

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/330039819>

Artificial Intelligence and Management Science

Presentation · January 2019

DOI: 10.13140/RG.2.2.27505.94563

CITATIONS

0

READS

265

1 author:



Yeming Gong

EMLYON Business School

76 PUBLICATIONS 241 CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:



Logistics Management and Decision for Online Retailers: Big Data Driven Theories and Methodologies [View project](#)



NSFC71571103 [View project](#)

DOCTORAL COURSE SYLLABUS

Artificial Intelligence and Management Science

(01/01/2019)

Yeming (Yale) GONG

Course Specifications

- Course title: **Artificial Intelligence and Management Science** (Advanced Topics in Business and Management)
- Teaching language: English
- Teacher: Prof. dr. Yeming (Yale) GONG
- Participant: DBA students, PhD candidates, post-doctoral researchers, and junior scientists.

Learning Objectives

- This course deals with basic concepts, theories, philosophies, and paradigms of “Artificial Intelligence and Management Science”, acquaints participants with various tools, techniques, and methods used in “Artificial Intelligence and Management Science”, discusses the newest practices of “Artificial Intelligence and Management Science”, and examines the technical and organizational challenges for implementing “Artificial Intelligence and Management Science”. This course includes six sessions.
 - In Session 1, we present social and technological backgrounds and advanced new topics in society. (1.1) First, we study the fundamental concepts of AI (Artificial Intelligence) and Big Data. We will read one of the most influential works “Deep Learning” in *Nature* by Hinton (the major scholar of AI in the world), “Machine Learning” in *Science*, and “Ethics of artificial intelligence” in *Nature*. (1.2) Then we will introduce The Internet of Things (IoT), The Internet of Everything, The Industrial Internet of Things (IIoT), Physical Internet, Block Chain, Industry 4.0, Smart Manufacturing 2025. We will read “Artificial Intelligence: The Next Digital Frontier” from McKinsey. Finally, we will study 3 Laws in CS (Moore law, Gilder law, Metcald Law) and Moravec's Paradox.
 - In Session 2, we study theoretical background in Artificial Intelligence and Social Sciences, which are foundation of management science. We first study AI and Social Science, including theories between AI and philosophy, sociology, psychology, and politics. For example, we present “artificial intelligence and the sociology of mind” (*American Journal of Sociology*), “the sociology of a logical theorem in artificial intelligence” (*American Sociological Review*), “sociology of machines” (*Sociology*), and “interactions with robots” (*Annual Review of Psychology*). We also study new methods, new ideas, and new paradigm for Artificial

Intelligence in Social Science. Particularly, we study “amplify scientific discovery with artificial intelligence”(Science) and “a converging paradigm for intelligence in brains, minds, and machines” (Science). We also study emotional intelligence (*The Academy of Management Review*) and collaborative intelligence (*Harvard Business Review*).

- In Session 3, We particularly study Artificial Intelligence and economics. DBA students particularly will read “economic reasoning and artificial intelligence” (*Science*). We also focus on the topics “artificial intelligence and business research” to understand how AI redefines management (*Harvard Business Review*) and reshapes business (*MIT Sloan Management Review*).
- In Session 4, we study Artificial Intelligence and MIS (Management Information Systems). (4.1): We first study “business intelligence and MIS”. We understand the theories in “business intelligence and analytics from big data to big impact” (*MIS Quarterly*), and study several research examples including “community intelligence and social media services” (*MIS Quarterly*), “Business Intelligence in Blogs” (*MIS Quarterly*), “topic modeling for industry intelligence”(MIS Quarterly) and “continental airlines flies high with real-time business intelligence” (*MIS Quarterly Executive*). (4.2) We present advanced topics in “Big data and MIS”, and present “diversity of design science research” (*MIS Quarterly*). We studies several research examples including “transformation issues of big data and analytics in networks business” and “mining massive fine-grained behavior data to improve predictive analytics” (*MIS Quarterly*).
- In Session 5, we consider Artificial Intelligence and POM (Production Operations Management). (5.1)Artificial Intelligence and Manufacturing and Logistics Operations. We study “big data to drive supply chain” (*California Management Review*), “price competition in high-dimensional space” (*Management Science*), and “creating value through business model innovation” (*MIT Sloan Management Review*). DBA participants will also have chances to study practical case in “DHL Artificial Intelligence in Logistics”. (5.2) Artificial Intelligence and Service Operations. We study some researches relevant to customer behavior including “consumer and object experience in the internet of things” (*Journal of Consumer Research*), “post-acceptance information system usage behaviors and business intelligence systems context” (*Information systems research*). We also study “E-commerce product recommendation agents” (*MIS Quarterly*), “service innovation in the digital age” (*MIS Quarterly*), “artificial intelligence in service”(Journal of Service Research), and “designing a better shopbot” (*Management Science*).
- In Session 6, we summarize the Artificial Intelligence and Social Science. Section 6.1 summarize Artificial Intelligence and Social Science by themes, including Culture; Time, Continuity, and Change; People, Places, and Environments; Individual Development and Identity; Individuals, Groups, and Institutions; Power, Authority, and Governance; Production, Distribution, and Consumption; Science, Technology, and Society; Global Connections; Civic Ideals and Practicess. In Section 6.2, we present Artificial Intelligence and Social Science from a view of Philosophy, including AI and Ontology, AI and Epistemology, AI and Axiology, and AI and Methodology. In Section 6.3, we present relevant research methodology organized by philosophical stances including Rationalism vs Empiricism, AI and Positivism,

AI -based Post-positivism, AI -based Interpretivism, AI -based Phenomenology, AI and Constructivism, AI and Pragmatism, Realism vs relativism. Finally, we conduct discussion and debate in Section 6.4.

Organization, Methods and Pedagogical Means

Material will be presented using a variety of teaching approaches including lectures, multimedia cases, short videos, class discussion, and assigned readings. When possible a cooperative, student-centered learning approach will be utilized to enable a high level of student involvement.

Steps	Activities	Motivations
1 Reading	Doctoral participants read relevant literature before sessions.	Doctoral participants understand background knowledge and theories.
2 Theories	The professor presents the major relevant theories.	Doctoral participants study core theories in AI and management Science.
3 Research example	The professor presents the major research examples by leading researchers.	Doctoral participants can know how to do researching from the researching examples.
4 Discussion	The professors and students discuss relevant topics.	Doctoral participants can get hints on topic choices for the future research.

Precise Sequence Description

There will be a total of 6 sessions which activities are detailed in the course content section of this syllabus.

Session	Content	Reading and activities
Session 1 (Social and technological backgrounds)	(1.1) AI and Big Data <ul style="list-style-type: none"> Artificial Intelligence Big data 	<u><i>Reading before session</i></u> 1. Hinton (2015) Deep learning. <i>Nature</i> <u>Discussion</u>
Advanced new topics in society	Research examples <ul style="list-style-type: none"> Ethics of artificial intelligence. 	Jordan and Mitchell (2015) Machine learning. <i>Science</i>

	<p>(1.2) IoT, IIoT, π, BC, I4.0, MiC2025</p> <ul style="list-style-type: none"> • The Internet of Things (IoT) • The Industrial Internet of Things (IIoT) • Physical Internet • Block Chain • Industry 4.0 • Made in China 2025 <hr/> <p>(1.3) Rules and Paradox</p> <ul style="list-style-type: none"> • 3 Laws in CS (Moore law, Gilder law, Metcald Law) • Moravec's Paradox 	<p><u>Reading before session</u></p> <p>2. Chui and Francisco(2017). Artificial intelligence the next digital frontier? McKinsey (+its notes in 2018)</p>
<p>Session 2</p> <p>(Theoretical background)</p> <p>Artificial Intelligence and Social Sciences</p>	<p>AI and Fundamental Social Science</p> <p>Theory</p> <ul style="list-style-type: none"> • Artificial Intelligence and sociology • Artificial intelligence and philosophy • Artificial Intelligence and psychology • Artificial Intelligence and social psychology • Artificial Intelligence and esthetics • Artificial Intelligence and politics • Artificial Intelligence and law • Artificial Intelligence and education <p>New methods, new ideas, and new paradigm</p> <ul style="list-style-type: none"> • Artificial Intelligence and researching methods in Social Science <hr/> <p>Research examples</p> <ul style="list-style-type: none"> • AI and USA president election • AI ,driverless vehicle , and ethics • Artificial intelligence and the sociology of mind • Sociology of Machines • Emotional Intelligence • Certifying knowledge: the sociology 	<p><u>Reading before session</u></p> <p>3. Gil et al. (2014) Amplify scientific discovery with artificial intelligence. <i>Science</i></p> <p>4. Gershman et al. (2015) Computational rationality: A converging paradigm for intelligence in brains, minds, and machines. <i>Science</i></p> <p><u>Discussion</u></p> <p>Woolgar (1985) Why not a Sociology of Machines? <i>Sociology</i></p> <p>Salovey and Mayer (1990). <i>Emotional Intelligence</i>.</p> <p>Wolfe (1991) Artificial intelligence and the sociology of mind. <i>American Journal of Sociology</i></p> <p>Rosental (2003) The sociology of a logical theorem in artificial intelligence. <i>American Sociological Review</i></p> <p>Bainbridge et al. (1994) Artificial social intelligence. <i>Annual Review of Sociology</i></p> <p>Broadbent(2017) Interactions with robots: The truths we reveal about ourselves. <i>Annual Review of Psychology</i></p> <p>Bonnefon et al. (2016). The social dilemma of autonomous vehicles. <i>Science</i>, 352(6293), 1573-1576.</p> <p>Huy (1999) Emotional Capability, Emotional Intelligence, and Radical Change. <i>The Academy of Management Review</i></p> <p>Gray, H. M., Gray, K., & Wegner, D. M. (2007).</p>

	<p>of a logical theorem in artificial intelligence.</p> <ul style="list-style-type: none"> Artificial social intelligence. 	Dimensions of mind perception. <i>Science</i>
Session 3	<p>AI and Economics /Business</p> <ul style="list-style-type: none"> Artificial Intelligence and economics Artificial Intelligence and business research 	<p><u>Reading before session</u></p> <p>5. Parkes et al. (2015) Economic reasoning and artificial intelligence. <i>Science</i></p> <p>6. Kolbjørnsrud et al.(2016) How artificial intelligence will redefine management. <i>Harvard Business Review</i></p> <p><u>Discussion</u></p> <p>George et al. (2014) Big data and management. <i>Academy of Management Journal</i></p>
	<p>Research examples</p> <ul style="list-style-type: none"> An empirical study of the rise of big data in business scholarship How artificial intelligence will redefine management. Big data: the management revolution. Reshaping Business with Artificial Intelligence 	<p>McAfee et al. (2012) Big data: the management revolution. <i>Harvard Business Review</i></p> <p>Wilson and Daugherty (2018) Collaborative intelligence: humans and AI are joining forces. <i>Harvard Business Review</i>.</p> <p>Ransbotham et al (2017) Reshaping business with artificial intelligence. <i>MIT Sloan Management Review</i></p> <p>Patterson, S. (2012). <i>Dark Pools</i>: The rise of the machine traders and the rigging of the US stock market. Crown Business.</p>
Session 4	<p>(4.1): Business Intelligence and MIS</p> <ul style="list-style-type: none"> Business Intelligence and Analytics: From Big Data to Big Impact 	<p><u>Reading before session</u></p> <p>7. Chen et al. (2012) Business intelligence and analytics. <i>MIS Quarterly</i></p> <p><u>Discussion</u></p>
Artificial Intelligence and MIS (Management Information Systems)	<p>Research examples</p> <ul style="list-style-type: none"> Community intelligence and social media services Business Intelligence in Blogs Toward a Better Measure of Business Proximity: Topic Modeling for Industry Intelligence 	<p>Oh et al. (2013) Community intelligence and social media services. <i>MIS Quarterly</i></p> <p>Chau and Xu (2012) Business intelligence in blogs. <i>MIS Quarterly</i></p> <p>Shi et al. (2016) Business proximity: topic modeling for industry intelligence. <i>MIS Quarterly</i></p> <p>Anderson-Lehman et al. (2004). Continental Airlines flies high with real-time business intelligence. <i>MIS Quarterly Executive</i></p>
	<p>(4.2) Big data and MIS</p> <ul style="list-style-type: none"> Diversity of design science research 	<p><u>Reading before session</u></p> <p>8. McKinsey (2016) The age of analytics: competing</p>

	<ul style="list-style-type: none"> • Big data: from beginning to future 	<p style="text-align: center;">in a data-driven world</p> <p><u>Discussion</u></p> <p>Baesens et al. (2016) Transformation issues of big data and analytics in networks business. <i>MIS Quarterly</i></p> <p>Martens et al. (2016) Mining massive fine-grained behavior data to improve predictive analytics. <i>MIS Quarterly</i></p> <p>Rai (2017) Diversity of design science research. <i>MIS Quarterly</i></p>
<p>Session 5</p> <p>Artificial Intelligence and POM(Production Operations Management)</p>	<p>(5.1)Artificial Intelligence and Production/ Logistics</p> <ul style="list-style-type: none"> • Big data, analytics and the path from insights to value. • How to use big data to drive your supply chain • Artificial intelligence in logistics <p>Research examples</p> <ul style="list-style-type: none"> • Data-driven assortment personalization • Peer-to-Peer Product Sharing • Price competition in high-dimensional space • Artificial intelligence in logistics 	<p><u>Reading before session</u></p> <p style="text-align: center;">9. Sanders (2016) Big data to drive supply chain. <i>California Management Review</i></p> <p><u>Discussion</u></p> <p>Bernstein et al. (2018). A dynamic clustering approach to data-driven assortment personalization. <i>Management Science</i>.</p> <p>Benjaafar ET AL. (2018). Peer-to-Peer Product Sharing: Implications for Ownership, Usage, and Social Welfare in the Sharing Economy. <i>Management Science</i></p> <p>LaValle et al. (2011). Big data, analytics and the path from insights to value. <i>MIT Sloan management review</i></p> <p>Li et al. (2017) Price to compete... with many: how to identify price competition in high-dimensional space. <i>Management Science</i>.</p> <p>Amit and Zott (2012) Creating value through business model innovation. <i>MIT Sloan Management Review</i></p> <p>DHL(2018) Artificial intelligence in logistics</p>
	<p>(5.2) Artificial Intelligence and Service Operations</p> <ul style="list-style-type: none"> • Service innovation in the digital age. • Consumer and object experience in the internet of things <p>Research examples</p> <ul style="list-style-type: none"> • E-commerce product recommendation agents • Integrating service quality with system and information quality: An 	<p><u>Reading before session</u></p> <p style="text-align: center;">10. Barrett et al (2015). Service innovation in the digital age. <i>MIS Quarterly</i></p> <p style="text-align: center;">11. Hoffman and Novak (2017) Consumer and object experience in the internet of things. <i>Journal of Consumer Research</i></p> <p><u>Discussion</u></p> <p>Xu et al.(2013). Integrating service quality with system and information quality: An empirical test in the e-service context. <i>MIS Quarterly</i></p> <p>Xiao and Benbasat (2007) E-commerce product</p>

	<p>empirical test in the e-service context</p> <ul style="list-style-type: none"> • How information quality leads to localized capabilities and customer service performance. • Enhancing customer service through the internet of things and digital data streams. • Designing a better shopbot. 	<p>recommendation agents. <i>MIS Quarterly</i></p> <p>Additiona Setia, et al. (2013) How information quality leads to localized capabilities and customer service performance. <i>MIS Quarterly</i></p> <p>Barrett et al. (2015) Service innovation in the digital age. <i>MIS Quarterly</i></p> <p>Ives et al. (2016) Enhancing Customer Service through the Internet of Things and Digital Data Streams. <i>MIS Quarterly Executive</i></p> <p>Huang and Rust (2018) Artificial intelligence in service. <i>Journal of Service Research</i></p> <p>Li et al. (2013) Motivational differences across post-acceptance information system usage behaviors: business intelligence systems context. <i>Information systems research</i></p> <p>Montgomery et al. (2004) Designing a better shopbot. <i>Management Science</i></p>
<p>Session 6</p> <p>Sum</p>	<p>6.1 Artificial Intelligence and Social Sciences: Themes</p> <ul style="list-style-type: none"> • Culture • Time, Continuity, and Change • People, Places, and Environments • Individual Development and Identity • Individuals, Groups, and Institutions • Power, Authority, and Governance • Production, Distribution, and Consumption • Science, Technology, and Society • Global Connections • Civic Ideals and Practicess 	
	<p>6.2 Artificial Intelligence and Social Sciences: Research Philosophy</p> <ul style="list-style-type: none"> • AI and Ontology • AI and Epistemology • AI and Axiology • AI and Methodology 	
	<p>6.3 Artificial Intelligence and Social Sciences: Research Methodology</p> <ul style="list-style-type: none"> • Rationalism vs Empiricism 	

	<ul style="list-style-type: none"> • AI and Positivism • AI -based Post-positivism • AI -based Interpretivism • AI -based Phenomenology • AI and Constructivism • AI and Pragmatism • Realism vs relativism 	
	6.4 Discussion and debate	

Homework

The reference in red is required to be read before the session.

Bibliography

Session 1 (Social and technological backgrounds)

Advanced new topics in society

N. Sharkey (2008) The ethical frontiers of robotics. *Science*. Vol. 322. no. 5909, pp. 1800 – 1801.

M. I. Jordan, T. M. Mitchell (2015) Machine learning: trends, perspectives, and prospects. *Science*. Vol. 349, Issue 6245, pp. 255-260

E. Mjolsness, D. DeCoste (2001) Machine learning for science: state of the art and future prospects. *Science* Vol. 293, Issue 5537, pp. 2051-2055.

Y. LeCun, Y. Bengio & G. Hinton (2015) Deep learning. *Nature*, 521:436-444

Chui, M., & Francisco, S. (2017). Artificial intelligence the next digital frontier? McKinsey and Company Global Institute, 47.

Manyika, J., Chui, M., Brown, B., Bughin, J., Dobbs, R., Roxburgh, C., & Byers, A. H. (2011). Big data: The next frontier for innovation, competition, and productivity. McKinsey & Company.

McKinsey (2018) AI, automation, and the future of work: ten things to solve for. McKinsey & Company.

Chou, T. (2016). Precision: Principles, Practices and Solutions for the Internet of Things. Basic Books. CrowdStory.

Deloitte (2016). Artificial Intelligence. Innovation Report.

McKinsey Global Institute (2016). Harnessing automation for a future that works.

Silver, D., Huang, A., Maddison, C. J., Guez, A., Sifre, L., Van Den Driessche, G., ... & Dieleman, S. (2016). Mastering the game of Go with deep neural networks and tree search. *Nature*, 529(7587), 484

Silver, D., Schrittwieser, J., Simonyan, K., Antonoglou, I., Huang, A., Guez, A., ... & Chen, Y. (2017). Mastering the game of Go without human knowledge. *Nature*, 550(7676), 354.

Session 2 AI and Fundamental Social Science

S. J. Gershman, E.J. Horvitz, J.B. Tenenbaum (2015) Computational rationality: A converging paradigm for intelligence in brains, minds, and machines. *Science*. Vol. 349, Issue 6245, pp. 273-278

Y. Gil, M. Greaves, J. Hendler, H. Hirsh (2014) Amplify scientific discovery with artificial intelligence. *Science*. Vol. 346, Issue 6206, pp. 171-172.

S. Russell, S. Hauert, R. Altman, M. Veloso (2015) Ethics of artificial intelligence. *Nature*, 521:415-418.

Q. N. Huy (1999) Emotional capability, emotional intelligence, and radical change. *The Academy of Management Review*, Vol. 24, No. 2 pp. 325-345.

B. M. Lake, R. Salakhutdinov, J. B. Tenenbaum (2015) Human-level concept learning through probabilistic program induction. *Science*. Vol. 350, Issue 6266, pp. 1332-1338.

B. Deng (2015) The Robot's Dilemma. *Nature*. 523:24-26.

J. A. Feldman and R. F. Sproull (1977) Decision theory and artificial intelligence ii: the hungry monkey. *Cognitive Science*.

Woolgar, S. (1985). Why not a sociology of machines? The case of sociology and artificial intelligence. *Sociology*, 19(4), 557–572.

Salovey, P., & Mayer, J. D. (1990). Emotional Intelligence. *Imagination, Cognition and Personality*, 9(3), 185–211.

Wolfe, A. (1991) Mind, self, society, and computer: Artificial intelligence and the sociology of mind. *American Journal of Sociology*, 96(5), 1073-1096.

Rosental, C. (2003). Certifying knowledge: the sociology of a logical theorem in artificial intelligence. *American Sociological Review*, 623-644.

Bainbridge, W. S., Brent, E. E., Carley, K. M., Heise, D. R., Macy, M. W., Markovsky, B., & Skvoretz, J. (1994). Artificial social intelligence. *Annual Review of Sociology*, 20(1), 407-436.

Broadbent, E. (2017). Interactions with robots: The truths we reveal about ourselves. *Annual Review of Psychology*, 68, 627-652.

Bonnefon, J. F., Shariff, A., & Rahwan, I. (2016). The social dilemma of autonomous vehicles. *Science*, 352(6293), 1573-1576.

Accenture (2018) Artificial Intelligence: Healthcare's New Nervous System

Horvitz, E. (2017). AI, people, and society. *Science*, 357(6346), 7–7

Wang, F. Y., Carley, K. M., Zeng, D., & Mao, W. (2007). Social computing: From social informatics to social intelligence. *IEEE Intelligent systems*, 22(2).

Gray K, Wegner D M. Feeling robots and human zombies: Mind perception and the uncanny valley. *Cognition*, 2012, 125(1): 125-130.

Kahn Jr P H, Kanda T, Ishiguro H, et al. “Robovie, you'll have to go into the closet now”: Children's social and moral relationships with a humanoid robot. *Developmental psychology*, 2012, 48(2): 303.

Langer,E.J.(1992). Matters of mind: Mindfulness/mindlessness in perspective. *Consciousness and Cognition*,1,289-305.

Nass C, Reeves B. 1996. *The Media Equation: How People Treat Computers, Televisions, and New Media as Real People and Places*. Cambridge, UK: Cambridge Univ. Press.

Gray, H. M., Gray, K., & Wegner, D. M. (2007). Dimensions of mind perception. *Science*, 315(5812), 619-619.

Section 3 AI and Economics /Business

D. C. Parkes, M.P. Wellman (2015) Economic reasoning and artificial intelligence. *Science*: Vol. 349, Issue 6245, pp. 267-272.

G.George, M. R. Haas, A. Pentland (2014) Big data and management. *Academy of Management Journal*, Vol. 57, No. 2, 321–326.

J.Frizzo-Barker , P. A. Chow-White, M. Mozafari, D. Ha. (2016) An empirical study of the rise of big data in business scholarship. *International Journal of Information Management*, 36: 403–413.

McAfee, A., Brynjolfsson, E., Davenport, T.H., Patil, D.J. and Barton, D., 2012. Big data: the management revolution. *Harvard Business Review*, 90(10), pp.60-68.

Kolbjørnsrud, V., Amico, R., & Thomas, R. J. (2016). How artificial intelligence will redefine management. *Harvard Business Review*, 2.

Ransbotham, S., Kiron, D., Gerbert, P., & Reeves, M. (2017). Reshaping business with artificial intelligence: closing the gap between ambition and action. *MIT Sloan Management Review*, 59(1).

Patterson, S. (2012). Dark Pools: The rise of the machine traders and the rigging of the US stock market. *Crown Business*.

Daugherty, P. R., & Wilson, H. J. (2018). *Human+ Machine: Reimagining Work in the Age of AI*. *Harvard Business Press*.

Shook, E., & Knickrehm, M. (2018). Reworking the revolution. *Accenture*. January.

Wilson, H. J., & Daugherty, P. R. (2018). Collaborative intelligence: humans and AI are joining forces. *Harvard Business Review*.

Session 4. Artificial Intelligence and MIS (Management Information Systems)

(4.1) Business Intelligence and MIS

H. Chen, R.H. L. Chiang and V. C. Storey (2012) Business intelligence and analytics: from big data to big impact: *MIS Quarterly*, Vol. 36, No. 4 pp. 1165-1188

O. Oh, M. Agrawal, HR Rao (2013) Community intelligence and social media services: A rumor theoretic analysis of tweets during social crises. *MIS Quarterly* Vol. 37 No. 2, pp. 407-426.

M. Chau and J. Xu (2012) Business Intelligence in Blogs: Understanding Consumer Interactions and Communities. *MIS Quarterly*, Vol. 36, No. 4 pp. 1189-1216.

Z. Shi, G.M. Lee, A.B. Whinston (2016) Toward a better measure of business proximity: topic modeling for industry intelligence. *MIS Quarterly*, Vol. 40 Issue 4, p1035-A53.

T. S. Raghu, Robert D. (2018) Governing the wild west of predictive analytics and business intelligence. *MIS Quarterly Executive* 17(2).

Chen, D. Q., Mocker, M., Preston, D. S., & Teubner, A. (2010) Information systems strategy: reconceptualization, measurement, and implications. *MIS Quarterly*, 34(2), 233-259.

McKinsey (2016) The age of analytics: competing in a data-driven world

McKinsey (2018) Analytics comes of age

(4.2) Big data and MIS

B. Baesens, R.Bapna, J. R. Marsden, J. Vanthienen, J. L. Zhao (2016) Transformation issues of big data and analytics in networks business. *MIS Quarterly* Vol. 40 No. 4, pp. 807-818.

D.E. O'Leary (2013) Exploiting big data from mobile device sensor-based apps: challenges and benefits. *MIS Quarterly Executive* (12:4) 179-187.

D. Martens, F. Provost, J. Clark, E. J. de Fortuny (2016) Mining massive fine-grained behavior data to improve predictive analytics. *MIS Quarterly* Vol. 40 No. 4, pp. 869-888

A. Rai (2017) Diversity of design science research. *MIS Quarterly* Vol. 41 No. 1 pp. iii-xviii/

I.Yaqoob, I. A.T. Hashema, A. Gani, S. Mokhtar, E. Ahmeda, N.B. Anuar, A. V. Vasilakos (2016) Big data: From beginning to future. *International Journal of Information Management* 36 (2016) 1231-1247

Goes, P. B. (2014). Editor's comments: big data and IS research. *MIS Quarterly*, 38(3), iii-viii.

Anderson-Lehman, R., Watson, H. J., Wixom, B. H., & Hoffer, J. A. (2004). Continental Airlines flies high with real-time business intelligence. *MIS Quarterly Executive*, 3(4), 163-176.

Session 5

Artificial Intelligence and POM (Production Operations Management)

(5.1) Artificial Intelligence and Production and Logistics Operations

Bernstein, F., Modaresi, S., & Sauré, D. (2018). A dynamic clustering approach to data-driven assortment personalization. *Management Science*.

Benjaafar, S., Kong, G., Li, X., & Courcoubetis, C. (2018). Peer-to-Peer Product Sharing: Implications for Ownership, Usage, and Social Welfare in the Sharing Economy. *Management Science*.

Sanders, N. R. (2016). How to use big data to drive your supply chain. *California Management Review*, 58(3), 26–48. doi:10.1525/cm.2016.58.3.26

Li, J., Netessine, S. and Koulayev, S., 2017. Price to compete... with many: how to identify price competition in high-dimensional space. *Management Science*.

LaValle, S., Lesser, E., Shockley, R., Hopkins, M. S., & Kruschwitz, N. (2011). Big data, analytics and the path from insights to value. *MIT Sloan Management Review*, 52(2), 21.

Amit, R., & Zott, C. (2012). Creating value through business model innovation. *MIT Sloan Management Review*, 53(3), 41-49.

Hartmann, B., King, W. P., & Narayanan, S. (2015) Digital manufacturing: The revolution will be virtualized. *McKinsey Quarterly*, Aug.

Auschitzky, E., Hammer, M., & Rajagopaul, A. (2014) How big data can improve manufacturing. *McKinsey & Company*, 822.

DHL(2018) Artificial Intelligence in Logistics. A collaborative report by DHL and IBM on implications and use cases for the logistics industry.

Joren Gijsbrechts, Robert Boute, Dennis J. Zhang, Jan Albert Van Mieghem (2019) Can Deep Reinforcement Learning Improve Inventory Management? Performance and Implementation of Dual Sourcing-Mode Problems.

Fethi, M. D., & Pasiouras, F. (2010). Assessing bank efficiency and performance with operational research and artificial intelligence techniques: A survey. *European Journal Of Operational Research*, 204(2), 189-198.

Waller, M. A., & Fawcett, S. E. (2013). Data science, predictive analytics, and big data: a revolution that will transform supply chain design and management. *Journal of Business Logistics*, 34(2), 77-84.

(5.2) Artificial Intelligence and Service Operations

Hoffman D. L., Novak T. P. (2017) Consumer and object experience in the internet of things: An assemblage theory approach. *Journal of Consumer Research*, 44(6): 1178-1204.

Huang, M. H., & Rust, R. T. (2018) Artificial intelligence in service. *Journal of Service Research*, 21(2), 155-172.

Novak, T. P., & Hoffman, D. L. (2018) Relationship journeys in the internet of things: a new framework for understanding interactions between consumers and smart objects. *Journal of the Academy of Marketing Science*, 1-22.

Xu, J. D., Benbasat, I., & Cenfetelli, R. T. (2013) Integrating service quality with system and information quality: An empirical test in the e-service context. *MIS Quarterly*, 37(3).

Xiao, B., & Benbasat, I. (2007) E-commerce product recommendation agents: use, characteristics, and impact. *MIS Quarterly*, 31(1), 137-209.

Montgomery, A. L., Hosanagar, K., Krishnan, R., & Clay, K. B. (2004) Designing a better shopbot. *Management Science*, 50(2), 189-206.

Li, X., Hsieh, J. P. A., & Rai, A. (2013). Motivational differences across post-acceptance information system usage behaviors: An investigation in the business intelligence systems context. *Information Systems Research*, 24(3), 659-682.

Additiona Setia, P., Venkatesh, V., & Joglekar, S. (2013). Leveraging digital technologies: How information quality leads to localized capabilities and customer service performance. *MIS Quarterly*, 37(2).

Barrett, M., Davidson, E., Prabhu, J., & Vargo, S. L. (2015) Service innovation in the digital age: key contributions and future directions. *MIS Quarterly*, 39(1), 135-154.

Pitt, L. F., Watson, R. T., & Kavan, C. B. (1995) Service quality: a measure of information systems effectiveness. *MIS Quarterly*, 173-187.

Ray, G., Muhanna, W. A., & Barney, J. B. (2005) Information technology and the performance of the customer service process: A resource-based analysis. *MIS Quarterly*, 625-652.

Jiang, J. J., Klein, G., & Carr, C. L. (2002). Measuring information system service quality: SERVQUAL from the other side. *MIS Quarterly*, 145-166.

Van Dyke, T. P., Kappelman, L. A., & Prybutok, V. R. (1997). Measuring information systems service quality: concerns on the use of the SERVQUAL questionnaire. *MIS Quarterly*, 195-208.

Lusch, R. F., & Nambisan, S. (2015). Service innovation: A service-dominant logic perspective. *MIS Quarterly*, 39(1).

Goo, J., Kishore, R., Rao, H. R., & Nam, K. (2009) The role of service level agreements in relational management of information technology outsourcing: an empirical study. *MIS Quarterly*, 119-145.

Etzion, H., & Pang, M. S. (2014) Complementary Online Services in Competitive Markets: Maintaining Profitability in the Presence of Network Effects. *MIS Quarterly*, 38(1).

Ives, B., Palese, B., & Rodriguez, J. A. (2016) Enhancing Customer Service through the Internet of Things and Digital Data Streams. *MIS Quarterly Executive*, 15(4).

Hsieh, J. P. A., Rai, A., Petter, S., & Zhang, T. (2012) Impact of user satisfaction with mandated CRM use on employee service quality. *MIS Quarterly*, 1065-1080.

Note: This is a syllabus and as such is a plan of action that can be slightly modified during the course of the class.