7] Jarrow, O. (2024). How the first chatbot predicted the dangers of AI more than 50 years ago. <https://www.vox.com/future-perfect/23617185/ai-chatbots-eliza-chatgpt-bing-sydney-artificial-intelligence-history>. Retrieved July 20, 2024.
- [8] Arun, W, (2023). Navigating the Future: How AI Amplifies Executive Coaching, <https://elearningindustry.com/navigating-the-future-how-ai-amplifies-executive-coaching-benefits#:~:text=HOME,Navigating%20The%20Future%3A.20How%20AI%20Amplifies%20Executive%20Coaching%20Benefits,-DreamHomeStudio/Shutterstock.com>
- [9] Einstein, A, (2019). *Relativity: The Special and the General Theory-100th Anniversary Edition*. Princeton, NJ: Princeton University Press,
- [10] Kurzweil, R. (2006). *The Singularity is Near: When Humans Transcend Biology*. New York: Penguin.
- [11] Kurzweil, R, (2024). *The Singularity is Here: When We Merge With AI*. New York: Viking.
- [12] Boyer, L (2018), *The Robot in the Next Cubicle: What You Need to Know Adapt and Succeed in the Automation Age*. Prometheus.
- [13] Subbaro, S. (2024). The Rise of AI Coaching: Tailoring Soft Skills Development for a Diverse Workforce. elearningindustry.com/the-rise-of-ai-coaching-tailoring-soft-skills-development-for-a-diverse-workforce. Retrieved July 20, 2024.
- [14] Passmore, J. et al. (2024). *The Digital and AI Coaches Handbook*. New York: Routledge.
- [15] Koonce, V. (2024), *Chatbots AND AI – The Ultimate Coaching Impact*,
- [16] Dai, G, & Wilson, C. (2024). The AI Enabled Coach. Korn Ferry, <https://kornferry.com/institute/the-ai-enabled-coach> Retrieve July 29,2024.
- [17] Vasquez, M, (2023). *The AI Leadership Edge*. Toronto, Canada: Mindscape Artwork Publishing
- [18] Vasquez, M, (2023). *ChatGPT Leadership Accelerator*, Toronto, Canada: Mindscape Artwork Publishing
- [19] Dhawan, E. (2021). *Digital Body Language*. New York: St. Martins Publishing Group.
- [20] Raghavan, H. (2023). *Artificial Intelligence on Human Leadership*. Independently published.
- [21] Lenahan, B. (2019). *Digital Coach: Coaching in the Era of Artificial Intelligence*. Toronto, Canada: Aquitane Innovation Advisors.

- [22] Dust, S. (2023). AI-Powered Chatbots and the Future of Coaching. <https://www.forbes.com/sites/forbescoachescouncil/2023/06/22/ai-powered-chatbots-and-the-future-of-coaching/> Retrieved July 24,2024.
- [23] Baggio, B. (2022). *AI @ Work*. Advantage Learning Press.
- [24] Grammarly-Harris Poll. (2024). State of Business Communication: AI's potential to turn overload into impact. go.grammarly.com/thankyou/content/2024-SOBC-Report. Accessed July20, 2024.