

The Wharton School, University of Pennsylvania  
Department of Management  
Office Hours: Monday through Friday  
3:30-4:30pm or by appt. (virtual office hours)

Professor John Paul MacDuffie  
3105 SH-DH, 215-898-2588  
macduffie@wharton.upenn.edu  
<https://bluejeans.com/5030327189>

**MANAGEMENT 243**  
**Work and Technology: Choices and Outcomes**  
**Spring 2020 Syllabus (Adapted for New Schedule and Virtualization)**  
**Q4: March 24 – April 28 (Tuesday, Thursday), 1:30-3:00pm**  
*(version 3.2 – March 17, 2020)*

### **Purpose and Course Description**

This half-semester (0.5 CU) course is organized in three modules. The first module “**Technology and Its Impact on Work**” starts by considering the types of technologies whose impact concerns us and probing “what’s so scary” about them. We’ll continue by considering past scares related to automation and evaluate the extent to which the “worst-case” scenarios about, for example, employment loss have or have not come to pass. Next we probe the “skill-biased technological change” hypothesis -- how economists see the impact that new technologies have on wages, jobs, and skills – in terms of the argument and the evidence, while also taking a close look at some affected occupations. A close look at the evolution of robots will provide further specificity and context. This module concludes by evaluating the claim that “this time it’s different”, i.e. because artificial intelligence (AI), via machine learning, can take over many more cognitive tasks performed by humans, with the potential for much higher displacement.

The second module “**Technology and Managing People**” examines how traditional practices of managing human and social capital are being transformed by new technologies that give managers new ways to enact control and new means to induce commitment. While having technology taking on a dominant role in the shaping and directing of work tasks is nothing new, the all-encompassing scope and pervasive influence of AI on customary “managing people” functions is also prompting “this time it’s different” discussions. The micro-monitoring of people as they work and fluid adjustment of work schedules based on customer demand are two other trends turbo-charged by new technological capabilities. Particularly in “gig economy” jobs, ranging from Uber/Lyft to TaskRabbit/Upwork, algorithms provide all functions once performed by managers and supervisors, from hiring and task/job allocation to performance appraisal and compensation. While the outsourcing of work, particularly technical labor, at both the high and low ends of the skill/talent dimension has accelerated, those doing low-pay platform-based work are doing so partly in response to a precarious financial situation. We will debate whether gig work increases or decreases precarity.

In the third module “**Technology and Policy**” we will examine a “hot topic” about the consequences of new technologies for work and what to do about them. We’ll consider proposals for a “universal basic income” (UBI) premised on the idea that technological change will lead to an unprecedented amount of job displacement, exacerbating income inequality. We will hold a debate on UBI in our virtual class. The debate’s key feature is that students will be assigned to “pro” and “con” positions randomly and only after class starts; “pro” and “con” teams will then have some time to organize their thoughts before the debate begins.

This course fits into the “Technology/Innovation/Analytics” category of Flex Fundamentals of the new undergraduate curriculum. The topics of this course are highly complementary to topics in other Wharton undergraduate courses in Legal Studies, Management, and OIDD but with little overlap. We hope to attract both students prioritizing the study of organizational/HR topics who want to know more about technology and operations strategies as well as those primarily studying technology and operations who want to understand more about work and employment practices, and the impact on economic and social outcomes for individuals, firms, and societies.

**Prerequisites:** We anticipate that students will have taken the first-year required Wharton 101 course before taking this elective. Taking the core MGMT 101 class, either before or together with this elective, will also be helpful in understanding how organizations function in their environment and the context within which firms make strategic decisions.

### **Course Requirements**

Students will be evaluated on class participation (25%), a group assignment (25%), and two individual papers (25% each or 50% total). **The group assignment is due, posted on Canvas, on Tuesday April 7th at 11:59pm. Paper #1 is due, posted on Canvas, on Sunday April 12th at 11:59pm. Paper #2 is due, posted on Canvas, on Wednesday May 6th at 11:59pm.**

All requirements are briefly summarized in the next few paragraphs. Fuller descriptions of the group assignment and the two papers are appended at the end of this syllabus. They will also be attached to each assignment on Canvas.

### **Class Participation (25% of your grade)**

This course requires a great deal of student involvement. Each class period will include intense discussion (i.e. spoken in synchronous dialogue; submitted to discussion boards asynchronously; and other options tried out as we go) of the topics and issues at hand. As a start, that will require students to be online (in the virtual classroom) on time, and prepared. (I hope to meet with each of you individually to find out where you are living during the course and what time zone differences will affect this.) Students will be graded on the quality of their comments, not the quantity. Quality is judged based on your ability to add substantively to class discussions and your ability to link to others’ comments or to advance the discussion.

Given our switch to virtual instruction, some participation will occur asynchronously and in written form, via comments or responses to study questions posted on Canvas in advance of our scheduled class session. (Note that the “quality over quantity” criterion applies to all modes of participation; longer and more numerous postings on discussion boards, for example, will not earn you a higher participation score.) In addition, we will have in-class small group discussions and polls; these are also counted towards class participation. **All told, these activities will account for 15% (out of a total of 25%) of your grade.**

**The remaining 10% of your participation grade will be based on a journal** in which you will record your observations about this changed educational experience of a virtual class, i.e. the

technological change that is affecting our work (you as learner; me as teacher). We have 11 class sessions; **please plan to do a journal entry after at least 6 class sessions** (no upper bound). You will submit your journal on the day after the course ends (**Wednesday April 29<sup>th</sup>**). Further details on the journal assignment will be forthcoming.

### **Group Assignment (25% of your grade)**

*In Hindsight* is a small-group assignment in which you research a past technology, report on the hopes and fears accompanying its introduction into the workplace (or the economy more generally), and assess (with the benefit of 20/20 vision looking back) the extent to which those hopes and fears were borne out – and, in addition, what unanticipated surprises occurred, for better or worse. You will be assigned in pairs, randomly (and time zone-matched), for this assignment.

Your report will take the form of a PechaKucha – a format developed to encourage new ways of sharing content and stimulating conversation. PechaKucha’s 20x20 presentation format consists of 20 chosen images, each shown for 20 seconds. In other words, you’ve got 400 seconds (6 minutes and 40 seconds) to tell your story, with visuals guiding the way. (PechaKucha means “chit chat” in Japanese.) I will provide further guidance on the assignment and the PechaKucha format, both in class and on Canvas. Technologically, a PechaKucha can be put together quite simply; think of a PowerPoint presentation with timed slide advances and pre-recorded voice-over narration. Ample online resources are available and we will have a Canvas discussion board on which tips can be shared. **The PechaKucha is due at 11:59pm on Tuesday April 7th, on Canvas.**

### **Individual Papers (50% of your grade)**

You will write two individual papers of 1250 words, one for each section of the course. Each is worth 25% of your final grade.

For the “Technology and Its Impact on Work” module, you will interview a relative, friend, or other person that you encounter frequently in your life at Penn, asking about a job that person has had (current or past) which has been significantly affected by technology of some kind (old or new; mechanical or digital; hardware or software; in the workplace or when working remotely). I will provide you with a general interview protocol, tips on how to select an interview subject, and training on how to approach the interview, which should last 45-60 minutes. I will also provide guidance on how to structure the paper in which you write up what you learn during this interview. I will urge you to draw upon the topics, themes, and concepts of this module in writing up your observations and reflections from this interview. **This paper is due at 11:59pm on Sunday April 12th, posted on Canvas.**

For the “Technology and Managing People” module, you will explore one particular facet of how technological change has affected the organizational function of managing human and social capital. Possibilities include: recruitment and selection (hiring); compensation (particularly variable or bonus comp); task/job allocation; monitoring the work effort, mental alertness, even emotions of people as they do their work; scheduling of work time and its

consequences for an individual's life outside of work; performance appraisal; documenting performance problems and worker dismissal; handling turnover/churn (back to hiring). **The specific focus of your topic needs to be approved by the instructor. This paper is due at 11:59pm on Wednesday May 6th, posted on Canvas**

### **Required Readings and Media**

PENN COURSE RESERVE is the source for all readings in this course; there is no Study.Net coursepack. These readings include short articles from professional and academic journals, long-form journalism, and chapters from books.

We will use Canvas for courseware support. Many of the short articles, videos, and podcasts in the syllabus will be accessed directly from links provided within Canvas. You will also access the readings made available by Penn Course Reserve through Canvas. The syllabus, course slides, and detailed assignment descriptions will be posted there too. You will turn in all assignments (individual and team) by uploading your papers to Canvas, and I will return grades and comments to you electronically. Teams will be created randomly; you will find your team assignment on Canvas at the "People" tab. Finally, I will post relevant articles or web links that come to my attention during the course, and I encourage you to do the same.

### **Technology Policy**

Given the substantive focus of this course, for me to unilaterally dictate a rigid set of rules regarding how you can and cannot use technology would deprive us all of a learning opportunity. As a result, I would like us to work together over the first two weeks of the course developing a technology-in-class policy. I have established a [page](#) on Canvas with a wiki on which we can all hash this out. In general, I would suggest you consider ways we can use technology effectively in-class to raise the level of intellectual discourse as well as ways that technology could undermine the quality and effectiveness of discussions and other in-class activities. We will iterate asynchronously as a group until **Sunday March 29th**, landing on a policy that we can all sign onto. I will mount the signed document on Canvas.

This policy statement will have a different application – and meaning – in a virtual course. But I see value in proceeding with this collective policy development nonetheless. The goals are the same – achieving agreement on how the use of technology can facilitate and support our learning while also remaining mindful of how the use of technology can distract ourselves and others and detract from learning. I will launch this process during the first class on March 24<sup>th</sup>.

### **Academic Integrity**

Please read and familiarize yourself with Penn's Code of Student Conduct and Code of Academic Integrity: <https://catalog.upenn.edu/pennbook/>. Regarding academic dishonesty, please note that plagiarism is not limited to copying an entire paper. Using quotes without properly citing them or using ideas without acknowledging their source also constitute plagiarism. Any form of cheating or plagiarism will result in disciplinary action.

**NOTE: The content of this page is based on Penn’s normal academic operations. Any or all of these services may be altered by Penn’s move to online courses for spring 2020.**

**Student Disabilities Services and Accommodations for Students with Disabilities**

The University of Pennsylvania provides reasonable accommodations to students with disabilities who have self-identified and been approved by the office of Student Disabilities Services (SDS): <https://www.vpul.upenn.edu/lrc/sds/>. Please make an appointment to meet with me as soon as possible in order to discuss your needs and accommodations. If you would like to request accommodations or have questions, you can make an appointment by calling (215) 573-9235. The office is located in the Weingarten Learning Resources Center at Stouffer Commons 3702 Spruce Street, Suite 300. All services are confidential.

**Other Accommodations**

Student athletes, parents and caregivers, and others whose commitments might affect their ability to attend class or complete assignments on time should also speak with me at the beginning of the semester about potential conflicts. You should also speak with me as soon as possible if religious holidays that occur during the semester will require you to miss class. If you unexpectedly experience a life event that presents you with academic difficulties, I can refer you to CaseNet to ensure that you get the support you need: <https://www.college.upenn.edu/casenet>.

**Academic Resources**

Penn students are extremely fortunate to have access to an extensive network of academic resources. A majority of Penn students take advantage of one or more of these resources during their college careers, and I strongly encourage you to do so as well. The Office of Learning Resources provides professional consultation services in university relevant skills such as academic reading, writing, study strategies, and time management. PENNCAP supports the success of a diverse group of academically-talented students, many from low-income and first-generation backgrounds. The Tutoring Center offers Penn undergraduate students free, accessible, and convenient options to supplement their academic experience. For more information, visit <https://www.upenn.edu/programs/acadsupport>.

*Additional Writing Resources*

The Marks Family Writing Center operates under the assumption that all writers, regardless of their experience and abilities, benefit from informed, individualized, and personal feedback on their writing. The program’s professional staff and trained peer specialists work with writers engaged in any stage of the writing process—from brainstorming paper topics, to formulating and organizing arguments, to developing editing skills. Appointments and drop-in hours are available. For more information, visit <http://writing.upenn.edu/critical/wc/>. (You will find navigation options when you mouse over the “Marks Family Writing Center” heading on the menu bar at the top of the page.)

**Well-Being, Stress Management, & Mental Health**

If you (or someone you know) are experiencing personal, academic, or relationship problems and would like someone to talk to, reach out to Counseling and Psychological Services (CAPS) on campus. For more information about CAPS services, visit:

<https://www.vpul.upenn.edu/caps/about.php>.

\*\*\*\*\*

## MANAGEMENT 243: WORK AND TECHNOLOGY COURSE OUTLINE

**Pre-reading during March 16-22<sup>nd</sup>: Summary of MIT's "Work of the Future" initiative, March 2020.** Shared with the permission of MIT Technology Review. Not for distribution.  
<https://www.technologyreview.com/s/615207/power-to-the-people/>

### **MODULE 1: Technology and Its Impact on Work**

**Tuesday, March 24**

#### **Session 1: What Types of Technology Are We Considering? Why Fear Their Impact?**

Is the latest wave of automation and ubiquitous computing going to free individuals to be more creative at work and able to experience new and more fulfilling jobs? Or will these technologies make work worse – more routinized, less autonomous, less creative – whenever they aren't actually putting people out of work by eliminating jobs? Which technologies do we fear most?

**TECH VIGNETTE:** The Luddites

1. [Almanac: The Luddites](#), March 11, 2010, CBS News [1:30]
2. ["When Robots Take All of Our Jobs, Remember the Luddites,"](#) Clive Thompson, *Smithsonian Magazine*, January 2017.

Was the Luddites' fight idiotic, ill-informed, ill-advised? Or was it sensible? Would you have sided with them or with those against whom they were striking? Have you observed or sensed Luddite-like thoughts or actions "closer to home" in time and space?

Readings and Media:

1. ["March of the Machines"](#) as reported by Steve Kroft on CBS's 60 Minutes. Includes interview with Erik Brynjolfsson and Andrew McAfee. January 13th, 2013. [14:44]
2. ["Should the Government Halt the Use of Facial Recognition Technology?"](#), Point-Counterpoint, *Wall Street Journal*, Feb. 23, 2020.
3. ["The Pope's Plan to Fight Back Against Evil AI,"](#) *Recode*, Feb. 28, 2020.
4. ["Technical Potential for Automation by Sector in the U.S.,"](#) graphic from McKinsey Quarterly project, 2017.

**Thursday, March 26**

#### **Session 2: Haven't We Gone Through These Anxieties about Automation in the Past?**

What makes the latest wave of technologies similar to or different from supposedly big technological breakthroughs of earlier eras? What are past patterns of technological change – and the diffusion of those changes – that could suggest how present-day new technologies might affect workers and the workplace?

Readings and Media:

1. [The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies \(2014\)](#) as discussed by authors Erik Brynjolfsson and Andrew McAfee at [Google](#) on January 27th, 2014. [1:02:29; 24 minutes presentation, 38 minutes Q&A]

2. “Labor market impacts from past innovations” and “Implications of past changes” from *Preparing U.S. Workers and Employers for an Autonomous Vehicle Future*, Erica Groshen, John Paul MacDuffie, Susan Helper, report for Securing America’s Future Energy, June 2018, pp. 13-25.
3. Warburton, Max and Toni Sacconaghi. 2018. Excerpts from “Tesla Model 3 and the Fallacy of Automation,” Bernstein Investments, pp. 3-7, 12-18.
4. [“The First Time America Freaked Out Over Automation,”](#) Rick Wartzman, Politico, May 30, 2017
5. [“Why Are There Still So Many Jobs? The History and Future of Workplace Automation and Anxiety,”](#) David Autor, MIT Initiative on the Digital Economy Research Brief, May 2017

## Tuesday, March 31

### Session 3: Technology, Skills, and Wages (Skill-Biased Technological Change)

A dominant hypothesis in recent decades on the different rates of earnings increase for individuals doing different types of work is skill-biased technological change, i.e. that jobs affected by automation that can replace workers are fewer in number and lower paid whereas jobs affected by automation that complements workers have grown in number and are higher paid. While there is certainly some evidence supporting this hypothesis, many other factors are affecting the relationship between technology, skills, and wages. We do a deep dive into the occupation of truck driver but also consider other settings, e.g. two types of job in a large bank.

**TECH VIGNETTE:** Trucking: Driverless, Automated, etc.

- Why is the automation of this one particular job—the truck driver—so momentous?
- Is the phenomenon of the automation of truck driving an example of skill-biased technological change? Why or why not?
- In the video, truck driver Scott Spendola comments, “Automation outside the terminal...I don’t believe would work. You need a human being to deal with some of the problems...”. To what extent do you agree with him?
- To the extent that some aspects of trucking remain difficult to automate, how has technological change influenced even these aspects of a truck driver’s job?

Readings:

1. [“The Future of Work Looks Like a UPS Truck,”](#) Planet Money, May 2, 2014. [13:54]
2. [“Could the Rise of Artificial Intelligence Put Truckers’ Jobs in Peril?”](#) Frontline, November 4, 2019. [7:19]
3. [“Automation and the Future of Trucking,”](#) (excerpt) [Start: 9:13; End: 31:52] Webinar w/ UPenn sociologist Steve Viscelli, from UC Berkeley report, 2018.
4. “Upstairs, Downstairs: Computers and Skills on Two Floors of a Large Bank.” David Autor, Frank Levy, and Richard J. Murnane. 2002. *Industrial and Labor Relations Review* 55(3): 432-447.

**Thursday, April 2**

**Session 4: The Old(er) New Technology: The Evolution of Robots**

Robots have commanded popular imagination for decades but their implementation as practical tools is much more recent. Check out these recent examples of robotics designed for the food services industry. Then skim the two excerpts from the Moravec chapter (written in 1988, when he was head of Carnegie-Mellon’s Robotics Lab) for a history of different approaches to conquering the challenges of robotics plus his predictions for the future. (What did he get right? Wrong?) Overall do you see the potential impact of robotics as large or small? If large, where will they have the greatest impact? If small, why? (given all the attention they are getting...)

**TECH VIGNETTE:** [Reis & Irvy’s FroYo Franchising](#); [Zume Pizza](#); and [Flippy](#)

- What would be the economic impact of a robot that eliminates the need for a person to dispense your frozen yogurt, assemble and top your pizza, or flip your burger?
- What are your reactions to the comments of Julia Collins, Zume co-creator and co-CEO? E.g. what seems prescient and far-sighted vs. naïve and/or wrong-headed?

Readings and Media:

1. Excerpts from “Mind in Motion,” Chapter #1 from Moravec, Hans P. 1988. [Mind Children: The Future of Robot and Human Intelligence](#). Pp. 6-25 and 37-50.
2. [“Attention White Collar Workers: The Robots Are Coming for Your Jobs”](#) Dave Davies on NPR’s Fresh Air, interview with Martin Ford, author of “Rise of the Robots: Technology and the Threat of a Jobless Future”. Originally aired May 18th, 2015. [30:33]
3. [“Robots have been about to take all the jobs for more than 200 years.”](#) Timeline.com, May 16, 2016
4. [“Should Robots Have a Face?”](#), *New York Times*, February 26, 2020

**Tuesday, April 7**

**Session 5: “This Time It’s Different”: What Distinguishes Artificial Intelligence (AI) and Machine Learning (ML) and Their Potential Impact on Work from Past Technologies?**

**TECH VIGNETTE:** Wordsmith: [“explainer”](#); [real estate](#); [news stories](#); [website](#)

Based on what this technology does well, do you expect professional jobs will disappear, or do you expect they will evolve? If you expect them to evolve, consider precisely in what ways they might do so.

Readings and Media:

1. [Applied Machine Learning: Foundations](#) and [Applied Machine Learning: Algorithms](#) – video overview of two courses on Lynda.com taught by Derek Jedamski. Released May 10 and May 15, 2019.
2. [“From Not Working to Neural Networking,”](#) *The Economist* June 23, 2016.
3. [“This Is How the Robot Uprising Finally Begins,”](#) Will Knight, *MIT Technology Review* 121 (4): 15.
4. [“Ways to Think about Machine Learning,”](#) Benedict Evans, 2018.



5. [“How Will Machine Learning Affect Middle Class Jobs?”](#) interview with James Bessen (Technology and Policy Research Initiative at Boston University’s School of Law), Brookings Institute podcast (start: 2:00 end: 22:00)

**\*\* Group Assignment (PechaKucha) Due at 11:59pm on Tuesday April 7<sup>th</sup> on Canvas \*\***

## **MODULE 2: Technology and Managing People**

**Thursday, April 9**

### **Session 6: AI at Work**

Applying Artificial Intelligence (AI) to the fundamental tasks of managing people in organizations (recruitment and selection; on-boarding and training; performance appraisal – rewards, promotion, retention; benefits) is increasingly common yet questions abound. What’s different about extracting algorithms for decision-making from machine learning where the data are about employees, not product purchases or page views? How to handle concerns about fairness or demands for “explainability?” How does managers react to the promise and peril of applying AI at work?

Readings and Media:

1. Cathy O’Neil, “Bomb Parts,” from *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*, 2016, pp. 1-13.
2. Prasanna Tambe and Peter Cappelli, [“Can Artificial Intelligence Help Answer HR’s Toughest Questions?”](#) *Knowledge@Wharton*, August 2019.
3. Brian Bergstein, [“What AI Still Can’t Do,”](#) *MIT Technology Review*, March/April 2020
4. Bo Cowgill, Fabrizio Dell’Acqua, Sandra Matz, [“The Managerial Effects of Algorithmic Fairness Activism,”](#) American Economic Association, Papers & Proceedings, 2020.

**\*\*\* Paper #1 Due at 11:59pm on Sunday April 12, posted on Canvas \*\*\***

**Tuesday, April 14**

### **Session 7: Hiring: Online Job Search, Algorithmic Filtering and Background Checks**

How hiring works (search and matching); How technology alters this process e.g. LinkedIn. Best practices from research in screening applicants; pros and cons of black-box algorithms.

Readings and Media:

1. Cappelli, Peter. [“Making the Most of Online Recruiting.”](#) *Knowledge@Wharton*, February 2001.
2. Bock, Laszlo, “Searching for the Best,” Chapter 4 from *Work Rules!*, 2015, pp. 69-86.
3. Cathy O’Neil, “Ineligible to Serve: Getting A Job,” from *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*, 2016, pp. 105-122.
4. Schreiber, Noam, [“A.I. as Talent Scout: Unorthodox Hires, and Maybe Lower Pay,”](#) New York Times, December 6, 2018.

**Thursday, April 16**

**Session 8: Flexible Schedules and Micro-Monitoring**

New management methods affecting when and how hard we work: How “morning bias” and unpredictable changes undermine advantages of flex schedules. How schedule optimization software adds to the precarity of low-wage work. When “gamification” adds fun and challenge to the work day – and when it doesn’t. How tech-enabled keystroke monitoring and process control undermine the autonomy and outcome control premises of contract work. What it means when robots become part of the monitoring scene.

Readings and Media:

1. Yam, KC, Fehr, R, Barnes, CM, [“Morning employees are perceived as better employees: employees' start times influence supervisor performance ratings.”](#) *Journal of Applied Psychology*, 99(6), 2014, pp. 1288-1299.
2. Cathy O’Neil, “Sweating Bullets: On the Job,” from *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*, 2016, pp. 123-134.
3. Mollick, Ethan and Rothbard, Nancy. [“Gamification: Powering Up or Game Over?”](#) *Knowledge@Wharton*, February 11, 2014.
4. Shellenbarger, Sue. [“Work at Home? Your Employer May Be Watching.”](#) *Wall Street Journal*, July 30, 2008.
5. Dzieza, Josh, [“How Hard Will the Robots Make Us Work?”](#) *The Verge*, Feb. 27, 2020

**Tuesday, April 21**

**Session 9: Gig Economy and Algorithmic Management**

How modern labor contracting modes are evolving in relation to changes in corporate governance. How trends towards “flexible labor” intersect with digital platforms to yield the “gig economy”. The importance and difficulty of the “independent contractor” vs. “employee” distinction. The social distancing impact of “gig” companies.

**TECH VIGNETTE:** [Task Rabbit](#)

- Under what circumstances would you choose to become a Tasker?
- Suppose one could develop a great reputation as a Tasker, enough so to reliably earn enough to eat, pay rent, etc. How would this bundle of tasks—performing dozens of different duties each week—differ from a conventional job?

Readings and Media:

1. Davis, Gerald, [“What Might Replace the Modern Corporation? Uberization and the Web Page Enterprise.”](#) *Seattle University Law Review* 39, 2016, pp. 501-515.
2. Hyman, Louis, “Flexible Labor in the Digital Age,” from *Temp: How American Work, Business, and the American Dream Became Temporary*, Viking, 2018, pp. 291-304.
3. Eisenbrey, Ross and Lawrence Michel, [“Uber Business Model Does Not Justify a New Independent Worker Category.”](#) *Economic Policy Institute Report*, 2016
4. Bogost, Ian, [“You Already Live in Quarantine.”](#) *The Atlantic*, March 2020

**Thursday, April 23**

**Session 10: Gig Economy and Precarious Work**

Resemblance between the new modes and pre-industrial arrangements, e.g. the “putting-out” system of piecework at home. Global outsourcing of “gig economy” tasks and the consequences for precarious work. What are the varied motivations of “gig economy” workers? How much is choice and how much is necessity? Why (when) does that matter?

Readings and Media:

1. Acquier, Aurelien, [“Uberization meets Organizational Theory: Platform capitalism and the rebirth of the putting-out system,”](#) in *Cambridge Handbook on Law and Regulation of the Sharing Economy*, 2018. (excerpt, sections 1 and 2, pp. 5-12)
2. Gray, Mary and Siddharth Suri. Excerpt from *Ghost Work*, chapter 3 “Algorithmic Cruelty and the Hidden Costs of Ghost Work” and chapter 4 “Working Hard for More Than the Money,” 2019, pp. 67-93 and 94-118.
3. James Manyika et al., [summary brief from “Independent Work: Choice, Necessity, and the Gig Economy,”](#) McKinsey Global Institute, 2016.
4. Katherine Abraham and Susan Houseman, excerpts from [“Making Ends Meet: The Role of Informal Work in Supplementing Americans’ Income,”](#) *RSF: The Russell Sage Foundation Journal of the Social Sciences* 5(5): 110–116.

**MODULE 3: Technology and Policy**

**Tuesday, April 28**

**Session 11: Technology-Driven Inequality and Universal Basic Income (UBI)**

The idea that technological change can drive mass unemployment and require governments to subsidize basic living expenses for many of its citizens is not new, arising in each era when automation scares arise. Proponents of such policies also see benefits in unlocking human creative potential when the necessities of life are met and people can pursue fuller self-development when freed from having to do demotivating, low-skill, low-pay work. Presidential candidate Andrew Yang helped bring this issue onto the national stage in the last year.

We will hold a debate on UBI in class. The debate’s key feature is that students will be assigned to “pro” and “con” positions randomly and only after arriving in class. Further details will be forthcoming. The readings and media list will be finalized by April 15<sup>th</sup>.

Readings and Media:

1. Videos on UBI from Andrew Yang: [Why UBI?](#) ; [How to pay for UBI](#); [Isn’t it socialism?](#)
2. Heller, Nathan, [“Who Really Stands to Win from Universal Basic Income?”](#) *The New Yorker*, July 9 & 16, 2018.
3. Excerpts from books and articles by these authors: Annie Lowrey, Andy Stern, Charles Murray, Philippe Van Parijs and Yannick Venderborghs, Chris Hughes, Rutger Bregman

**\*\*\* Paper #2 Due at 11:59pm on Wednesday May 6, posted on Canvas \*\*\***

## DETAILED ASSIGNMENTS

### Group Assignment

#### *In Hindsight:*

#### *Looking Back at Workplace Technologies That Came with Dire Predictions*

(due on Tuesday April 7th @ 11:59pm, on Canvas)

A great humorist (and probably a failed optometrist) once said, “Hindsight is always twenty-twenty.” Indeed, while predicting the future is notably difficult, it is much less difficult to make sense of events past. After all, the passage of time allows the accretion of understanding and wisdom that was elusive or unavailable at the time a prediction (or a decision) was made.

As we will discuss in class, many workplace technological advances have come with predictions of dire consequences, most (but not all) of which never came (or have yet to come) to pass. For this assignment, I would like you to work *in groups of two*. I will create these in Canvas with random assignment. In consultation with me, choose a single, discrete technological advance of years past. Then, I would like you to answer a series of questions about the technology, all in service to a thesis arguing why, why not, or to what extent the dire predictions came to fruition.

In general, I want you to remember to focus more on the work and the workers than simply on the “wondrousness” of the technology you’re analyzing. The questions I would like you to answer in developing your assignment will be along the lines of:

- What could the technology *actually* do?
- What was it *intended* to do?
- What sorts of predictions of consequences (positive and/or negative) were made and by whom?
- In what way/for whom did these predictions actually come to pass?
- Did any group find a way to avoid a predicted negative outcome, and if so, how?

Here is where things get interesting. Rather than writing a paper—which you will have ample opportunity to do later in the course—I would like you to work in pairs to produce a PechaKucha. PechaKucha, which comes from the Japanese word for “chit-chat,” is an emerging genre of scholarly and professional communication. In brief, a PechaKucha is a presentation style in which you deliver 20 slides for 20 seconds each. That structure—in which the entire presentation runs 6:40 (400 seconds)—is rigid and intended to keep speakers concise and the entire production fast-paced. The pace is further maintained by making the slides themselves dynamic, perhaps including animations or the like within them. (Imagine all of the great pictures and figures you can include to show off the technology and the workers you’re analyzing.)

In general, the slides in a PechaKucha contain no words. In some cases, people deliver their PechaKuchas live. When they do, they preset their slides to advance on their own every 20 seconds. You will not be performing yours live. Rather, you will be pre-recording it and packaging it for submission to me via Canvas. Precisely how you divide the labor is up to you. For example, both voices don’t need to be heard on the recording if you decide to divide that task in some other way. But the underlying project work is certainly intended to be shared.

You may want to start at the [PechaKucha website](#) and [Wikipedia page](#) to get an overview of the genre. Then check out [this resource page](#) which has useful tips for developing PechaKuchas. YouTube has a nearly endless collection of good and bad PechaKuchas on a myriad of topics.

Your PechaKucha will be evaluated substantively and stylistically according to these criteria that would identify an outstanding submission:

- Content knowledge & coverage – Does the presentation covers the topic and focal questions in-depth with rich details and examples and clear evidence of research?
- Adherence to structure: Does the presentation have 20 slides timed to advance every 20 seconds, i.e. does the presentation runs flawlessly from a technological standpoint?
- Preparation & presentation of script: Did the presenter prepare a compelling script, rehearsed, that demonstrated superior knowledge of the subject matter and was delivered with sincere communicative intent, i.e. not simply read out loud, with no apparent attention to an audience?
- Organization: Was the PechaKucha well-organized? Did the opening slide draw the audience into the presentation? Did the ideas and images flow in a manner that was easy to follow and understand? Did the material transition seamlessly from slide to slide?
- Visual appeal & creativity: Were the images/text chosen both appropriate and germane to the topic and conveyed in a manner befitting PechaKucha’s purpose. Was the audience (i.e. me) informed and entertained? (Granted, the last is a bit subjective...)

Here are some further tips about what your slides should include:

- *Design/Organization.* Slides should contain high-quality images that are used to support your presentation and content knowledge. Consider how the elements of good writing can be transferred to the PechaKucha format (introduction, strong claim, strong organization/structure, effective transitions, and a clear conclusion).
- *Clarity/Presentation.* The “true spirit” of a PechaKucha is that it consists mostly of powerful images. Rather than the presenters reading text from the slides, an image (and in very limited circumstances, perhaps a short phrase) should communicate the core idea while the speaker offers well-rehearsed, carefully-prepared comments. Thus, the message is communicated clearly. Don’t forget to speak slowly, clearly, and loudly.

The web is chock full of resources and examples to aid you in the production of your PechaKucha, which you can produce using PowerPoint, Keynote, iMovie, or any other software or app that you prefer—as long as you can ultimately upload the final file to Canvas as a video that I can view without special software (e.g., AVI, MP4, etc.) I will set Canvas to only accept the video formats that I can readily view so if you have questions about the format you are choosing, check with me. Perhaps the easiest starting point – capable of everything I am expecting for this assignment – is PowerPoint with timed slide advances and voice-over audio. It is imperative that you document your sources carefully and meticulously. I suggest you do this by submitting a “references” document (as a DOCX or a PDF) alongside your media file. For each slide, list the sources you used to generate the audio and video within it. You can use any

citation style that you prefer.

**This assignment is worth 15% of your overall grade.** By default, both you and your partner will receive the same grade for this assignment. If for some reason you believe that you and your partner do not deserve the same grade, please let me know privately.

Given the novelty of this assignment—from my perspective as well as from yours—I expect there to be a lot of questions, thoughts, ideas, etc., and I would like them shared widely. Toward that end, I will create a special discussion forum devoted solely to this assignment. Please subscribe to it *immediately*, as I will assume you have read and considered everything that appears on it.

This will hopefully be a creative and even fun exercise, tapping a different part of your brains. With permission, I may choose to show some of the PechaKuchas in class or to make them available for others to view, with emphasis not only on excellence but also the variety of ways in which the assignment was fulfilled.

## **Paper Assignment #1 (due on Sunday April 12th @ 11:59pm, on Canvas)**

For this assignment, you will conduct an interview of roughly 1 hour (60 minutes), with a person of your choice (e.g. family, friend, someone you have encountered regularly in your daily life at Penn/Wharton) on a topic related to their job experiences that have been affected by technology. In your interview, you and your collaborator may decide on the parameters: how much you as the interviewer will aim to elicit some specific narrative or let the conversation take its course; how personal you want to get; whether you want to break the hour up into two sessions (an initial interview and a follow-up); etc.

Regardless of these parameters, what you will need to do is decide on some essential questions to help shape the interview, while at the same time allowing your collaborator's answers to guide how the interview proceeds. You may wish to take notes during the interview – jot down questions that come to mind in response to what your collaborator is saying – so that when there is a pause in the conversation, you have follow-up questions at hand. A list of possible interview questions is below. You won't be able to cover all of them in the time available and, in any case, not all will apply to every interview. You'll need to make choices for where to start, plan for follow-up questions as needed, and hope to encourage the conversation to flow freely.

As you conduct your interview, consider the relationship between what your collaborator is telling you and the issues around the impact of new technologies we've been talking about in class. Their telling will surely be a personal narrative. But their experience of their job – and of the technology affecting that job – will have been shaped by what is going on in the context around them, i.e. by how the new technology is perceived by others in their organization or their community, how it is described in the news media they read, what their friends and family think. You may need to read between the lines of what they are telling you, and perhaps ask some gently probing questions.

You will need to make an audio or video recording of the entire interview. I encourage you to do remote interviews via videoconference rather than just via phone, or email, or chat. You can easily use BlueJeans (this is Penn's chosen videoconferencing app). You can access BlueJeans from the course Canvas site by selecting "Virtual Meetings." Any student can create a BlueJeans meeting, and then you can invite outside people (i.e. your interview subject) to that meeting. These BlueJeans meetings can and should be recorded so you can use the recording as you write up your paper. Only you have access to these recordings unless you share the link with others.

For this project, you will need to turn in a file with three components: 1) At the top, your name, your interview subject's name (use a pseudonym), the job (your description in a few words; include an official job title if available); the technology under discussion; and a hyperlink to the (audio or video) recording of the entire interview; 2) a (partial) transcript of the interview that provides the primary evidence/data for your headnote; and 3) an interview headnote.

To explain further:

- The transcription will feature 5-10 minutes of the interview that you think is key, and that gets to the heart of what is most important to your interview subject. This should be a literal transcription, presented as dialogue between you and your subject, not a free-form

transcription. And it should include a time index of where the segment can be found in the file, e.g. [18:16] Your name: What changed in your job when [the technology] was introduced? Interviewee: “At first, ...”

- A headnote of 1-2 pages that contextualizes and interprets that transcription – that gives your readers an overview of the interview overall, and connects your transcript to one or more of the concepts we’ve been talking about in the course. What matters is what they tell you about the technology, not anything “objective” you know that would contradict what they are telling you, i.e. identifying their expectations, perceptions, emotions, misunderstandings, learning process are what this assignment is all about. You will want to include quotes from the interview (not just the portion that you transcribe) to use as evidence to support any assertions you make in your headnote.

**This project is worth 25% of your overall grade** and will primarily be graded on the quality of your transcription and the insightfulness of your headnote. The audio or video recording is needed primarily for reference, to help me better understand the written part of your project.

Confidentiality: Since this is for class purposes and not being presented/published anywhere, the usual university rules for protecting human subjects don’t apply. I encourage you to disguise the names of the interview subject and, if the interviewee wishes, the place where they worked to protect privacy; coming up with a good pseudonym can be fun!

Assignment Submissions: **This essay and recording must be submitted on Canvas, on Sunday April 12th by 11:59pm.**

Academic Honesty: Please refer to the syllabus for the University of Pennsylvania’s policy on academic honesty. This assignment is to be completed individually (i.e., tutors / peers / parents / etc. can give you advice, but it must be your work). All essays submitted through Canvas will be subject to a Turnitin computer analysis.



## Possible Questions for Interview on “My Job and How It Was Affected by a New Technology”

1. Tell me about a job you had where technology of some kind (old or new; mechanical or digital; hardware or software; in the workplace or when working remotely) affected your daily work experiences quite a bit or in a memorable way.
  - a. What was the job?
  - b. When did you have that job? (Stage of life, precise years not important).
  - c. Where were you working most of the time? (Type of workplace - office, factory, retail, from home, visiting customers)
2. What technology affected your job? (Describe briefly). Why did you choose this technology?
3. How did you come to do that job? (What were you doing before that? Prior job with same firm or employer? What education or training did you need for the job?)
4. Tell me about a typical work day, what tasks you did, how the technology was (or wasn't) involved.
  - a. How much of your day (rough %) involved using the technology?
  - b. Could the technology also be used for personal tasks or pastimes?
  - c. Was this permitted or frowned upon? How did you deal with those rules/restrictions?
5. Tell me about when you first started/your first day of work.
  - a. Was the technology part of your job from the start?
  - b. What training did you receive (if any)? From whom? On the job, classroom, online?
  - c. How long before you felt able to do the parts of the job involving the technology?
  - d. What was the hardest (easiest) aspect of the technology to learn?
6. How did the technology affect your job?
  - a. Did it affect the work pace or the rhythm of how you did the job?
  - b. Which work tasks were most affected? Which parts of the work day?
  - c. Did the technology affect how your performance was measured? How you were paid?
  - d. What role, if any, did you have in setting up the technology or deciding how it would be used?
7. If the technology was added to your job after you started (or changed a lot), tell me what that was like.
  - a. Did it affect the work pace or the rhythm of how you did the job?
  - b. Which work tasks were most affected? Which parts of the work day?
  - c. Did it change how your performance was measured? How you were paid?
  - d. What role, if any, did you play in making the changes that occurred with the new technology?
8. Describe your place of work (physical description of the place where you did your work).
  - a. Did you access the technology from your primary work station or go to another location?
  - b. Did the technology cause you to interact with others? (Co-workers, customers, your supervisor)
  - c. Or did you use it mostly on your own for solitary tasks?

9. Tell me about your co-workers. Did they use the same technology?
  - a. Could you observe them using the technology?
  - b. Did you learn from each other how to use the technology?
  - c. Were these tips to make it easier to use? To boost performance? To deal with monitoring?
  
10. Did your feelings about the job change over time? How? Was the technology at all a factor in that?
  
11. Did your ability to use the technology help qualify you for new jobs, new credentials, a pay increase? Would a future job description have said “must know how to use” that technology in a particular way?
  
12. Did you and your co-workers have stories, jokes, traditions, or nicknames related to the technology?
  
13. What did you like best about that job?
  
14. What did you wish you could change about that job?
  
15. How has the job you have told me about affected the jobs you have had since then? The technology?
  
16. In the future, do you think that job you had will be different? In what ways?
  - a. How will the technology affect that change?
  - b. Do you think the division of tasks between a human worker and the technology will change?
  
17. What advice would you give someone starting in a job/field like the one you have told me about, particularly vis-à-vis this technology and how it will affect their work, their performance, their career?

## **Paper Assignment #2 (due on Wednesday May 6th @ 11:59pm, on Canvas)**

The second paper is tied to the “Technology and Managing People” module. In it, you will explore one particular facet of how technological change has affected the organizational function of managing human and social capital. I urge you think beyond the human resources function *per se* because effective management of human assets is the responsibility of leaders and managers at all levels, including: acquiring and retaining talent; developing individual skills and organizational collaborative capacity; assessing performance and providing developmental feedback and all-round mentoring; allocating rewards, both extrinsic (pay and promotion) and intrinsic (recognition; goals that align with mission and values; motivating work); and so forth.

We will have discussed a number of situations in which technology is changing how human and social capital is managed – and there are undoubtedly others that we haven’t covered. You may choose, based on your own interests, **and contingent upon approval by the instructor**, the topic for this paper.

This is an essay assignment in which I want you to make (and stake) a claim related to the course material and support it with a multi-pronged argument founded on a wealth of deep insight and meticulous research. Ideally, your thesis will be one that other, equally well-informed students might disagree with. You will meet with me, in pre-booked virtual office hours, to identify a topic that is substantively suitable and can be tackled in roughly 5 pages (1250 words) and five weeks’ time. **Your topic must be finalized and approved by Friday, April 10<sup>th</sup> at 5pm.**

Here are some sample topics (stated as questions) to get you thinking. You would identify a question like one of these and then write a paper that answers it thoroughly.

- How does technological change influence the male-female wage gap?
- How does technological change alter the relationship between pay and productivity?
- To what extent or in what ways have worker preferences driven the design of technology (with a specific example)?
- How do you assess the tradeoffs inherent in implementing technology that allows the time-shifting of some (but not all) work tasks? When are the gains (for the employer in matching supply of labor to demand; for the employee in greater flexibility of schedule) offset by the losses (for the employer loss of creativity from asynchronous coordination; for the employee, no boundary between work and the rest of life)?
- How has Amazon/Walmart/[some other employer] improved or worsened workers’ economic wellbeing in its use of technology?

- Who benefits and who suffers in terms of outcomes when hiring is done through algorithmic filters and the facilitation of social media? (Prospective employees vs. managers; individuals with background/qualifications A vs. background/qualifications B)
- To what extent is technological change gender- or race-biased?
- What limits, if any, should be put on the monitoring of individual employees and contractors by organizations vis-à-vis their work effort; when and how they carry out tasks; the mental alertness and emotions displayed as they do their work? If you believe limits are needed, how should those limits be identified, defined, governed, and enforced?

**Given the extraordinary move to social distancing being undertaken by virtually all organizations and institutions during this coronavirus crisis, a second option is to write about some aspect of this very-current meta-topic.** Namely, how is this unexpected and mandated disruption in how work gets done (from home, without travel, etc.) –only possible due to facilitating technologies such as the Internet and web-enabled applications -- affecting:

- ...how individuals/groups make sense of changes in the broader social, economic, cultural environment?
- ...how individuals/groups choose strategies, both micro (best ways to accomplish tasks) and macro (what goals, what direction, how to allocate resources) to get things done?
- ...how decisions, large and small, are made, i.e. impact on decision processes, whose voices are amplified or muffled, whether power is more or less centralized?
- ...favorably or unfavorably, such things as creativity, changes in routines, experimentation, and individual/organizational learning?
- ...how motivation, morale, meaning, and community are experienced by individuals and collectives?
- ... among other possible aspects...

Regardless of what topic you choose, this is an assignment that requires *real research*. Make sure your bibliography demonstrates this. This means not just Googling your research question and doing a close reading of Wikipedia. It means more than a bunch of topical media articles. I do not want the bibliography to be a list of URLs. I want evidence of *real research* involving, for example, books and articles.

We have paid attention to history throughout this course; you should also do so with this paper. Be sure to document your sources carefully and meticulously using any style that you prefer. Moreover, remember to make use of Penn/Wharton's marvelous library resources – not least of which are the highly skilled Lippincott research librarians.