Guian New District
Big Data and Smart City for Huawei
UNC DCRP Land Use Workshop Class
PLAN 823 Fall 2018
Tuesdays 12:30-3:00pm
Professor Yan Song
ys@email.unc.edu
Teaching Assistant: Yan Chen
Office Hours: Thu 1:00-3:00pm or by appointment

Goal

The goal of the DCRP Land Use workshop in Fall 2018 is to help Guian New District in China with background research and strategic planning that will enable the district to effectively implement the concept of "smart city." For some background information of Guian New District, and of Smart city, please check out:

http://www.eguizhou.gov.cn/2015-02/27/content_19670225.htm
http://www.prnewswire.com/news-releases/guian-new-area-releases-2017-blueprint-that-emphasizes-big-data-business-300408566.html
http://www.chinadaily.com.cn/m/guizhou/guiyang/2016-05/16/content_25319135.htm
http://smartcitiescouncil.com/smart-cities-information-center/examples-and-case-studies
http://www.iadb.org/en/topics/emerging-and-sustainable-cities/international-case-studies-of-smart-cities,20271.html
https://kknews.cc/tech/ngr8b5.html
http://www.intelligentcommunity.org/smart21
http://www-07.ibm.com/tw/dp-cs/smartercity/success.html
https://www.qualcomm.com/solutions/internet-of-things/smart-cities
https://www.slideshare.net/Taipeismartcity/columbus-64229580
https://www.oracle.com/applications/primavera/solutions/smart-city-projects/index.html

Our work products will be used by the client to secure additional funding for its efforts; to generate marketing materials and strategies for promoting its programs; and most importantly to identify mechanisms to implement the imitative.

Workshop Expectation

Students are expected to devote approximately 10 hours of work per week to the project outside of class time. For some tasks, students will work as individuals. For other tasks, students will be formed into teams. All students are responsible in managing the writing process for their section of the final report to be submitted to the client.

We will usually meet between 12:30pm and 3:00pm to have "check-in" meetings on Tuesdays. In some weeks, we will meet as a full class. During "check-in" weeks, your team is expected to use the classroom time to hold its own meetings or team working sessions.

Collection of documents from various sources and phone interviews with city officials for a range of international cities will be part of the class, but with an eye towards efficient use of time and resources. Expense will be reimbursed.

Grading

Students will be graded based on the individual reports (50%), quality of team output (30%), and class participation/ presentations of work (20%).

It is important to remember that your primary responsibility is to your classmates and our client, not me as an instructor—think of the instructor as a facilitator in this process. The workshop is to set up as a client-based project where the student team essentially acts as a semester-long consulting team.

Deliverables

The whole class is responsible for writing a report of professional quality that will be presented to our client at the end of the semester. In addition, students, either as individuals or as teams, will be asked to give professional presentations throughout the semester. The groups will compile and coordinate all sections of the report. Typically, our compiled final workshop report will be around 300 pages in length (this includes appendices, figures, maps and supporting documents).

Class Plan

After discussing with the client, our research needs to include the following contents:

1) Any successful cases on big data and applications in smart cities to share?
2) How to plan, design, install, operate, and maintain a smart city? What techniques do we have? How to employ available data?

Tentatively, we will accordingly plan our class the following way:

<u>Part 1: Concepts of Big Data and Smart City</u>

Week 1 (Aug 21) Brief Introduction

- Students read the background information
- Instructors narrow down the project scope with the client

Read this:
https://www.forbes.com/sites/iese/2018/07/13/the-smartest-cities-in-the-world-in-2018/

<u>Part 2: International Cases</u>

In this section, we work on collecting international cases. Each student will select a city from the following list and submit a report of a case study from the city. Any good

nomination for cities not on the list are also welcomed. In addition, all students will work together and fill a summary table for case comparison.

Number of cases	Type of City	Cities
3	Large (>5 million)	New York, Tokyo, New Delhi
7	Median (1-5 million)	Los Angeles, Chicago, Boston, Vienna, Curitiba, Melbourne, Madrid
6	Small (<1 million)	Columbus, Seattle, San Francisco, Stockholm, Andorra, Amsterdam

For each individual, this section final report is about 15 pages, 12pt, 1.5-line spacing. ***This report is due on Oct 2.*** *The report should be in single line spacing format. Two major parts are required: Background and Case studies*

I Background (1-3 pages)

In this part, the following information is required:

- Introduction for socio demographic information for the city
  - For examples, scale, location, population, income level, education level
- City level smart city planning/ initiatives (Important piece of information to be collected)
- Responsible and related agencies in public/private structure and their partnership structure
- Funding sourcing

II Case Studies (2-3 pages per project)

For each project, the following information is required but not limited to:

- Project background /description
- Project goals / Major indicators
- Time and scale
- Required Data
- Implementation(Promotion strategies, Monitor/ evaluation programs)
- Potential Users
- Cost/ Benefits/ Funding structure/ Partnership
- Takeaway points
- Websites/ major documents

Week 2 (Aug 28) Check-in section

- Instructors finalizes the list of cases with the client

Week 3 (Sep 4) Working session

- City Case Assignment

- Q&A with TA (Yan Chen)

Week 4&5 (Sep 11&18) Presentations / Discussions on Smart City Projects

- Sample information required:
    - Scale, Location, Related Agencies, Socio-demographic facts
    - Purpose (Innovation economy/ Urban infrastructure/ Governance)
    - Techniques
    - Funding Sources
    - other information deemed relevant

Week 6 (Sep 25) Working session

Information collection

Week 7 (Oct 2) Presentations / Discussions on the Guidelines; and Comparison of all cases

- Sample information to be provided

- ***Report Due***

<u>Part 3: Techniques & Policies</u>

In this section, students will summarize the current prevalent smart city techniques from cases, and then distribute them into seven categories based on the application: ***Open data/ Open government, Smart planning, Cloud governance, Transportation, Smart infrastructure, Public health, Smart sensors****. Students will make 2-person teams, and each team will select one technique from the categories respectively to study. Students are also required to fill a summary table for technique comparison.*

For each team, the section final report is about 12 pages, 12pt, 1.5-line spacing. ***This report is due on Nov 6.*** *For presentation and report, the following requested information is to be required.*

- Owner Brief
- Project Brief
- Stakeholders, and their Motivation & Challenges
- Solutions
    - Business model
    - Functions & User Interfaces
    - Technology Solutions and the standards
    - Scale, Coverage and Performance
    - Participants Brief
- Results
    - Resolved Challenges

        - Economic Return
        - Social Return
        - Experience
        - Next step for improvement
    - Key Success Factors
    - Benchmarks
    - Lessons for others

Week 8 (Oct 9) Information session

Week 9 (Oct 16) Working session
- Information collection

Week 10 (Oct 23) Working session
- Information collection

Week 11 (Oct 30) Presentations

Week 12 (Nov 6) Presentations
Report Due

<u>Part 4: Guian application (To be further discussed with our client)</u>

In this section, students will apply the summarized techniques from case studies to the practice of Guian New District Planning, and then distribute them into seven categories based on the application: ***Open data/ Open government, Smart planning, Cloud governance, Transportation, Smart infrastructure, Public health, Smart sensors****. Students will make 2-person teams, and each team will select one technique from the categories respectively to study.*

For each team, the section final report is about 8-12 pages, 12pt, single line spacing. ***This report is due on Dec 4th.*** *For presentation and report, the following requested information is to be required.*

I. Vision
II. Objective
III. Project
Project 1

1. *Project Brief*
2. *Business Model*

3. *Functions & User Interfaces*
4. *Technology Solutions and the Standards*
5. *Information about Data and Sensing layers*
6. *Scale, Coverage, Implementation Maps (if applicable)*
7. *Cost Estimates*

Project 2

…..

IV. Implementation & Monitoring

Week 13 (Nov 13) (Guian working session)

Week 14 (Nov 20) (Guian working session)

Week 15 (Nov 27) (Guian working session)

Week 16 (Dec 4) Presentation.

- ***Final report due.***