

BA 4155/5155 - AI in Business and Digital Transformation

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Office Hours:	
Course Web Page:	https://odtuclass.metu.edu.tr/
Course Description:	<p>AI in Business and Digital Transformation course explores how artificial intelligence is reshaping industries, business models, and leadership practices worldwide. The course introduces key concepts and strategic frameworks for leveraging AI in value creation, customer experience, operations, and decision-making. Topics include AI strategy formulation, data-driven transformation, generative AI tools (such as ChatGPT, Gemini, and Claude), and ethical governance of AI in organizations. Emphasizing a strategic and managerial perspective, the course blends theory with real-world case studies from diverse industries—finance, manufacturing, technology, and services—and incorporates one hands-on lab experience. By integrating insights from strategy, marketing, leadership, and innovation, the course prepares students to understand, evaluate, and lead AI-enabled business transformation.</p>
Course Student Learning Objectives: (CSLOs)	<p>Upon successful completion of this course, students should be able to:</p> <p>Course Specific Skills</p> <ol style="list-style-type: none">1. Understand and apply key concepts and frameworks of AI and digital transformation to:<ul style="list-style-type: none">• analyze how AI creates business value,• identify and evaluate AI use cases,• appraise alternative AI strategies,• select appropriate AI-driven solutions,• recommend effective implementation approaches.2. Integrate knowledge gained in functional courses by:<ul style="list-style-type: none">• applying marketing concepts to AI-driven customer strategies,• using operations and supply chain insights for AI-enabled process improvement,• incorporating financial and managerial considerations into AI investment decisions,• managing human resources in AI-supported organizational settings. <p>Discipline Specific Skills</p> <ol style="list-style-type: none">3. Become proficient in AI strategy and digital transformation tools (AI Canvas, maturity models, data readiness).4. Utilize AI-driven analysis tools, including generative AI platforms.5. Build on operations management knowledge through applications in automation and Industry 4.0/5.0.6. Build on marketing knowledge through AI-enabled personalization, segmentation, and customer experience design. <p>Personal and Key Skills</p> <ol style="list-style-type: none">7. Develop capacity in terms of:<ul style="list-style-type: none">• understanding the evolving role of managers in AI-driven organizations,• viewing business issues from a technology-aware general management perspective,• developing creative and innovative approaches to AI-enabled transformation,• strengthening business judgment under technological change.8. Problem-solving skills.9. Written and oral communication skills.10. Teamwork skills.

Learning and Teaching Methods:				
Online Lectures, In-Class Exams, Cases, Projects and Exercises				
Reference Material:				
Competing in the Age of AI: Strategy and Leadership When Algorithms and Networks Run the World, Marco Iansiti & Karim R. Lakhani, Harvard Business Review Press				
Supplementary Material:				
<ol style="list-style-type: none"> 1. Davenport, T. & Ronanki, R. (2018). Artificial Intelligence for the Real World. Harvard Business Review. 2. MIT Sloan Management Review (2023). Building a Data Strategy for Generative AI. 3. Brynjolfsson, E., & McAfee, A. (2017). The Business of Artificial Intelligence. MIT Sloan. 4. Kane, G. C. et al. (2019). Accelerating Digital Innovation Inside and Out. MIT Sloan. 5. Nadella, S. Case Study Excerpts on Microsoft's AI Strategy. 6. Westerman, G., & Bonnet, D. (2015). Leading Digital. (selected chapters). 7. Davenport, T. et al. (2023). How Generative AI Is Changing Marketing. Harvard Business Review. 8. McKinsey (2024). The New Personalization Imperative in the Age of GenAI. 9. Amtrak "Julie" Virtual Assistant Case. 10. McKinsey. Personalization at Scale. 11. Xu, L. D., et al. (2023). Industry 5.0: Human–AI Collaboration in Manufacturing. 12. World Economic Forum (2023). Industry 5.0 and the Future of Smart Manufacturing. 13. Ivanov, D. (2024). AI-Driven Supply Chain Resilience. 14. BIS / World Economic Forum (2023). AI in Financial Services: Risk, Governance, and Value Creation. 15. Tursunbayeva, A. (2022). AI in HRM: A Systematic Review. Human Resource Management Review. 16. OpenAI / Google / Anthropic. Model Cards. 17. Shankar, V. (2018). AI in Business: Frameworks and Implications. Journal of Interactive Marketing. 18. Kane, G. C. et al. (2015). Strategy, Not Technology, Drives Digital Transformation. MIT Sloan Management Review. 19. Mittelstadt, B. (2019). Principles Alone Cannot Guarantee Ethical AI. Nature. 20. Jobin, A., Ienca, M., & Vayena, E. (2019). The Global Landscape of AI Ethics Guidelines. Nature Machine Intelligence. 21. European Union (2024). EU AI Act – Summary Report. 22. Whittlestone, J. (2019). The Role of Governance in Responsible AI. 23. Stanford University. AI Index Report (Selected Global Trends). 24. Iansiti, M., & Lakhani, K. R. (2024). Competing in the Age of AI. (Chapters on operating models, leadership, and execution). 25. Csaszar, F. (2024). AI and Strategic Decision-Making: Field Experiments. 				

Assessment and Grading:				
Assessment Component	% Contribution	Assessment Description / Size	CSLOs Covered	Feedback Method
Midterm Exam	30%	60–75 minute written exam (TBC)	1–9	Individual debrief
AI Case Analysis & Digital Transformation Strategy (Group Work)	25%	Written report, in-class presentation, peer evaluation	1–10	In-class debrief
In-class Discussions, Exercises, and Quizzes	10%	Short discussions (1–2 minutes), exercises (15–20 minutes), short-answer quizzes	1–10	In-class debrief
Final Exam	35%	75-minute written exam	1–9	Individual debrief

Course Procedures and Policies:

EXAMINATIONS: There will be one midterm exam and one final exam which relate to the lectures and the cases and exercises. The midterm exam will be in-class exam. The following is the tentative schedule for the exams:

Midterm: to be announced

Final Exam: to be announced

Make-up exam will only be given under the most unusual circumstances. All make-ups will take place at the end of the term.

There will not be any online exams.

CASE : The details for the case will be provided on ODTUClass.

INFORMED CONSENT: All students should sign and upload the informed consent form available at ODTUClass (Deadline: end of first week of classes)

STUDENT DISABILITIES: Any student, who, because of a disabling condition, may require special arrangements to meet course requirements, should contact the instructor as soon as possible. Students should present the appropriate documentation from the university's Disability Support Office (Engelsiz ODTÜ Birimi, ODTÜ Kütüphanesi, Solmaz İzdemir Salonu, Tel: 210.7196; engelsiz@metu.edu.tr) verifying their disability, and outlining the special arrangements required. Please note that no accommodations will be provided to the disabled students prior to the completion of this approved University process.

ACADEMIC DISHONESTY: The Department of Business Administration has no tolerance for acts of academic dishonesty. Such acts damage the reputation of METU, the department and the BA/MBA/MS degree and demean the honest efforts of most of the students. The minimum penalty for an act of academic dishonesty will be a zero for that assignment or exam.

CHEATING: All university, faculty/institute, and department principles on academic honesty will be strictly enforced. The usual consequence for academic dishonesty is failure of the course and referral of the case to the Dean of the Faculty/Institute for additional disciplinary action. Examinations are individual and are to be completed without outside assistance of any sort. Persons observed cheating during examinations will receive a failing grade in the course. Homework assignments are individual, unless otherwise specified by the instructor, and are to be completed without outside assistance of any sort, as well. Persons observed cheating in their homework assignments will receive a score of zero for the portion of the semester grade that is allocated to such assignments.

PLAGIARISM: The instructor assumes that students will do their own work. By placing their names on assignments (individual or team), students are affirming that the contents are their original work. Any previous work available from files or past students, as well as materials available on the internet may be used only as a suggestive model. Violation of this provision will be considered as unethical behavior, subject to disciplinary action. If you have any doubt about the use of a specific material, see the instructor ahead of time. Any material used from outside sources should be referenced appropriately.

Teams plagiarizing their assignments will receive punishments ranging from getting zero for the portion of the semester grade that is allocated to assignments to getting a failing grade from the course. The instructor will use a special software to check for possible plagiarism in assignments.

LATE ASSIGNMENTS: Late assignments will not be accepted.

METU HONOR CODE

Every member of METU community adopts the following honor code as one of the core principles of academic life and strives to develop an academic environment where continuous adherence to this code is promoted.

"The members of the METU community are reliable, responsible and honorable people who embrace only the success and recognition they deserve, and act with integrity in their use, evaluation and presentation of facts, data and documents."

CIVILITY IN THE CLASSROOM: Students are expected to assist in maintaining a classroom environment which is conducive to learning. To assure that all students have an opportunity to gain from time spent in class. Inappropriate class behavior will be penalized.

Past observations showed that the METU classroom experience is improved when the following are true:

Students arrive on time. Timely arrival ensures that classes can start and finish at the scheduled times. Timely arrival shows respect for both fellow students and faculty and it helps to create a better learning environment by reducing avoidable distractions.

Students are fully prepared for each class. Much of the learning in this course takes place during classroom discussions. When students are not prepared, they cannot contribute to the learning process. This affects not only the individual but also the classmates who count on them.

Students respect the views and opinions of their colleagues. Disagreement and debate are encouraged; however, intolerance for the views of others is unacceptable.

Keep your mikes turned off unless you are given the floor.

KNOW YOUR RIGHTS AND RESPONSIBILITIES! [Academic Rules and Regulations](#)

NOTE THE IMPORTANT DATES ON THE ACADEMIC CALENDAR! [Academic Calendar](#)

The instructor assumes that students who attend the next class have understood and accepted to agree with all the requirements and rules of this course.

The following table gives the tentative schedule for the semester. The lectures will stress the most important material. The students are required to be ready for the material before they are covered in class.

Session	Topic	Reading / Assignment	CSLO
1	Course Introduction	–	7–10
1	Introduction to AI, Digitalization & Global Industry Trends	McKinsey & Company (2024). <i>The State of AI in 2024: Generative AI's Breakout Year</i> - Davenport, T. & Ronanki, R. (2018). Artificial Intelligence for the Real World. Harvard Business Review.	7–10
2	Data Foundations & AI Readiness	MIT Sloan Management Review (2023). <i>Building a Data Strategy for Generative AI</i>	1–10
2	AI Value Creation & Business Applications	- Brynjolfsson, E., & McAfee, A. (2017). The Business of Artificial Intelligence. MIT Sloan.	1–10
3	Leadership in the Age of AI	- Kane, G. C. et al. (2019). Accelerating Digital Innovation Inside and Out. MIT Sloan. - Nadella, S. (Case Study Excerpts on Microsoft's AI Strategy).	1–10
3	Change Management for Digital Transformation	- Westerman, G., Bonnet, D. (2015). Leading Digital. (selected chapters).	1–10
4	AI in Marketing & Customer Experience	- Davenport, T. et al. (2023). <i>How Generative AI Is Changing Marketing.</i> HBR - McKinsey (2024). <i>The New Personalization Imperative in the Age of GenAI</i> - Netflix Personalization Case Study (HBR or company case).	1–10
4	AI in Customer Service – Chatbots, Recommendation Engines	- Amtrak "Julie" Virtual Assistant Case. - McKinsey. Personalization at Scale (selected sections).	1–10
5	AI in Operations – Automation, Industry 4.0/5.0	- Xu, L. D., et al. (2023). <i>Industry 5.0: Human–AI Collaboration in Manufacturing.</i> - WEF (2023). <i>Industry 5.0 and the Future of Smart Manufacturing</i> - Case: Philips "Dark Factory" Automation.	1–10
5	AI in Supply Chain & Predictive Maintenance	- Ivanov, D. (2024). <i>AI-Driven Supply Chain Resilience.</i>	1–10
6	AI in Finance – Fraud Management & Risk	- BIS / World Economic Forum (2023). <i>AI in Financial Services: Risk, Governance, and Value Creation</i> - Case: Global Bank Fraud Detection with ML (McKinsey).	1–6
6	AI in HR & Support Functions	- Tursunbayeva, A. (2022). AI in HRM: A Systematic Review. HR Review.	1–10
7	Generative AI Tools (ChatGPT, Gemini, Claude) – Hands-On Lab	–	1–10
7	Using GenAI for Business Problem-Solving	- OpenAI / Google / Anthropic "Model Cards" (capabilities & limitations).	1–10
8	Midterm	–	1–6
8	Midterm	–	1–6
9	AI Strategy Frameworks – AI Canvas, Maturity Models	- Shankar, V. (2018). AI in Business: Frameworks and Implications. Journal of Interactive Marketing.	1–10
9	Enterprise Digital Transformation Strategy	- Kane, G.C. et al. (2015). Strategy, Not Technology, Drives Digital Transformation. MIT Sloan.	1–10
10	Responsible & Ethical AI, AI Governance & Regulation (EU AI Act, Global Frameworks)	- Mittelstadt, B. (2019). Principles Alone Cannot Guarantee Ethical AI. Nature. - Jobin, A., Ienca, M., & Vayena, E. (2019). The Global Landscape of AI Ethics Guidelines. Nature Machine Intelligence. - EU AI Act Summary Report (2024) - Whittlestone, J. (2019). The Role of Governance in Responsible AI.	1–10
10	Emerging Trends – Multimodal AI, Autonomous Systems, Future of Work Global AI Competitiveness (US–China–EU)	- Stanford AI Index Report (Selected Global Trends).	1–10

11	Team Project Presentations (Part 1)	–	1–10
11	Team Project Presentations (Part 2)	–	1–10
12	Team Project Presentations (Part 3)	–	1–6
12	Team Project Presentations (Part 4)	–	1–6
13	Team Project Presentations (Part 5)	–	1–10
13	Implementing AI Strategy & Organizational Transformation	Iansiti, M., & Lakhani, K. R. (2024). <i>Competing in the Age of AI</i> (Chapters on operating models, leadership, and execution).	1–10
14	AI and the Future of Management	- Csaszar, F. (2024). AI and Strategic Decision-Making: Field Experiments.	1–10
14	Course Wrap-Up	–	1–10