

Smart Urbanism

Interní soutěž FA ČVUT v rámci Institucionálního plánu ČVUT pro rok 2022

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Cíle projektu

Podpořit studenty nového interdisciplinárního programu **Smart Cities (Dual degree program ČVUT - UTEP** (The University of Texas at El Paso) a studenty FA v **anglické výuce FA**.

V nově vytvořeném předmětu **Smart Urbanism** studentům srozumitelně a přesvědčivě vyložit současný překotný a spontánní technologický rozvoj v širších, historických souvislostech a spolu se studenty **kriticky nahlížet na pojem Smart Cities**.

Poskytnout optimální **studijní opory**, které umožní lepší pochopení:

- **historického vývoje** měst v kontextu technologického rozvoje
- možných **důsledků technologického rozvoje** na prostředí soudobých měst
- výzev pro architektonickou tvorbu, urbanismus a prostorové plánování

Výstupy projektu

Výstupem projektu budou inovované pdf **prezentace přednášek** a jejich **videozáznamy** umístěné na internet a doplněné o **podklady pro samostudium, itineráře pro exkurze**, jež jsou součástí cvičení a **doplněný studijní fond** k dispozici studentům.

11 přednášek

**Lecture 1:
A city, a smart city,
Urban morphology,
Urban land-use**

prof. Ing. arch. KAREL MAJER, CSc.

**Lecture 2:
Urban metabolism
and energy**

prof. Ing. arch. KAREL MAJER, CSc.

**Lecture 3:
Urban infrastructures**

prof. Ing. arch. KAREL MAJER, CSc.

**Lecture 4:
People, urban society
and economy**

prof. Ing. arch. KAREL MAJER, CSc.

**Lecture 5:
Urban spaces and places 1**

doc. Ing. arch. JAKUB VOŘEL, Ph.D.

**Lecture 6:
Urban spaces and places 2**

doc. Ing. arch. JAKUB VOŘEL, Ph.D.

**Lecture 7:
Urban flows 1**

doc. Ing. arch. JAKUB VOŘEL, Ph.D.

**Lecture 8:
Urban flows 2**

doc. Ing. arch. JAKUB VOŘEL, Ph.D.

**Lecture 9:
Urban modelling 1**

doc. Ing. arch. JAKUB VOŘEL, Ph.D.

**Lecture 10:
Urban modelling 2**

doc. Ing. arch. JAKUB VOŘEL, Ph.D.

**Lecture 11:
Planning and management
of urban transition**

doc. Ing. arch. JAKUB VOŘEL, Ph.D.

7 případových studií



Úvod / Hlavní charakteristiky / Historie / Inovativní koncepty a řešení / Závěry / Reference

Introduction

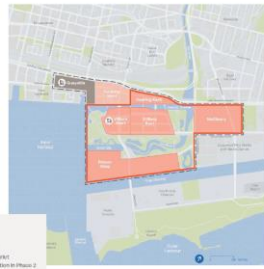
Project Waterfront Toronto

- Collaboration with Sidewalk Labs (subsidiary of Alphabet)
- Test area 12 acres (potential to grow to 800 acres)

Waterfront Toronto (an agency representing the federal, provincial and municipal governments that is responsible for developing the area); organization responsible for revitalizing waterfront. In 2017 started cooperation with **Sidewalk Labs** → Sidewalk Toronto



MIDP, 2019



MIDP, 2019

Main characteristics

Quayside is supposed to be a proof of concept, establishing a new development model for cities everywhere.

Technology to be tested (Gassmann et al., 2019):

- robots delivering packages
- hauling away rubbish via underground tunnels
- a thermal energy grid
- modular buildings that can shift from residential to retail use
- adaptive traffic lights
- snow-melting sidewalks
- a fleet of self-driving shuttles and robotaxis (private cars are banned)



MIDP, 2019

History

March 2018 – first round of public consultation: issue of data collection is raised.

May 2018 – article in Canadian Press opposes the plan: risk that data will be collected under law outside Canada (Alphabet's residence is in US). (The Canadian Press, 2018a)

May and August 2018 – second and third round of public consultation: insufficient response on the issue of data management given to citizens.

October 2018 – Saadia Muzaffar, a member of Data Strategy Advisory Panel resigned and strongly criticized Sidewalk Labs for inadequate response to issue of data management (The Canadian Press, 2018b)

February 2019 – article in Canadian Press revealed effort of Sidewalk Lab to reduce property taxes/development costs and not to invest in proposed Light Rail Transit (The Canadian Press, 2019a).

June 2019 – Waterfront Toronto released Master Innovation and Development Plan (MIDP) (The Canadian Press, 2019b)

October 2019 – Waterfront Toronto announced that all individual data will be stored in Canada under Canada law (Waterfront Toronto, 2019).

May 2020 – Dan Doctoroff, CEO of Sidewalk Labs, announced withdraw from the project (Waterfront Toronto, 2019).

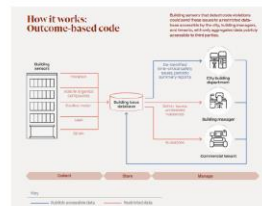


Master Innovation and Development Plan (MIDP, 2019)

Main innovations: mixed-use programme: urban manufacturing

New models of production: prototyping products, producing and selling products on-site, and scaling production in urban environments.

crossover between production and other industries – be it retail, art, culture, or food and beverage



MIDP, 2019



MIDP, 2019

Facilitating the compatibility → **Outcome-based code systems** facilitates the operation of production activities

Conclusions

One of the most publicly discussed smart city project revealing a lot of questions on relation between public and private actors and their motivations, conflicts between values of liberal society and nature of Smart Cities, business models as well as concepts.

As in the case of Songdo, the project is conceived as experiment, proof-of-concept of comprehensive Smart City solution that could be scaled up and adapted to other cities.

Scaling up the solution to industrial scale is the ultimate goal of technological firms. The main problem transferability of the solutions to unique cultural and legislative contexts.

Business model: Mr Doctoroff, CEO of Sidewalk Lab, says the firm might make money by licensing the products and services it develops in Toronto and selling them to other cities. (Economist, 2018).

The problem was that this initiative was driven by private sector and not by public. The whole initiative lost the trustworthiness. Coordinated framework developed by public sector is missing. Emergent technological solutions are not aligned with policies, legislation and expectation of population.

“the urbanist-technologist divide” (Dan Doctoroff in Economist, 2010), divide, between tech types and city-planning specialists (Economist, 2018).

General questions:

Unknown consequences of the emergent technology → anxiety and resistance by public (O’Kane, 2022).

Undeveloped public policy on data and privacy protection

It is not proved that the smart cities technocratic concepts are applicable to traditional democratic societies (O’Kane, 2022).

References

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The Canadian Press (2018b). Sidewalk Labs' Advisory Panel Member Resigns Citing 'profound Concern' about Project. <https://www.cbc.ca/news/canada/toronto/sidewalk-labs-panel-resigns-1.4852223>

The Canadian Press (2019a). Sidewalk Wants Cut of Property Taxes and Development Fees for Quayside Project. <https://www.cbc.ca/news/canada/toronto/sidewalk-labs-taxes-fees-1.5020936>

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O’Kane, J. (2022). Sideways : the city Google couldn't buy.

Otázky k případovým studiím

1. **What are the problem issues** addressed by the project? Are there alternative conventional solutions, that could be adopted?
2. What is the **main idea (concept) of the project**?
3. What kind of **technology** is implemented? Why particularly this technology was selected?
4. **Actors**: who are the most important actors (statutory as well as non-statutory actors such as business corporations, NGO and individual private actors)? Who initiated the project? Who is politically responsible for the project? Who is responsible for implementation of the project and who is responsible for its operation?
5. **Resources**: how is the project financed? Which are the most important resources (private as well as public) of the project? What is the budget of the project? In which way the project will be economically sustained in the future?
6. How is the goal of the project related to the **policy and strategy documents of the city**? Which priorities, goals and activities of strategy documents are related to the project? Who are the authorities responsible, what are the resources allocated to the relevant priorities, goals and activities of strategy?
7. Are there any explicit or implicit relations of the project to **spatial/land-use regulations** as represented by regulatory plans? For example: new kinds of regulation, deregulation, changes in regulations of specific areas related to projects, etc.
8. **How is the success/failure of the project defined and measured?** Which indicators are measuring the outcome? How it is related to the problems declared in the question 1?
9. **Are there any economic instruments related to the project?** For example: tax incentives, subsidies, land provision, infrastructure provision, PPP, etc.
10. What kind of **positive impacts** of the project are of the project?
11. What kind of **negative impacts** of the project are expected?
12. Who has (or could have) the biggest benefit from the project, who is (or could be) negatively influenced by the project?
13. What are the internal **risks** related to the project, especially related to the technology used: privacy breach, limiting personal freedom, exclusion of certain groups of users, damages caused by failure? Is the project reflecting and preventing the risks?
14. **Resilience**: what external factors can be decisive for the project success or failure? How are they addressed?
15. **What have you learned**: From your perspective, what is success/failure, weaknesses/strengths and opportunities/threads related to the project? What could serve as an inspiration for other cities and what should be rather avoided.

Portál informačních zdrojů Smart Urbanism

General

Topical

Case studies

Zprístupněno 45 významných knih

Veškeré knihy jsou dnes fyzicky nebo elektronicky dostupné, případně jejich dostupnost zajistíme z jiných zdrojů v průběhu výuky.

Ke každému tematu a případové studii jsou uvedeny odborné knihy, články a internetové odkazy.

Benedikt, M. (1991). Introduction to cyberspace: First steps. In *Cyberspace: First steps*.

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Podklady pro výuku v terénu

Pro studenty v programu Smart Cities (FD) a pro studenty předmětu Urban planning 2 (FA)

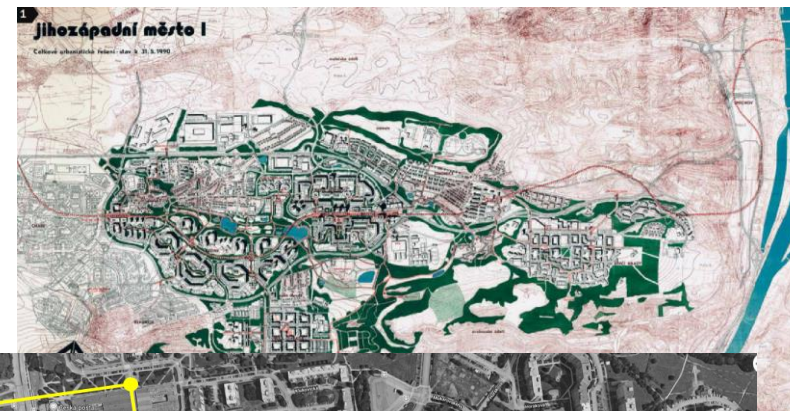
Studenti analyzují vybrané území v Praze a zpracovávají návrh řešení označených problémů v území. Studenti předmětu Smart Urbanism se zaměřují na využití nových technologií a jejich dopadů na území.

Temata exkurzí:

- Administrativní centra
- Sídliště
- Koncerze průmyslových ploch
- Suburbanizace
- Městská doprava
- Městské ekosystémy

Projekt řešil především potřebu přeložit velké množství podkladů:

- Územně analytické podklady: překlad legend map
- Itinerář exkurzí: trasa, body zájmy, podklady a dotazník.
- Historické podklady: mapy, foto, přeložené výtahy nejdůležitějších údajů o území.



Portál Smart Urbanism

Přehledný přístup ke studijním materiálům

Informační základna pro mezioborové studium a výzkum v oblasti Smart Cities

Portál bude průběžně aktualizován a doplňován v rámci výuky předmětu SU

V průběhu letního semestru 2023 budou doplněny audio nahrávky přednášek, které se budou v každém semestru průběžně aktualizované

Portál bude sloužit ke kombinované a distanční výuce v budoucnosti, záměrem je zapojení předmětu do programu EuroteQ

<https://moodle-vyuka.cvut.cz/course/view.php?id=8781>



In the course Smart Urbanism we discuss how technological innovation has, after the cities, transformed the planet, and we find back our urban future challenges and implications for urban design planning and management. We focus on past
Lecturers: Lukáš VOŠEK, Karel KOLR
Architecture and Urbanism study program (M.Arch), 100% (Bachelor, 8 sem, 1 + 0 semester + Pass, 7 credits)
Smart cities study program (B.Sc.), 100% (Bachelor, 4 + 2 semester + Pass, 4 credits)
Time: Summer semester 2023/2024, Tuesday 10:00 - 10:30
Place: room number 087/0108, Room B301 (087/0108) (Urbanism)
Language: English
Level: graduate
The syllabus is on:
Go to syllabus (Urban planning) (recommended)
PDF for course registration (Moodle) (087/0108) (087/0108) (087/0108)

Lectures

Lecture 1: A city, a smart city, Urban morphology, Urban land-use	Lecture 2: Urban metabolism and energy	Lecture 3: Urban Infrastructures
Lecture 4: People, urban society and economy	Lecture 5: Urban spaces and places 1	Lecture 6: Urban spaces and places 2
Lecture 7: Urban flows 1	Lecture 8: Urban flows 2	Lecture 9: Urban modelling 1
Lecture 10: Urban modelling 2	Lecture 11: Planning and management of urban transition	

Case studies

Freiburg	Lyon	Munich	Rio de Janeiro	Songdo
Toronto	Vienna	Questions		

References

Rozpočet

2	Neinvestiční finanční prostředky celkem	Přidělené neinvestiční prostředky z IP 2022 (tis. Kč)
	Osobní náklady	
2-Jan	Mzdy (včetně pohyblivých složek):	90.00
2-Feb	Odměny dle dohod o pracích konaných mimo pracovní poměr:	0.00
2-Mar	Odvody pojistného na veřejné zdravotní pojištění a pojistného na sociální zabezpečení a příspěvku na státní politiku zaměstnanosti a příděly do sociálního fondu:	31.50
	Ostatní	
2-Apr	Materiální náklady (včetně drobného majetku):	15.00
2-May	Služby a náklady nevýrobní:	0.00
2-Jun	Cestovní náhrady:	0.00
2-Jul	Stipendia:	0.00
3	Celkem	136.50