



Appendix 1: Teaching Note

Using *Smarter New York City* as Teaching Material

There are many ways to incorporate case studies in the classroom and use them to engage students in problem-solving, hands-on, and real-world practical activities. For twenty-five years, I have been using them in courses I teach or taught in the United States, China, Kazakhstan, Jordan, and Portugal. There are at least three general pedagogical and teaching strategies I choose from when using case studies in my classes, depending on the learning goals set for each (see Table 1).

Table 1: Strategies for Using Case Studies as Teaching Materials

	Teaching Strategy	Case Setting or Plot	Classroom Implementation	Learning goals and skills (examples)
1	Multi Scenario formulation and decision-forcing model	Situation (or critical problem) + context + alternative solutions/approaches.	Activities about the decision/solution adopted or to be adopted.	Cost-benefit analysis Scenario building Decision models
2	Retrospective decision-points (or decision-making) narrative model	Situation (or critical problem) + context + chronology of decision-points and associated alternatives + decisions made	Activities about the decision process and analysis of trade-offs and cost-benefits	Historical analysis Critical thinking Networks and complexity Strategic management
3	Role play model	Situation (or critical problem) + context + actors + alternatives + trade-offs	Negotiation simulations by groups + debriefing	Stakeholder and institutional analyses Negotiation and conflict resolution Empathy and public speaking Leadership

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Multi Scenario and Decision-Making

The first strategy focuses on alternative program interventions and emphasizes policy/program priorities and outcomes. In this teaching strategy, students are asked to discuss alternative future scenarios, strategies, courses of actions, or decisions vis-à-vis the problem presented in the innovation/program studied. Each alternative has a different cost/benefit profile associated, which may relate to different stakeholders and their interests, preferences, and agendas; different policy or programs goals; different contextual variables; or other factors/variables associated with the program moving forward.

The discussion in this strategy is about trade-offs based on the information provided as well as the uncertainty of future scenarios. Since our *Smarter New York City: How City Agencies Innovate in a Time of Crisis* case offers an historical account of how innovations evolved and the main challenges faced at the time of writing it, instructors can look for updates (online or other sources) to build class activities around the topics and issues suggested above.

For example, the Department of Transportation (DOT) faces important challenges with the increase of traffic back to the streets in post-COVID times. How should the Open Restaurants Program adapt, given that asphalt space will be incrementally claimed back by drivers, while allowing restaurant owners to continue to recover revenue lost in the past two years?

In this case, the instructor can break down the class in different groups and ask each to formulate a future development scenario. Each group must present trade-offs for the scenario chosen, develop a cost-benefit analysis, a SWOT analysis and/or other exercises that can help them train scenario building and decision making. While for this type of teaching strategy it is important that students read the case in advance, collecting additional data, information and readings may be part of the class/group exercise.

A variant of this teaching strategy requires that the instructor defines the scenarios in advance, assign two groups of students to each, and have them perform adversarial roles: one group in support of the scenario pre-set, the other against. Another variant requires that the instructor breaks down the class in multiple groups (ex. civil rights advocates, private developers, city officials) and develop role-play discussions around the merits of one or more alternative development scenarios presented.

Retrospective Critical Decision Points

In contrast to the previous strategy, this strategy focuses on the past decision process surrounding program/innovation design and implementation. This strategy emphasizes management practices skills.

Throughout program rollout, and at each decision point, those in charge of making decisions considered several possibilities, analyzed trade-offs, assessed consequences, etc., before a decision was made. Each decision had an impact on the program and led to a subsequent decision point, and a new decision tree was formed. Management practices can be discussed retrospectively vis-à-vis the complete sequence of decision trees, individual critical decision points, or decisions not taken (i.e., branches of the decision trees not followed).

This type of teaching strategy can use the case study to explore “what-if” analyses and the short- versus long-term effects of decisions. Since each program covered in our case offers a timeline of how innovations evolved, instructors can select critical junctures to organize discussions around the merits of alternative decision scenarios and their hypothetical consequences.

For example, the creation process of the Pandemic Response Lab (PRL) was far from obvious when COVID-19 testing needs in New York City (NYC) skyrocketed. What were the key decision points in this process? What data, actors and institutions became critical in those critical junctures? What could have been done differently in NYC vis-à-vis what other megacities in the US and abroad did? How could more advanced health monitoring and evaluation methodologies and infrastructure have been set up to better inform the city’s decision to create this program? Looking back, what were the most critical pieces of legislation that enabled PRL and what were the main challenges?

With this teaching strategy, instructors can create a multi-groups challenge to discuss ways of improving how innovation happens. This teaching strategy is perhaps more demanding than the previous one in terms of

preparation for the class exercise. This is so because teaching strategy #2 is based on, and bounded by, a defined sequence of events that occurred, whereas discussions in teaching strategy #1 can be more open and exploratory. Teaching strategy #2 requires more robust critical thinking skills since for each critical juncture considered students really need to dive deep into the pros and cons of the arguments used and these determine the configuration of the critical junctures that follows.

Role Play

The third strategy focuses on negotiation and conflict-resolution skills. This teaching strategy can be applied to either past decision points or future scenarios. In this teaching strategy, each student plays the role of a specific stakeholder featured in the program/innovation and, in groups of different stakeholders assembled by the instructor, engage in negotiations with these “adversarial” students/stakeholders about a specific situation of the program/innovation studied, such as a conflict, an uncertainty, or a future decision.

This type of teaching strategy works better with innovations/programs rich in information available about stakeholders’ preferences, attitudes, possible reactions, and sensitivity to program/innovation or decision alternatives. The preparation for the negotiation may require each student/stakeholder to collect updated information about each stakeholder involved in the negotiation, because there will be a time lag between the time this case was finalized, and the time students actually read it. The focus of this strategy is on knowledge, skills and competencies that favor trust-building, collaboration, and coordinated action toward some desired outcome, such as a certain technology adoption, a public/private partnership, or some public service improvement.

Have students adopt the case study as baseline information accessible to all in the class. Then, assign students to play the role of selected stakeholders and ask them to find updated information online or in other sources about the innovation chosen for the activity. Ask students (i.e., stakeholders in each negotiation group) to use the time available for the exercise to (try to) agree on a plan for how to move forward. Use the different agreements reached (depending on how many students the class has and how many parallel groups were created) to compare students’/stakeholders’ relative performance (i.e., final overall agreements, who got what, who conceded what).

Each of the activities suggested above assumes that, before or after, there is a discussion about the concepts, tools, skills, frameworks, and knowledge students are expected to learn and apply to their class activities.

For example, the Situation Room case can be used to develop classroom activities and discussions around stakeholders’ engagement and coordination across cities to streamline COVID-19 cases detection and response in schools. The FDNY EMS case can be used to develop role-play activities with students representing different groups/actors, internal or external to the agency, with the goal of exploring ways to make innovation more inclusive and responsive to the needs of the city personnel or citizens, depending on the problem presented.

Overall, the programs/innovations covered in our *Smarter New York City: How City Agencies Innovate in a Time of Crisis* case are compelling evidence-based stories that can make classroom discussions more lively, real, practical, and engaging. They are detailed in such a way as to offer instructors enough room to determine what type of discussion best fits the learning goals for each class.

Case studies are great tools to help flip the class and make the students—not the instructor—the center of the learning experience. Because our case study explains how innovation drivers operate in local government, they have the potential to encourage research on innovation in local governments and administrations; trigger dialogues around public and private partnerships (PPPs); stimulate the imagination of young and aspiring entrepreneurs regarding the huge opportunities for innovation in government processes and services; increase interest in internships and educational opportunities in governmental agencies, and public service in general; change perceptions about the functioning of the

local public sector; and encourage systems thinking and multidisciplinary approaches in scientific fields such as urban development, technology, and SDGs while developing related skills, talent, and competencies. Departments and schools can use this case study to organize student competitions and case challenges as well.