

YSS3337 Smart Cities – History of Urban Data in Urban Planning

Semester 2, 2022

Instructor: Chaewon Ahn (chaewon.ahn@yale-nus.edu.sg, she/her/hers)

COURSE DESCRIPTION

The desire to systemically control the city using information is as old as the history of urban planning. This seminar examines Smart Cities through a retrospection into the history and theory of urban data and computational models in urban planning. Learning from the technocratic planners (1910s-1920s), the cybernetic vision and urban renewal (1960s), the development of GIS (1960s), critical GIS (1990s), Big data and civic technologies (2010s), the course critically examines contemporary Smart Cities that include but are not limited to Masdar, Songdo, Sidewalk Lab Toronto, and Singapore's Smart Nation initiatives.

LEARNING OBJECTIVE

The objective of the course is to equip students with the following way of thinking:

- Familiarity to the history and theory of data in urban planning;
- Familiarity to the criticism against planning moments that actively embraced data driven solutions;
- Ability to critically examine contemporary smart cities using the lessons learned through past examples;
- Development of their own perspective on Smart Cities, Big Data, Technology and its relationship to urban planning

TOPICS

Week 1 – 2: Social Surveys and technocratic planning (1889)

In the first two classes, we examine the context that called for social surveys to justify planning actions in the UK and the US in the early 1910s.

Week 3 – 5: WW2 technologies meets Cybernetic imaginaries

These classes study how the technological advancements during the WW2 in aerial photography, world projection systems and systems thinking opened up new post-war planning practices with cybernetic ambitions, giving birth to the idea that “the city is a computer” in the 1960s.

Week 6 – 7: GIS meets participatory turn of planning - GIS, Critical GIS, Planning Support Systems

Simultaneously, Geographic information systems (GIS) were developed and disseminated (1960s). The participatory turn in planning also influenced GIS scholars to rethink the social responsibility of GIS and even the possibility of GIS for

collaborative decision making.

Week 8 – 9: Smart Cities and criticism – From Songdo, Masdar to Sidewalks Lab, and Smart Nation

With the knowledge of prior cases what we learned until week 7, the class starts investigating most famous smart city initiatives to understand their promises, how they were executed and what criticism has been raised. Guest lectures might be planned during these weeks.

Week 10 – 12: Big Data, Civic Technologies and Algorithmic Justice

Finally, the class examines the most recent developments in big data, smart government services, and civic technologies. Considering the active calls for algorithmic justice, the class explores the risk and benefits of adopting these technologies in urban planning.

TENTATIVE READING LIST (Will be reduced from the current list)

Week 1: The earliest models – Charles Booth's poverty map (1889)

- Booth, C. (1893). Life and labour of the people in London: first results of an inquiry based on the 1891 census. Opening address of Charles Booth, Esq., President of the Royal Statistical Society. Session 1893-94. *Journal of the Royal Statistical Society*, 56(4), 557-593.
- Boyer, M. C. (1986). *Dreaming the rational city: The myth of American city planning*. Mit Press.

Week 2: Technocratic Planning – 1910

- Douglass B. Lee Jr. (1973) Requiem for Large-Scale Models, *Journal of the American Institute of Planners*, 39:3, 163-178, DOI: 10.1080/01944367308977851

Week 3: WW2 technologies – Aerial photography, World projection systems and planning

- Light, J. S. (2003). *From warfare to welfare: Defence intellectuals and urban problems in Cold War America*. JHU Press.
- Flood, J. (2010). The fires: How a computer formula, big ideas, and the best of intentions burned down New York City--And determined the future of cities. Penguin.
- Gabrys, J. (2016). *Program earth: environmental sensing technology and the making of a computational planet*.

Week 4: Cybernetic visions and urban renewal

- Medina, E. (2011). *Cybernetic revolutionaries: technology and politics in Allende's Chile*. Mit Press.

- Steger, W. A. (1965). The Pittsburgh urban renewal simulation model. *Journal of the American Institute of Planners*, 31(2), 144-150.

Week 5: ICT and anticipations of digital cities

- Mitchell, William J. (1995). *City of Bits: Space, Place, and the Infobahn*. Cambridge, Mass., MIT Press
- McCullough, Malcolm. 2004. *Digital Ground: Architecture, Pervasive Computing, and Environmental Knowing*. Cambridge, MA: MIT Press.
- Kitchin, R., & Dodge, M. (2014). *Code/space: Software and everyday life*. Mit Press.

Week 6: GIS and Critical GIS

- Pickles, J. (Ed.). (1995). *Ground truth: The social implications of geographic information systems*. Guilford Press.
- Wilson, M. W. (2017). *New lines: Critical GIS and the trouble of the map*. U of Minnesota Press.

Week 7: Planning support systems, collaborate planning tools

- Klosterman, R. E. (1997). "Planning Support System: A New Perspective on Computer-Aided Planning." *Journal of Planning Education and Research*. 17(1): 45-54
- Waddell, P. (2002). UrbanSim: Modelling urban development for land use, transportation, and environmental planning. *Journal of the American planning association*, 68(3), 297-314.
- Haklay, Muki. 2013. "Neogeography and the Delusion of Democratisation." *Environment and Planning A* 45 (1): 55–69.

Week 8: Smart Cities 1.0 – Songdo, Masdar and criticism

- Greenfield, Adam. *Against the Smart City*. Seattle: Amazon Digital Services, Inc., 2013.
- Townsend, A. M. (2013). *Smart cities: Big data, civic hackers, and the quest for a new utopia* (First edition). W.W. Norton & Company.

Week 9: Smart Cities 2.0 – Sidewalks Lab, Smart Nation and criticism

- Ellen P. Goodman and Julia Powles, *Urbanism Under Google: Lessons from Sidewalk Toronto*, 88 *Fordham L. Rev.* 457 (2019).
- Rose, G. (2020). Actually-existing sociality in a smart city: The social as sociological, neoliberal and cybernetic. *City*, 1-18.
- Kong, L., & Woods, O. (2018). The ideological alignment of smart urbanism in Singapore: Critical reflections on a political paradox. *Urban Studies*, 55(4), 679-701.

Week 10: Crowdsourcing, Civic Technologies and Citizen Science

- D'Ignazio, C., & Zuckerman, E. (2017). Are We Citizen Scientists, Citizen Sensors or Something Else Entirely?. *International handbook of media literacy education*, 193.

Week 11: “Smart Enough Cities” – smart government services

- Green, B. (2019). *The smart enough city: putting technology in its place to reclaim our urban future*. MIT Press.

Week 12: Big data, surveillance and algorithmic justice

- Boyd, Danah, & Crawford, K. (2012). Critical Questions for Big Data. *Information, Communication & Society*, 15(5), 662–679.
<https://doi.org/10.1080/1369118X.2012.678878>
- Zuboff, Shoshana. *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. Illustrated edition. New York: PublicAffairs, 2020.
- O’Neil, Cathy. 2017. *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. New York: Broadway Books, selections

COURSE ASSESSMENT BREAKDOWN

Assignment	% of Total Grade
Class Participation	20%
Reading response	20%
Essay 1	30%
Essay 2	30%

Class Participation (20%): The course is designed to be interactive. Showing up for class and contributing to the class discussion is important for students to develop a critical perspective about the course material.

Reading response (20%): There will be readings every week, and it is important to for students to complete the readings before class and reflect on them before we meet in class. For the reading response, I ask students to submit with three questions that they want to discuss in the class. The reading responses will be collected by 23:59PM the day before the class.

Essay 1 (30%): The first essay is mid-semester paper, which focuses on a theoretical question. Students compare different moments in the planning history regarding data, models, and urban planning projects to compare the similarities and differences. What was the context within which the approaches were justified? What lesson could the planners learn from each other from the results they have seen through the planning moments?

Essay 2 (30%): The second essay is a final paper for students to write comparatively between the history and theory of urban data and a contemporary example they can find that includes urban data, simulations, models, and/or smart cities central in their planning project. Where does the contemporary example borrow it’s ideas from? What are the expected limitations? What has changed this time?