Business Leadership in the Age of Artificial Intelligence

Corvinus University, Budapest Hungary

Instructor: Theodore Sebastian Boone

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Instructor:	Theodore Sebastian Boone Department of Business Law https://www.linkedin.com/in/theodoreboone/
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Office hours:	As posted
Availability:	At office hours or by appointment. Students are strongly encouraged to reach out to the Instructor with any questions theodore.boone@uni-corvinus.hu Phone: 06-70-458-5203
Course type:	Elective
Prerequisites:	University level English
Credits:	As listed
Level	Bachelor

I. Background and Aims of the Course

Artificial Intelligence (AI) either is, or should be, at the core of every material 21st century business enterprise. Understanding AI's seminal impact on business creation, development,

strategy, transformation and competition is critical to effective and successful business leadership. This is the essence of "Business Leadership in the Age of Artificial Intelligence."

This seminar will focus on fundamental business, economic, legal and ethical challenges associated with the Age of AI. The seminar will be conducted in an interactive, dynamic and collaborative workshop format. Case studies and practical hypotheticals will play a central role. Active student participation will be expected. In real life project work is often the result of teamwork and therefore students will be asked to cooperate with each other in many aspects of the course.

The course will focus primarily on current and practical cutting-edge AI issues and developments. Certain seminal foundational AI events and their ongoing relevance to the present day will also be discussed. In particular, A.M. Turing's 1950 article "Computing Machinery and Intelligence" (1950), wherein the Turing Test is described, and the unfinished manuscript of the renowned Hungarian mathematician and computer scientist John von Neumann titled "The Computer and the Brain" (1958) will be examined.

II. Textbooks, Other Readings and Related Matters

The main class text books will be the newly published:

(A) "Competing In the Age of AI – Strategy and Leadership When Algorithms and Networks Run the World" – Marco Iansiti and Karim Lakhani, Harvard Business Review Press 2020; and

(B) "The Future Computed" - Brad Smith and Harry Shum, Microsoft 2019.

Selected additional articles and other publications will also be used. Given the fast-evolving nature of the course's topic many of the articles and publications will be of very recent origin.

Course readings and topics may be adjusted or supplemented to reflect teaching flow or current developments. Guest lecturers from the business world may provide talks from time to time.

III. Intended Learning Outcomes of the Course

The aims of the course are (A) through case studies, hypotheticals, workshop activities and other forms of learning, provide students with hands-on practical experience and knowledge related to business leadership in the age of AI; (B) foster an ongoing intellectual curiosity within Corvinus' students of the evolving role of AI in commercial enterprises of the 21st century and

the impact of AI technology on jobs and work; and (C) instill in students a better understanding of complex ethical, regulatory, labor and societal issues which will confront those who seek to apply AI in the business world.

IV. Student Learning Objectives

Upon completion of this course students should be able to undertake the activities listed below related to acting as a business leader in the age of AI. Student achievement of these objectives will be assesed as a part of the required mid-term paper, the final exam and other student requirements in the course.

- Discuss the importance of certain seminal events in the history of the development of AI.
- Analyze how an emerging digital technology can disrupt a given industry.
- Articulate central management and operational distinctions between a traditional non-digital firm and an AI centered firm.
- Describe key functional and organizational differences between a traditional non-digital firm and an AI centered firm.
- Define certain key AI terms such as Strong AI, Weak AI, Machine Learning, Deep Learning, Robotic Process Automation, Supervised Learning, Unsupervised Learning and Reinforcement Learning.
- Establish a management roadmap for transforming a traditional non-digital firm into an AI centered firm.
- Identify methods for the removal of impediments and the reduction of risks associated with the transformation of a traditional non-digital firm into an AI centered firm.
- Identify and examine ethical, labor and societal issues associated with the implementation and use of AI, including such issues as life or death decision making, labor disruption, privacy and emotion reading AI.
- Discuss how AI is and will further impact certain business sectors, including heath care, financial institutions, retail, sports, entertainment and manufacturing.

- Deliniate core legal and regulatory concepts and challenges and participate in regulatory and policy developments associated with data privacy and data mining in the age of AI.

V. Methodology To Be Used

Learning activity will take place through a dynamic and collaborative format of discussions, case studies, instructor presentations and readings.

VI. Constructive Engagement

Each class will greatly build on the active participation of students. The best students will be very inquisitive and show a high level of diligence and thoughtfulness. All students will be expected to have read and thought carefully about all readings by their due date for completion. The best students will demonstrate their understanding of theoretical and practical issues and their ability to think about and provide real-life examples related to application of the subject matter. Attentive and responsive discussion of particular legal problems is highly valued.

VII. Plagiarism; Cheating

Any plagiarism or other form of cheating shall result in an automatic "F" (fail) grade and the student will not be able to retake the final examination. The student will also be subject to other disciplinary action as provided by the rules of the university. Students are prohibited from communicating with other students in any manner while taking the final exam.

VIII. Readings

Reading will be assigned by the instructor as the class proceeds. All assigned readings are compulsory.

Students should not only read, but also think carefully about the content of all reading assignments. Students are responsible for, and may be tested on, the content of all reading assignments, whether or not they are discussed in class. Students are encouraged to contact the instructor with any questions regarding any portion of any reading assignment that is not

discussed in class as well as with any questions regarding any portion of any reading assignments that are discussed in class.

IX. Class Schedule

(Class schedule and associated readings and discussions may be adjusted to reflect the pacing of class discussions and other matters. Associated reading will be assigned by Lecturer.)

Part I of Course: Foundations – Weeks 1-3

Week 1 Class

(a) Hour 1: Review of course requirements, syllabus and grading parameters and student and instructor introductions. Setting the scene: From Aristotle's statement in The Nichomachaen Ethics "Now each man judges well the things he knows, and of these he is a good judge" to the AI related Deep Blue, Watson, Alpha Go and Alpha Go Zero.

(b) Hour 2: Case Study: Impact on business and economy of the emergence of digital photography, including the demise of Kodak.

Home reading in preparation for Week 2 Class:

(i) Instructor identified excerpts from "Computing Machinery and Intelligence" A.M. Turing 1950 Mind 49: 433-460.

(ii) Chapters 1 and 2 of Competing in the Age of AI.

Week 2 Class

(a) Hour 1: Review and discussion of excerpts from "Computing Machinery and Intelligence" and The Turing Test. Workshop hypothetical involving The Turing Test.

In particular:

- What does it mean to "think" and the rules of the imitation game;
- Turing's analysis of the argument from consciousness and the arguments from various disabilities; and
- Turing's analysis of Lady Lovelace's objection and Turing's discussion of Learning Machines.

(b) Hour 2: Review and discussion of (i) difference between "Strong AI" and "Weak AI", (ii) designing a firm to maximize the potential of digitalization, (iv) what is a Business Model and what is an Operating Model, (v) the definitions of Value Creation and Value Capture, (vi) delivering value at scale and expanding scope via Machine Learning and (vii) distinctions between operating models of traditional firms and digital/AI driven firms.

Home Reading in Preparation for Week 3 Class:

(i) Instructor identified excerpts from "The Computer and the Brain" John von Neumann 1958.

(ii) Forward from The Future Computed.

Week 3 Class

(a) Hour 1: Discussion of John von Neumann's Contributions to AI, including concepts discussed in "The Computer and the Brain" in relation to contemporary artificial neural-networks. Discussion of the life and contributions to AI of the renowned Hungarian mathematician and computer scientist John von Neumann.

(b) Hour 2: (i) Discussion of excerpts from "The Computer and the Brain" and (ii) Case Study: Impact of Amazon's Collaborative Filtering Algorithms.

Homework reading in preparation for Week 4 Class:

Chapters 3 and 4 of Competing in the Age of AI.

Part II of Course: The Fourth Industrial Revolution: The Age of AI - Weeks 4-10

Week 4 Class

(a) Hour 1: Discussion of (i) distinctions between Artificial Intelligence, Machine Learning, Deep Learning and Robotic Process Automation and (ii) the virtuous cycle: More Data = Better Algorithms = Better Service = More Usage = More Data. Workshop hypothetical involving the creation of a virtuous cycle.

(b) Hour 2: Analysis of (i) Digital Organizations vs Traditional Organizations, (ii) transforming traditional/legacy organizations to Digital Organizations, (iii) driving

scale, scope and learning, (iv) the requirements of cultural transformation and (v) the four stages of transformation: siloed data to pilots to data hubs to AI factories. Case Study: Financial Institutions - The Digital Operating Model- the rise of Ant Financial Services Group.

Homework reading in preparation for Week 5 Class:

Chapter 1 of The Future Computed.

Week 5 Class

(a) Hour 1: Examination of what is Robotic Process Automation and how it differs from AI. Case Study: Use of Robotic Process Automation for fraud detection at financial institutions

(b) Hour 2: Discussion of risks associated with Robotic Process Automation software implementations. Discussion of how business leaders best negotiate agreements with service providers to mitigate those risks. Workshop hypothetical involving the negotiation of a Robotic Process Automation software implementation agreement with a service provider.

Homework reading in preparation for Week 6 Class:

Chapters 4 and 5 of Competing in the Age of AI.

Week 6 Class

(a) Hour 1: Examination of failed Digital Operating Models and Digital Transformations. Case Study: Failed Chat Bot Tey. Consideration of (i) human elements vs. costs and abilities to scale a business, (ii) relationships between data, AI and robotics (iii) moving labor off the critical path to produce scalability, (iv) digitizing critical processes and (v) using technology to foster customer loyalty and engagement.

(b) Hour 2: Case Study: A examination of the chances for success of Peloton, the streaming based fitness company.

Homework reading in preparation for Week 7 Class:

Chapter 2 of The Future Computed.

Week 7 Class

(a) Hour 1: Workshop hypothetical involving transforming a traditional company to a digital company. Examining:

- The problems of siloed data, fragmented data and inaccurate data.
- Problems of breaking down silos and integrating disparate legacy systems in traditional firms.
- The operating architecture of a digital organization.
- Using AI generated data to create actual and meaningful change.

(b) Hour 2: Continuation of workshop hypothetical involving transforming a traditional company to a digital company. Examining:

- Investment costs of cleaning, organizing and integrating data.
- Siloed software systems.
- Cultural inhibitors.
- Transparency, consent and access issues.
- Bringing mass production to data processing and analytics.
- Data security.

Homework reading in preparation for Week 8 Class:

Chapters 6 and 7 of Competing in the Age of AI.

Week 8 Class

(a) Hour 1: Machine Learnng in digital transformation, including a discussion of Supervised Learning; Unsupervised Learning; and Reinforcement Learning. Case Study: Start-up Hungarian AI health care company Medipredict.

(b) Hour 2: Transforming an Operating Model to one that is AI Centric. Discussion of following guiding principles:

- Strategic clarity and commitment.
- Architectural clarity.
- Product focused organization/cultural shift.
- Corporate governance – legal and ethical exposures.

Homework reading in preparation for Week 9 Class:

Chapter 3 from The Future Computed.

Week 9 Class

(a) Hour 1: Case Studies –Ethical issues involving self-driving cars, including the MIT Moral Machine platform for gathering human input on moral decisions made by AI. Discussion of who should be responsible for any AI decision and the issue of making the basis for any such decision traceable. Discussion on whether companies should include in their Code of Conduct a specific section on the appropriate use of AI.

(b) Hour 2: Discussion of Microsoft's Six AI Principles and societal impacts and labor force disruption caused by AI. Case Study: Humu, a company that uses Machine Learning to help entities build a stronger and more satisfied work force.

Homework reading in preparation for Week 10 Class:

Chapters 8 and 9 of Competing in the Age of AI.

Week 10 Class

(a) Hour 1: Examination of legal regulation of AI, including hypothetical involving:

- Privacy.
- Rights to Own and Control Data.
- Rights to Be Forgotten.
- Transborder Issues.

(b) Hour 2: Examination of the relationship between AI and individuals and society, including discussion of:

- Building Public Trust.
- Protecting individuals and society, addressing labor force disruption.
- Preventing unintended and harmful consequences.
- Preventing bias.
- Compliance.

Homework reading in preparation for Week 11 Class:

Conclusion from The Future Computed.

Part III: Over the Horizon – Weeks 11 and 12

Week 11 Class

(a) Hour 1: Workshop hypothetical involving managing inventory and supply chain-use to predict, improve efficiency and create recommendations for customers.

(b) Hour 2: Discussion of the impact on labor and society of the application of AI and the transformation to a digital firm.

Homework reading in preparation for Week 12 Class:

"Machine Learning and the Law: Five Theses" by Thomas Burri (Machine Learning and the Law Conference, 2017).

Week 12 Class

(a) Hour 1: Workshop hypothetical involving liability risks and insurance. Case Study: The problem of validating financial models created by Machine Learning - financial institutions use models to evaluate credit and operational risk - but how does one validate a model for use that is evolving each day as it receives new data?

(b) Hour 2: Emotions and AI. Ethical issues associated with emotion interpreting AI and an examination of questions associated with the creation of Artificial Emotional Intelligence. Concluding discussion: Can computers really think, reason, judge, intuit, decide or feel and does it really matter?

Week 13 Class

Written Final Exam.

X. Assessment and Grading

A student's grade will be based on the final exam.

The Instructor may at the Instructor's discretion award "plus points" to individual students for thoughtful and outstanding class participation. If a student receives four plus points during the term of the course the student's course grade will be raised one level from the student's final exam grade, subject to a maximum grade of a Hungarian Grade of 5 and an International Grade of A. If a student receives eight plus points during the term of the course the student's course grade will be raised two levels from the student's final exam grade (subject to a maximum grade of a Hungarian Grade of 5 and an International Grade of A). Notwithstanding the above if a student fails the final exam plus points will not raise the failing grade and the exam grade and course grade will remain as a failing grade.

Grading Scale For Final Exam:

Percentage achieved	*Hungarian Grade*	*Explanation for the Hungarian grade*	*International Grade*
90-100	**5**	**Excellent**	**A**
80-89	**4**	**Good**	**B**
70-79	**3**	**Satisfactory**	**C**
60-69	**2**	**Pass**	**D**
0-59	**1**	**Fail**	**F**
Nem jelent meg	**DNA**	**Did not attend (no credit)**	
Nem vizsgázott	**I**	**Incomplete (no credit)**	
Aláírva	**S**	**Signed (no credit)**	
Megtagadva	**R**	**Refused (no credit)**	