

TECHNOLOGY + THE CITY

Spring 2016

DRAFT 2016.09.27

Course Description:

The advent of smartphones has created ubiquitous connectivity for many of us: we are able to access information and connect with people and services at the touch of a button from a powerful device that we can no longer live without. This connectivity and the immediate access to just about anything has a considerable impact on the city around us, our relationships with others and our behavior. Smartphones have led to the emergence of the sharing economy - services such as AirBnB and Lyft - and radically challenged the status quo in our urban environment. With the evolution of autonomous or self-driving vehicles imminent, we have yet another opportunity to completely rethink transportation, vehicle ownership, and subsequently everything we know about the urban built environment.

A smart city is the introduction at-scale of connectivity and technological innovation that can address everything from infrastructure management and efficiency to service delivery and our overall experience as urban citizens. A true smart city is defined by good governance; the seamless integration of the “analog” (or non-technological solutions) and technology; a balanced and equitable outcomes for all members of the community; and a fundamental rethinking of how to create the city of the future. However, cities have a challenge: they are built and maintained for decades while technology is changing daily. How will policies adapt to these new technologies and address concerns about privacy, security, and equity? How do policy makers and the private sector work together to define a shared vision and work together to meet these desired outcomes when the tools and model are evolving faster than government? What does it mean for government to become a platform for innovation when its reputation is anything but innovative?

This course will explore some of the wildest technological innovations in the 21st century and their impact on public policy in cities through a survey of best practices, model policies and lessons learned from cities across the United States and globe.

Learning Objectives:

The primary objective of this class is for students to develop a framework for considering the role of technology and innovation in urban development and governance. Specifically, students will:

1. Define basic concepts of smart cities, IoE (Internet of Everything), and other technological innovations.
2. Understand how public policy has responded to technological change and identify best practices.
3. Identify case studies that illustrate how technology and cities can work together for more sustainable, equitable and resilient development and growth.

Pre-Requisites:

There are no prerequisites for this class.

Assignments:

In addition to being prepared for class discussions by completing the reading/watching assignments in advance of each session, there are four primary assignments for this class:

1. Presentation 1: There will be one “pecha kucha” style presentation on a specific technology and explore its impact through a short case study. Students will pick their assignment Week 2 and present on Week 8. More details on the presentation style format can be found here: <http://www.pechakucha.org/faq>
2. Paper: An approximately 7-page paper on a specific policy recommendation for the City of Los Angeles around a transformational technology of your choice. A paragraph description of the topic is due Week 3. The paper itself is due Week 10.
3. Presentation 2: There will be a second pecha kucha style presentation that covers your recommendation (from your paper) for the City of Los Angeles. These presentations will occur on Week 13 and will likely include a guest panel.
4. Final Exam: The exam will cover both lectures and assigned readings. It is strongly recommended that students complete the assigned readings and attend class lectures as the content is complimentary and will be covered in the final examination.

Course Grading:

- Class Participation: 10%
- Paper Topic Idea: 5%
- Presentation 1: 20%
- Presentation 2: 20%
- Paper: 20%
- Final Presentation: 25%

Course Outline:

Week 1: Defining the Smart City

The goal of this class is to define the basic concepts of a smart city and its translation over time. In addition to a survey of “smart cities” around the globe, this class will cover:

- The Three Waves of Smart City Evolution
- Broadband and WiFi as New Critical Infrastructure
- Big Data + Big Brother: Privacy and Security Implications

Read: Howard, Alex. (2012, March 16). *A definition for civic innovation*. Govfresh. <http://gov20.govfresh.com/defining-civic-innovation-definition-open-government/>

Adler, Laura. (2015, August 31). *The Urban Internet of Things: Surveying Innovations Across City Systems*. Harvard Ash Center Data-Smart City Solutions. <http://datasmart.ash.harvard.edu/news/article/the-urban-internet-of-things-727>

Watch: Sinek, Simon. (2009, September). *How great leaders inspire action*. Ted Talk. https://www.ted.com/talks/simon_sinek_how_great_leaders_inspire_action?language=en

Week 2: Civic + Community Engagement: A New Democratic Model

This class will explore the open data movement and the introduction of new tools for government transparency and citizen engagement. Topics include:

- Open Data
- New Technology for Community Engagement
- The Hackathon

Read: Wiseman, Jane. (2015, August 20). *Customer-Driven Government: How to Listen, Learn, and Leverage Data for Service Delivery Improvement*. Data-Smart City Solutions. <http://datasmart.ash.harvard.edu/news/article/customer-driven-government-721>

Week 3: Sharing Economy: Goods + Services

This class will begin by defining the sharing economy and its global impact on “traditional” economies. We will focus primarily on services such as short-term hiring, AirBnB and homesharing, and other services and the challenges faced by local governments in regulating an evolving marketplace.

- Definition and Impact
- Unanticipated Consequences

Watch: Botsman, Rachel. (2012, June). *The currency of the new economy is trust*. Ted Talk. https://www.ted.com/talks/rachel_botsman_the_currency_of_the_new_economy_is_trust?language=en

Read: Mawad, Marie. (2016, June 20). *City Mayors Worldwide Forge Alliance in Response to Airbnb, Uber*. Bloomberg News. <http://www.bloomberg.com/news/articles/2016-06-20/city-mayors-worldwide-forge-alliance-in-response-to-airbnb-uber>

Week 4: Sharing Economy: Transportation

The global proliferation of ridesharing, carsharing, bikesharing, and even scooter-sharing services is changing the way we move around our cities and even disrupting traditional vehicle ownership models. This class will explore best practice policies in response to the potential impact these new mobility services will have on the marketplace, traditional public transit systems, and even the urban environment.

- Definition and Impact
- Mobility Choice

Read: Tomer, Adie. (2016, September 8). *Transportation network companies present challenges and opportunities in Asia’s booming cities*. The Brookings Institute. <https://www.brookings.edu/research/transportation-network-companies-present-challenges-and-opportunities-in-asias-booming-cities/>

Johnson, Charlie and Jonathan Walker. (2016). *The Market Opportunity of Electric Automated Mobility Services*. Rocky Mountain Institute. http://www.rmi.org/peak_car_ownership

Week 5: Equity in the Digital Age

While more than two-thirds of American adults have smartphones, there is a very real digital divide in our country - drawn along lines of age and economic means. This class will explore how public policy can help create greater equity and access to technological innovation regardless of your access to the technology or data plan.

- The Digital Divide
- Strategies for Inclusion

Read: Smith, Aaron. (2016, May 19). *Shared, Collaborative and On Demand: The New Digital Economy*. Pew Research Center. <http://www.pewinternet.org/2016/05/19/the-new-digital-economy/>

Week 6: Structured + Unstructured Data

There are all sorts of data moving across cities. In this class we'll examine the differences between structured and unstructured data and the policy implications in addition to exploring some pretty amazing case studies of application.

- Social Media Mining
- Privacy and Security
- Constructing a New Social Contract

Read: Centers for Disease Control and Prevention. (2014, August 15). *Health Department Use of Social Media to Identify Foodborne Illness - Chicago, Illinois, 2013-2014*. <http://www.cdc.gov/Mmwr/preview/mmwrhtml/mm6332a1.htm>

Thakuria, P., N. Tilahun and M. Zellner (2015). *Big Data and Urban Informatics: Innovations and Challenges to Urban Planning and Knowledge Discovery*. In Proc. of NSF Workshop on Big Data and Urban Informatics, pp. 4-32. <https://urbanbigdata.uic.edu/files/2015/11/Background.pdf>

Week 7: Sensors + Situational Awareness

This class will look at the implications of “eyes on the street” and its impacts on our urban environment, public policy, and how we govern.

- Governance in an Age of Instant Data
- Defining a Responsive City Hall

Read: Goldsmith, Stephen. (2015, September 29). *Protecting Big Data: Seattle’s digital privacy initiative on track with new data safeguards*. Harvard Ash Center Data-Smart City Solutions. <http://datasmart.ash.harvard.edu/news/article/protecting-big-data-742>

Walt, Vivienne. (2015, July 29). *Barcelona: The most wired city in the world*. Fortune Magazine. <http://fortune.com/2015/07/29/barcelona-wired-city/>

Week 8: Pecha Kucha Presentations + Discussion

This week students will present their short analysis of a specific technology and identify a unique case study to discuss. These presentations entail 20 slides that are automatically advanced at 20 second intervals for a total presentation time of 4:20.

Week 9: Self-Driving Cars + Automated Vehicles*

What is the future of our cities with robots driving vehicles? What is the role of local government in shaping this city of the future as it relates to automated vehicles?

- A Transportation Revolution
- Reshaping Cities and Challenging the Status Quo

Read: Townsend, Anthony. (2014). *Re-Programming Mobility: The Digital Transformation of Transportation in the United States*. New York University. reprogrammingmobility.org/wp-content/uploads/2014/09/Re-Programming-Mobility-Report.pdf

*Possible site tour of ATSAC, the Los Angeles Automated Traffic Surveillance and Control Center.

Week 10: Civic Tech and Economic Development

Who is working to solve the problems for government through technological innovation? In this class, we will explore the evolution of civic tech and organizations such as Code for America that are finding new ways to bring technology into government to solve major urban issues.

- Emergence of a New Sector
- Technology as a Catalyst for Urban Development

Read: Knight Foundation. (2013, December). *The Emergence of Civic Tech: Investments in a Growing Field*. The Knight Foundation. http://www.knightfoundation.org/media/uploads/publication_pdfs/knight-civic-tech.pdf

Lapowsky, Issie. (2016, March 7). *The White House wants you to build tools to improve our cities*. Wired Magazine. <https://www.wired.com/2016/03/white-house-wants-build-tech-tools-data/>

PAPER IS DUE.

Week 10: Measuring + Governance

How is technology changing how city hall works on a day-to-day basis? How will the integration of technology change the way we manage government to meet the goals of public policy? What are the workforce implications of these changes? This class will explore best practices from Kansas City, Missouri and other U.S. cities.

- Performance Management and Data-Driven Decision Making
- Citizen Satisfaction Surveys

Read: Adler, Laura. (2015, May 12). *How Citizens See It: Kansas City's Citizen Survey Adds Citizens' Perceptions to the Equation*. Harvard Ash Center Data-Smart City Solutions. <http://datasmart.ash.harvard.edu/news/article/how-citizens-see-it-677>

Campbell, Craig and Stephen Goldsmith. (2016, August 31). *Restoring Trust in the Responsive City*. Harvard Ash Center Data-Smart City Solutions. <http://datasmart.ash.harvard.edu/news/article/restoring-trust-in-the-responsive-city-901>

Vanky, Anthony. (2016, Spring). *Make Data Make Sense: The Importance of Visualization in Data Analytics*. IQT Quarterly, 7(4), 17-19. http://senseable.mit.edu/papers/pdf/20160427_Vanky_MakeData_IQTQuarterly.pdf

Week 11: Public-Private Partnerships

This week will explore the trend towards partnering with the private sector to address our greatest urban challenges. We will investigate public policy as it must adapt to changes in procurement policies and risk assessment to invite new players to the table in getting things done in our cities.

- *What Works Cities, Code for America and other city partners*
- *Case study of Chicago riverfront redevelopment*
- *Kansas City smart city partnership*

Read: Stern, Noah. (2016, February 12). *Waze Partners With Local Governments to Enhance Mobility*. GovTech. <http://www.govtech.com/dc/articles/Waze-Partners-With-Local-Governments-to-Enhance-Mobility.html>

Kinney, Jen. (2016, February 11). *Parks Get Help Navigating Public-Private Partnerships*. Next City. <https://nextcity.org/daily/entry/parks-public-private-partnerships>

Week 12: Pecha Kucha Presentations + Discussion

This week students will present their course papers and recommendations for the City of Los Angeles through a brief presentation. These presentations entail 20 slides that are automatically advanced at 20 second intervals for a total presentation time of 4:20.

Week 13: Crowdsourced

What technological innovation do you want to discuss? This class will focus on a student-identified subject (could be anything from drones to augmented reality). We'll collect input earlier in the semester and build a discussion around a topic of greatest interest to the class. We will also evaluate the limitations and opportunities of crowdsourcing as a strategy for data collection and feedback.

Week 14: Tech and (re)Shaping our Cities

What are the impacts of technology on urban design and planning? This class we will explore "real-time" planning practices and how technology is reshaping our public space, lending for future sustainability and resiliency.

- Integrating data into planning
- City redesign (case studies on New York City and Paris)

Read: Kinney, Jen. (2016, September 26) *New Data Tool Helps Cities Take Climate Action*. Next City. <https://nextcity.org/daily/entry/white-house-launches-data-tool-climate-resilience>

Adams, Eric. (2016, June 7). *8 Lessons for Fixing the Cities of the Future*. Wired Magazine. <https://www.wired.com/2016/06/8-lessons-fixing-cities-future/>

Mattern, Shannon. (2016, April). *Instrumental City: The View from Hudson Yards, Circa 2019*. Places Journal. <https://placesjournal.org/article/instrumental-city-new-york-hudson-yards/>

Week 15: Future of Technological Innovation

We will examine the idea of government as a platform for innovation and leading edge public policy that is making it easier to pilot and test new ideas within city hall and in our cities. This class will explore a few final case studies of best practices for civic innovation as we prepare for the future.

- Behavior Change
- Adapting Policy for the Unknown
- Hacker Spaces within City Hall

Read: Schreckinger, Ben. (2014, June 10). *Boston: There's an App for That: "Civic hacking" and the transformation of local government*. Politico Magazine. <http://www.politico.com/magazine/story/2014/06/boston-theres-an-app-for-that-107661>

Ly, Kim, Nina Mazar, Min Zhao and Dilip Sonam. (2013, March 15). *A Practitioner's Guide to Nudging*. Rotman School of Management University of Toronto. <http://www.rotman.utoronto.ca/-/media/images/Programs-and-Areas/behavioural-economics/GuidetoNudging-Rotman-Mar2013.pdf>