Interactive Visualization

インタラクティブ　　ビジュアリゼーション

アイラ・ウィンダー
Ira Winder

E: jiw@mit.edu
T: @jamesira

Novel Interfaces for collaborative decision-making

協力して決断するための目新しいインタフェース

cp.media.mit.edu/tactile-matrix

東京大学
THE UNIVERSITY OF TOKYO

mit media lab

GLOBAL TEAMWORK LAB

MIT Media Lab
Changing Places

GLOBAL
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LAB

MIT Media Lab
School of Architecture and Planning

MIT Media Lab
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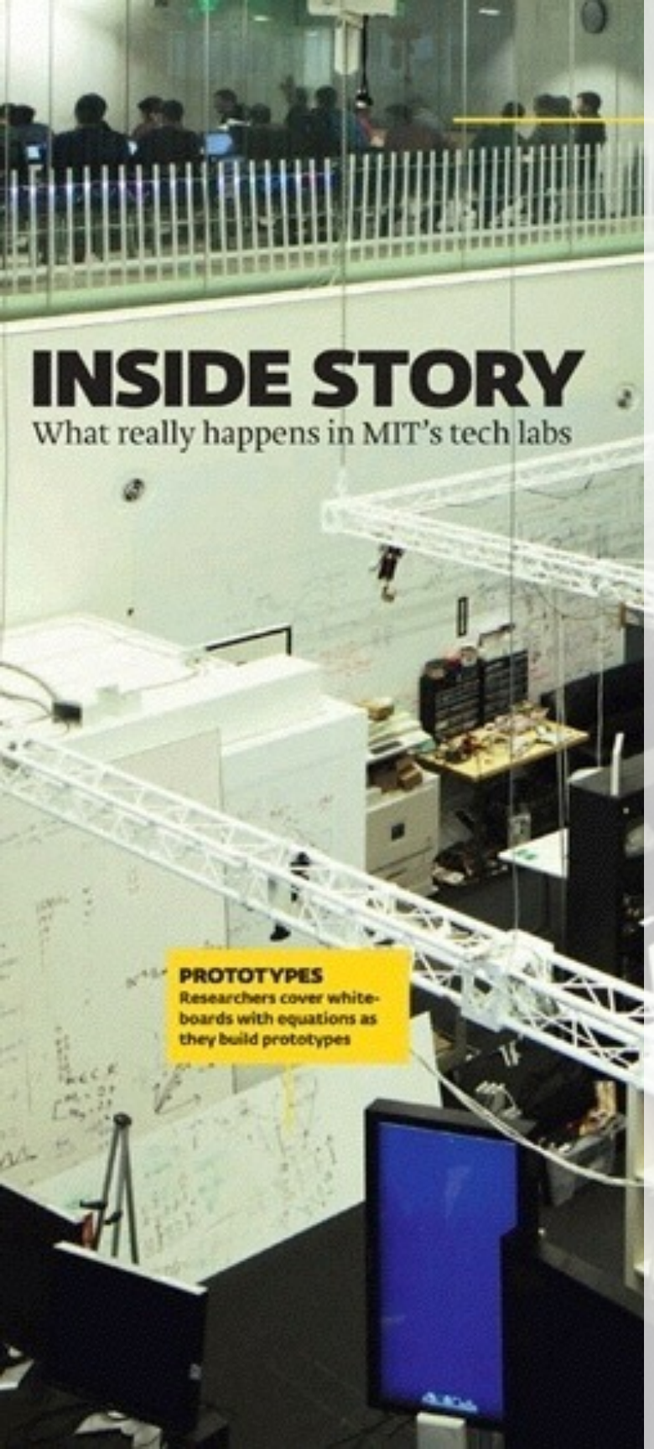

27 Anti-disciplinary Research Groups

Affective Computing
Biomechatronics
Camera Culture
Changing Places
Civic Media
Cognitive Machines
Digital Intuition
Design Fiction
Fluid Interfaces
High-Low Tech
Human Dynamics
Information Ecology
Lifelong Kindergarten
Macro Connections
Mediated Matter
Molecular machines
New Media Medicine
Object-Based Media
Opera of the Future
Personal Robots
Playful Systems
Responsive Environments
Social Computing
Software Agents
Speech + Mobility
Synthetic Neurobiology
Tangible Media
Viral Spaces

80 Corporate Sponsors ($45M per year)

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Panasonic Corporation
Pearson Inc.
QUALCOMM Incorporated
RR Donnelley
Saudi Aramco
Samsung Electronics Co., Ltd.
Sensormatic Electronics Corp.
Schneider Electric SA
Shell
SingTel
Starcom Mediavest Group
State Farm
State of Minas Gerais
Steelcase Inc.
TCL Multimedia
TED
Telecom Italia *
The Asahi Shimbun Company
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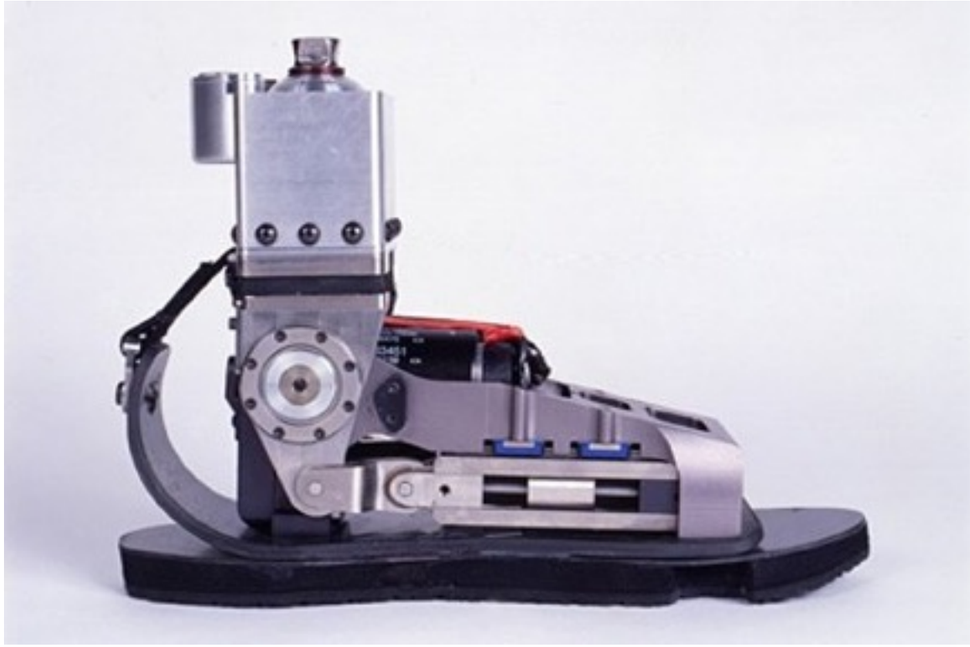
Yamaha Corporation*

Power Ankle by Professor Hugh Herr

MIT Media Lab, Biomechantronics Group



Guitar Hero (spun out of Opera of the Future Group)

MIT Media Lab, Professor Tod Machover

One Laptop Per Child (Nicholas Negroponte)

MIT Media Lab non-profit spin-off

CityHome

MIT Media Lab Changing Places Group

CityCar, Changing Places Group, MIT Media Lab

Interactive Visualization Laboratory (IVL)

インタラクティブ　ビジュアリゼーション　ラボラトリー

Novel Interfaces for collaborative decision-making

協力して決断するための目新しいインタフェース

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インタラクティブ　ビジュアリゼーション　ラボラトリー

1. Education

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目新しいインタフェース

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1. Education
2. Research

Novel Interfaces for collaborative decision-making

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目新しいインタフェース

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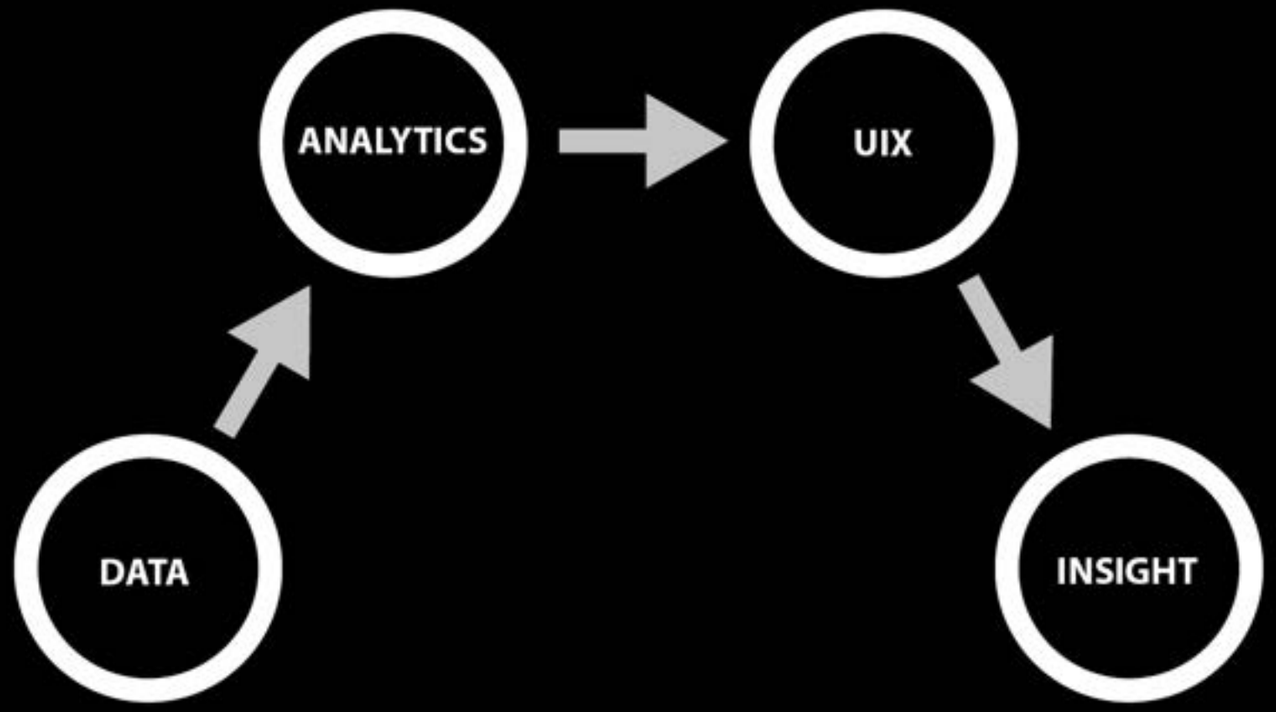
1. Education
2. Research
3. Outreach

Novel Interfaces for collaborative decision-making

協力して決断するための
目新しいインタフェース

DATA
INSIGHT



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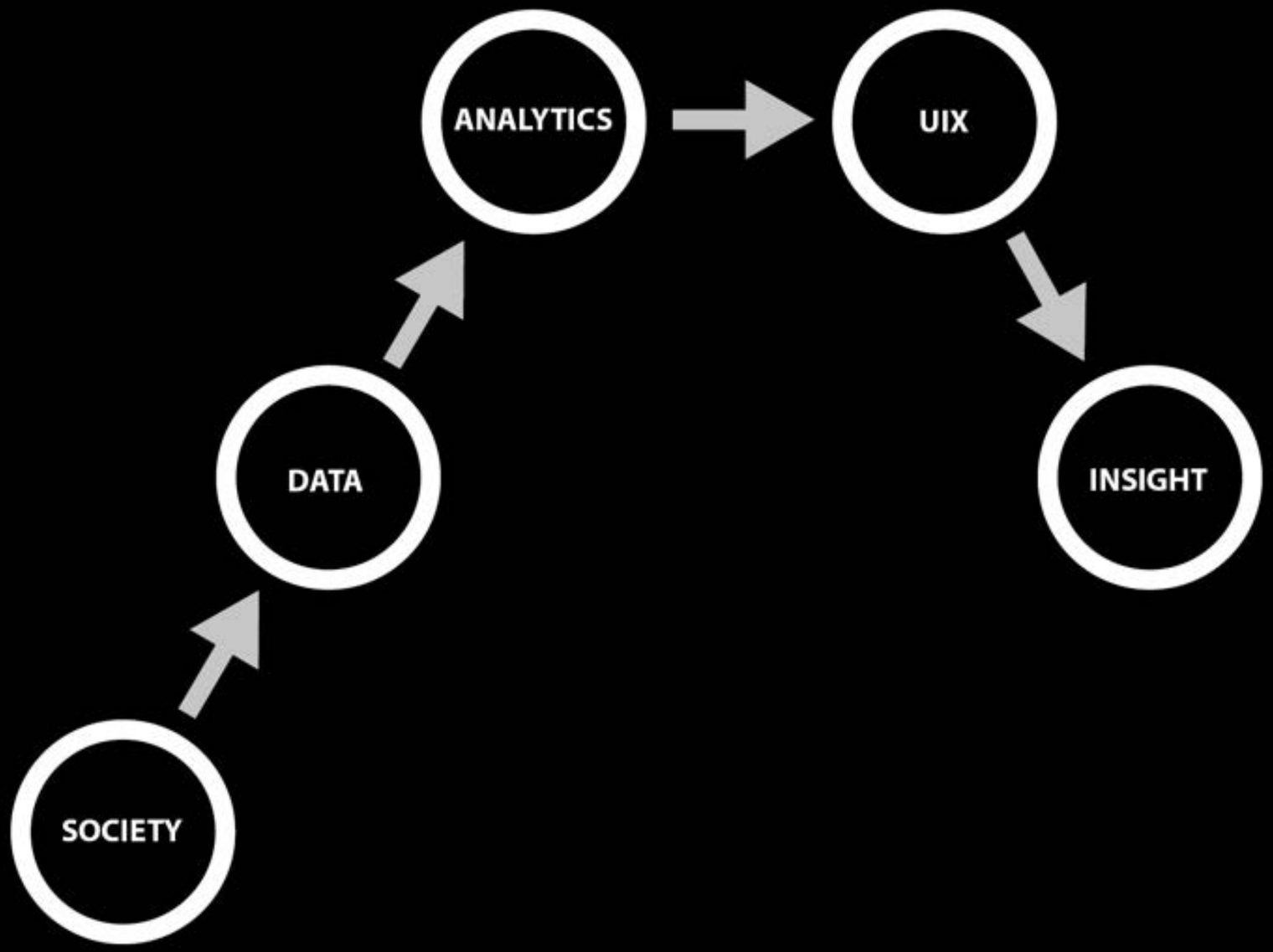

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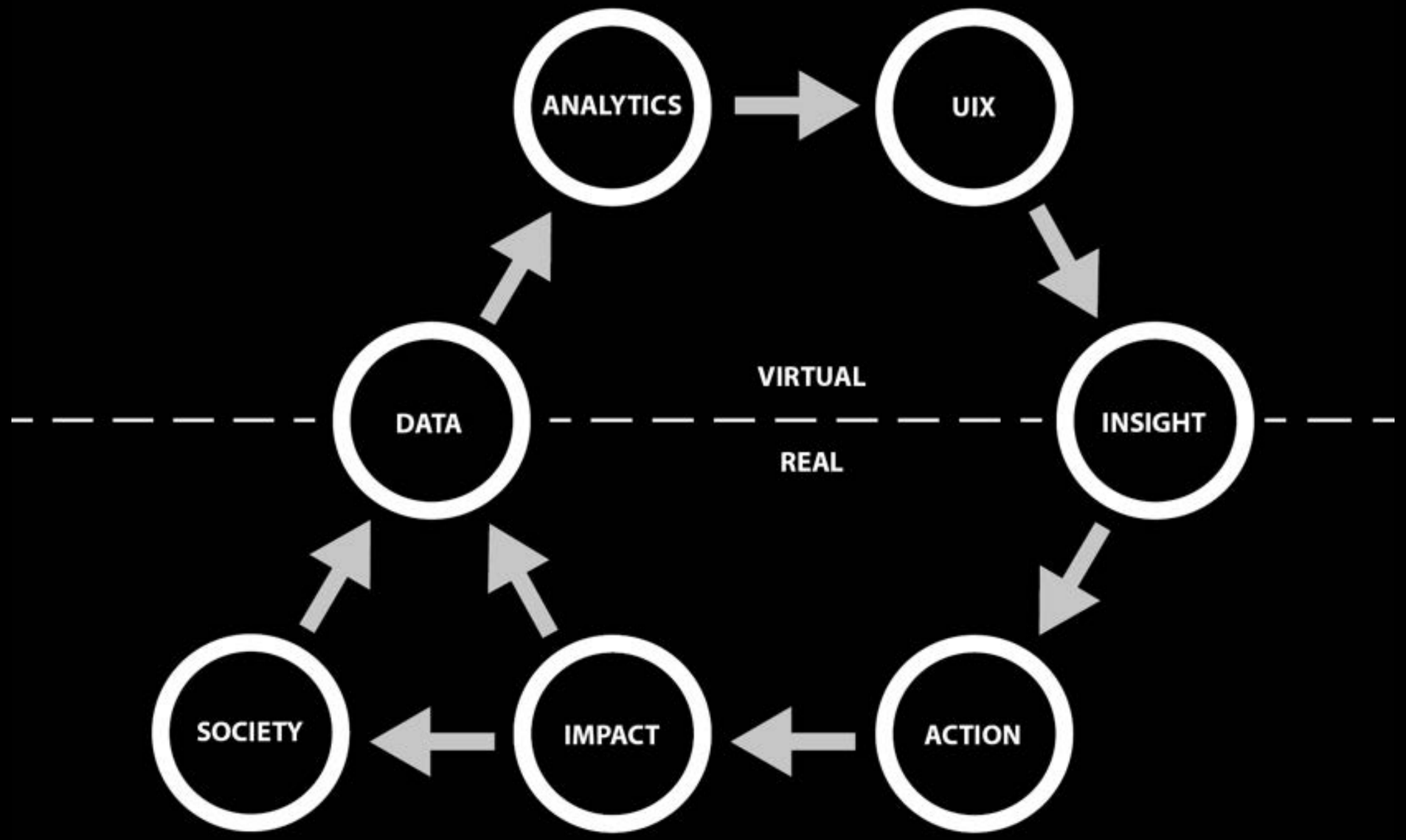

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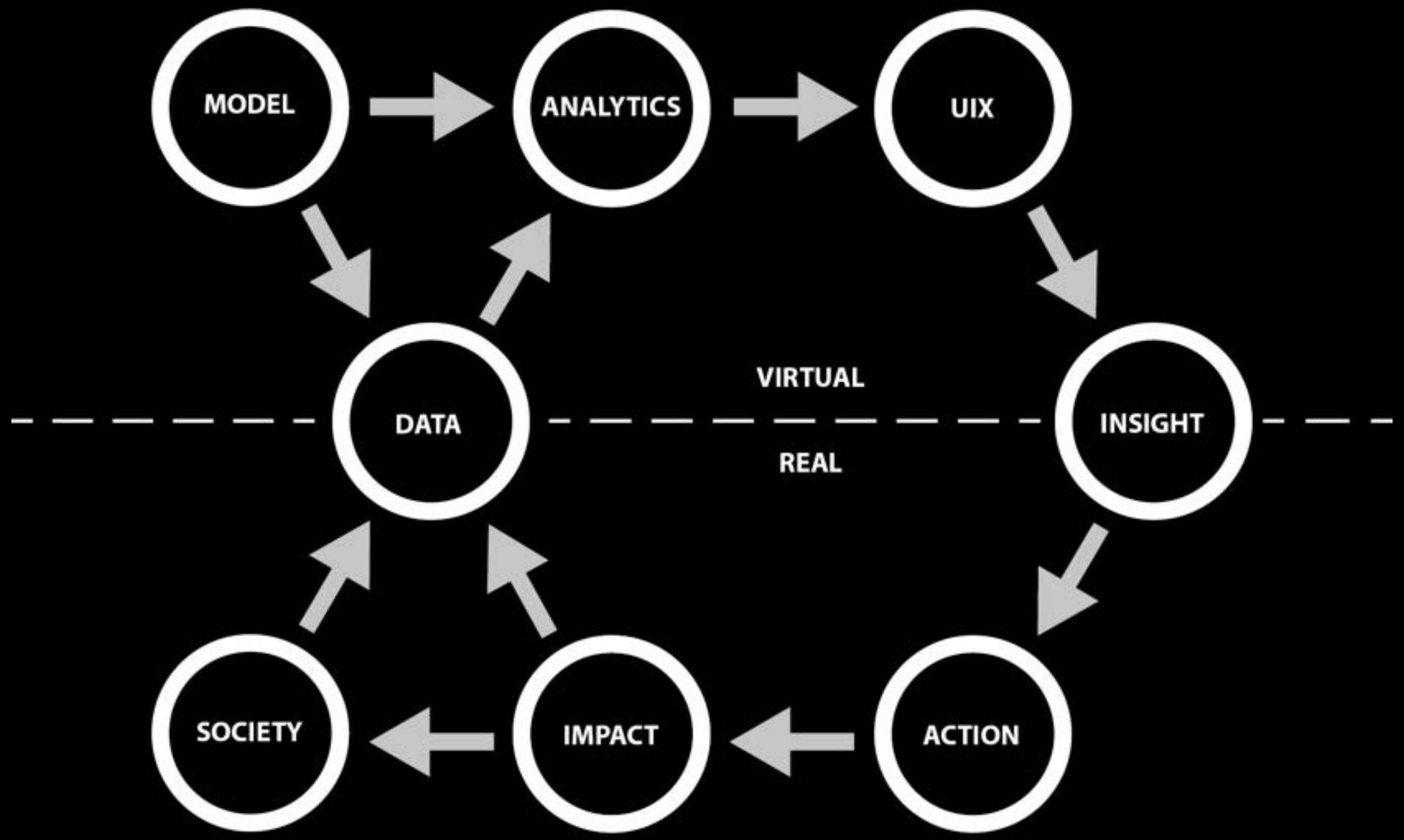

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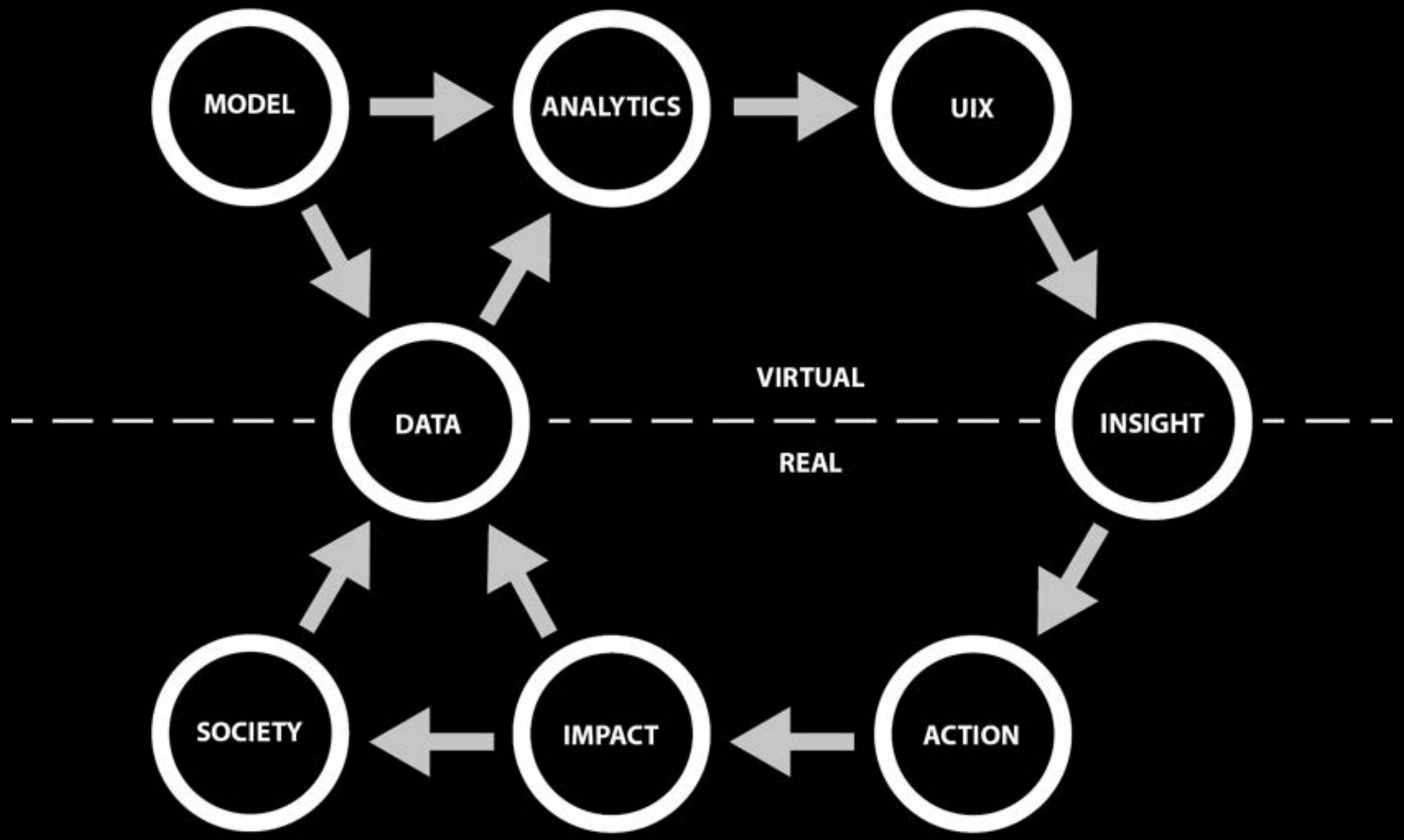
SOCIOTECHNICAL SYSTEM MODEL



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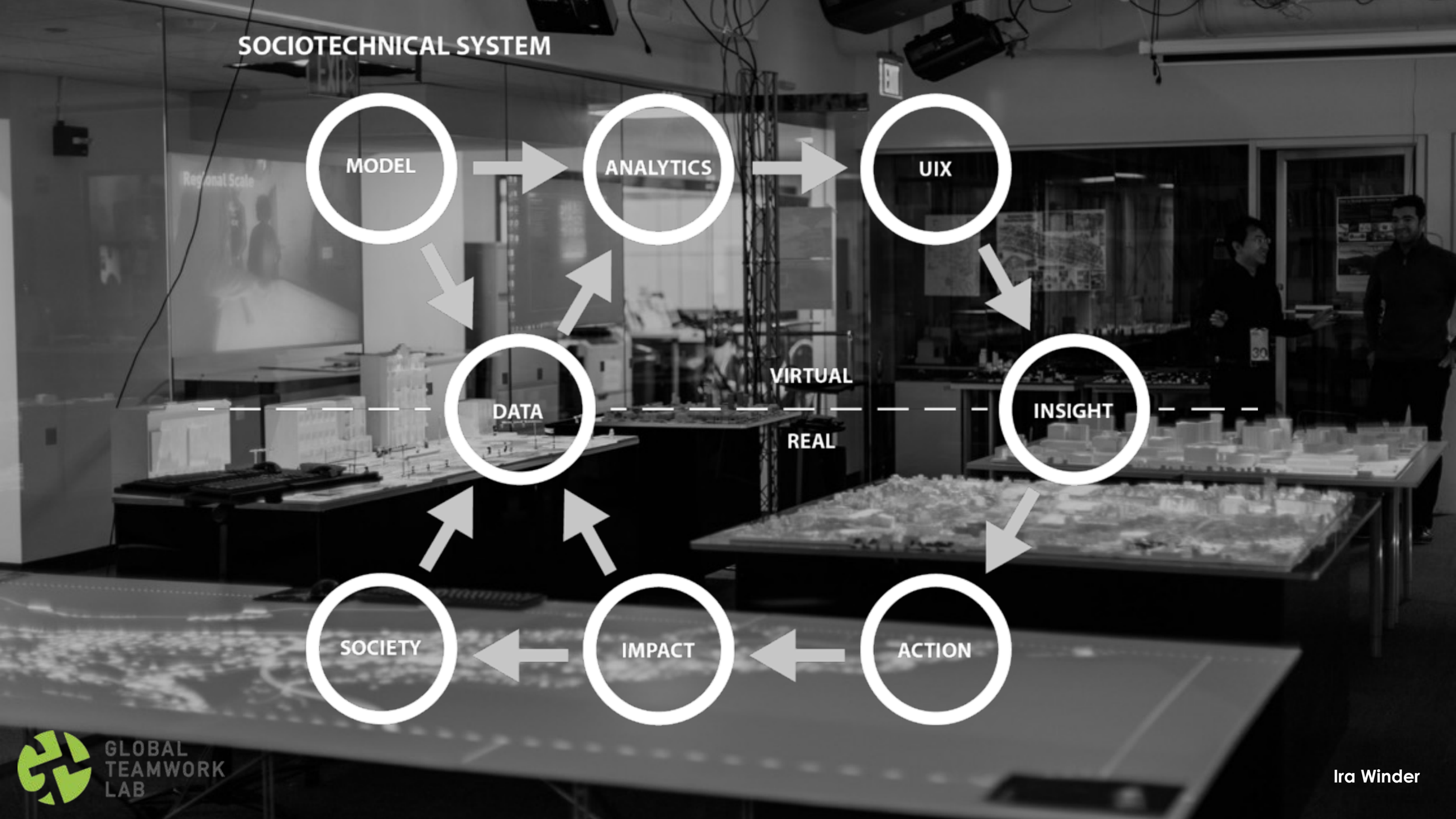
SOCIOTECHNICAL SYSTEM
MODEL
ANALYTICS
UIX
DATA
VIRTUAL
REAL
INSIGHT
SOCIETY
IMPACT
ACTION
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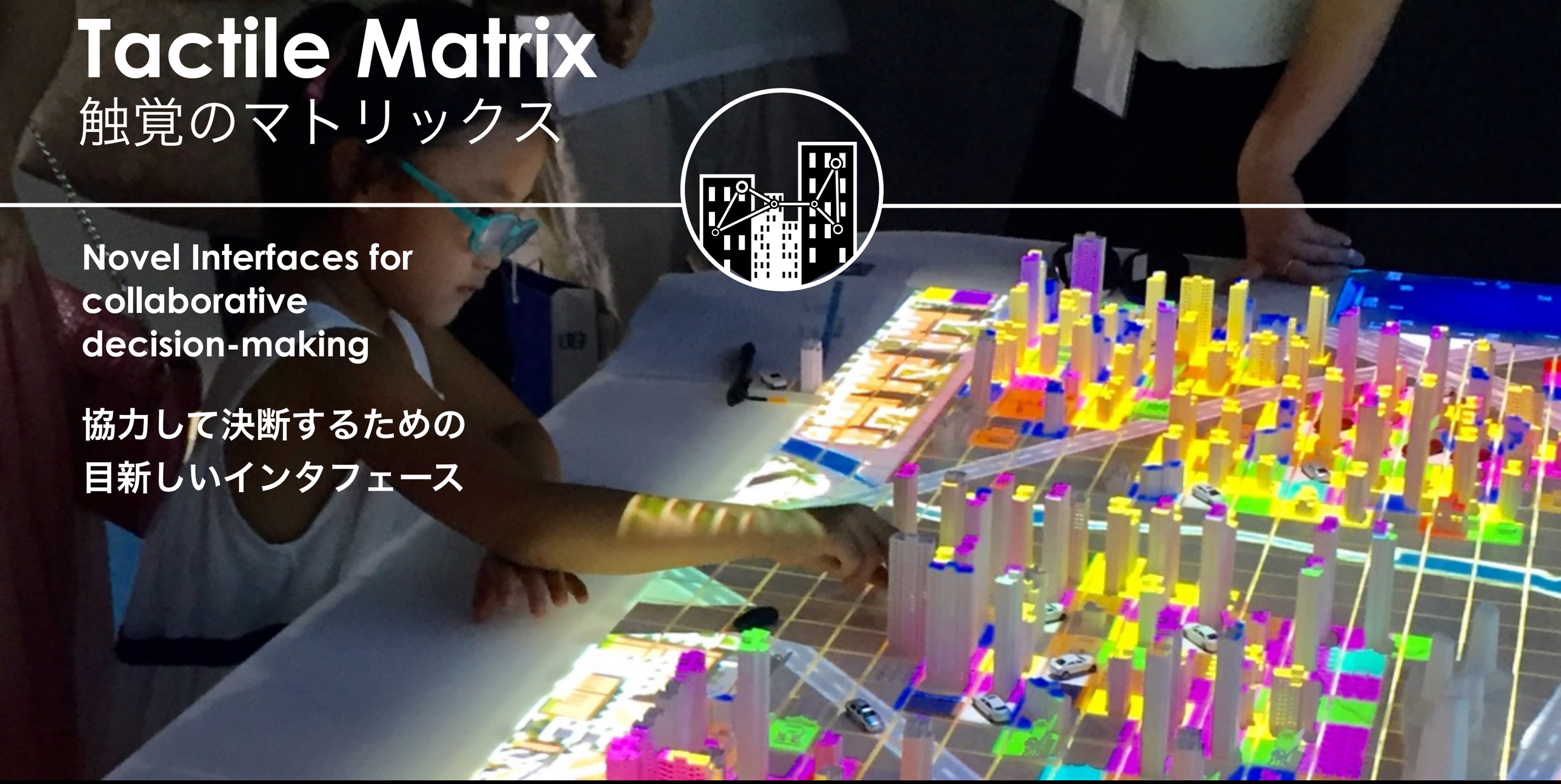
Tactile Matrix
触覚のマトリックス



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Data
データ

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Tactile Matrix
触覚のマトリックス

Novel Interfaces for collaborative decision-making

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Data
データ

Stakeholders
ステークホルダーエンゲージメント

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Changing Places

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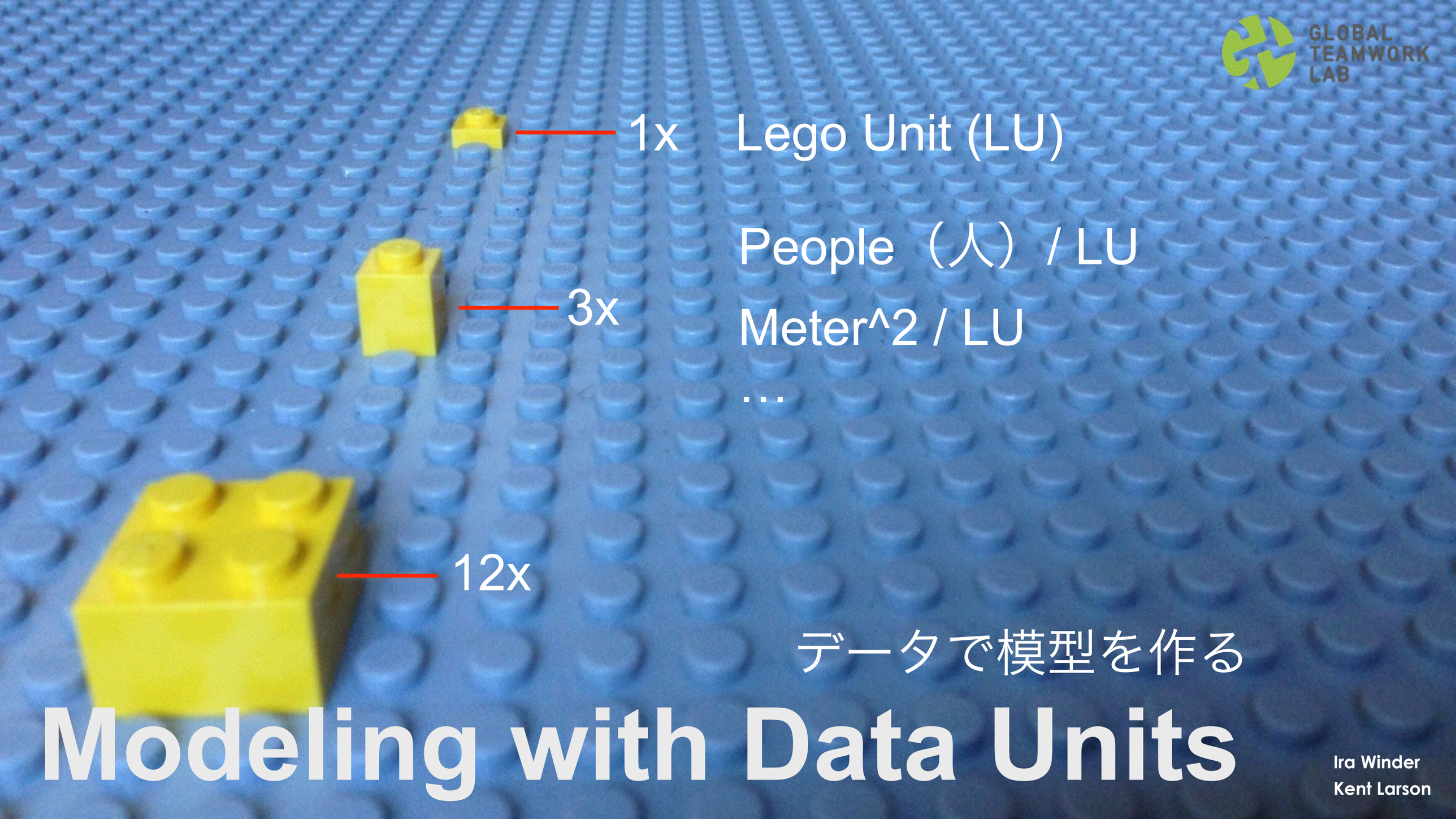


Lego Unit (LU)

People（人）/ LU

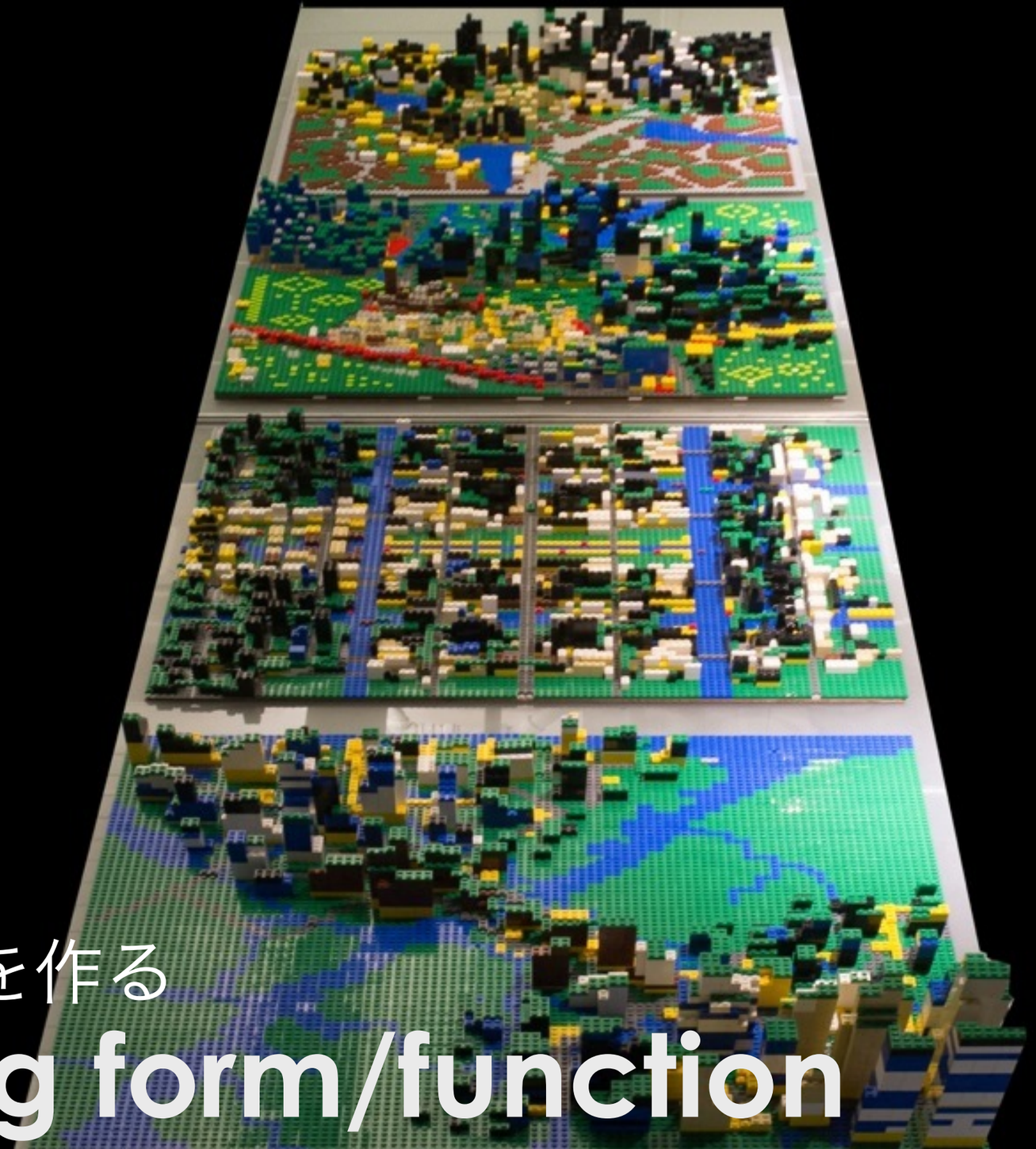
Meter^2 / LU

…

データで模型を作る

Modeling with Data Units

Ira Winder
Kent Larson



データで模型を作る

Modeling form/function

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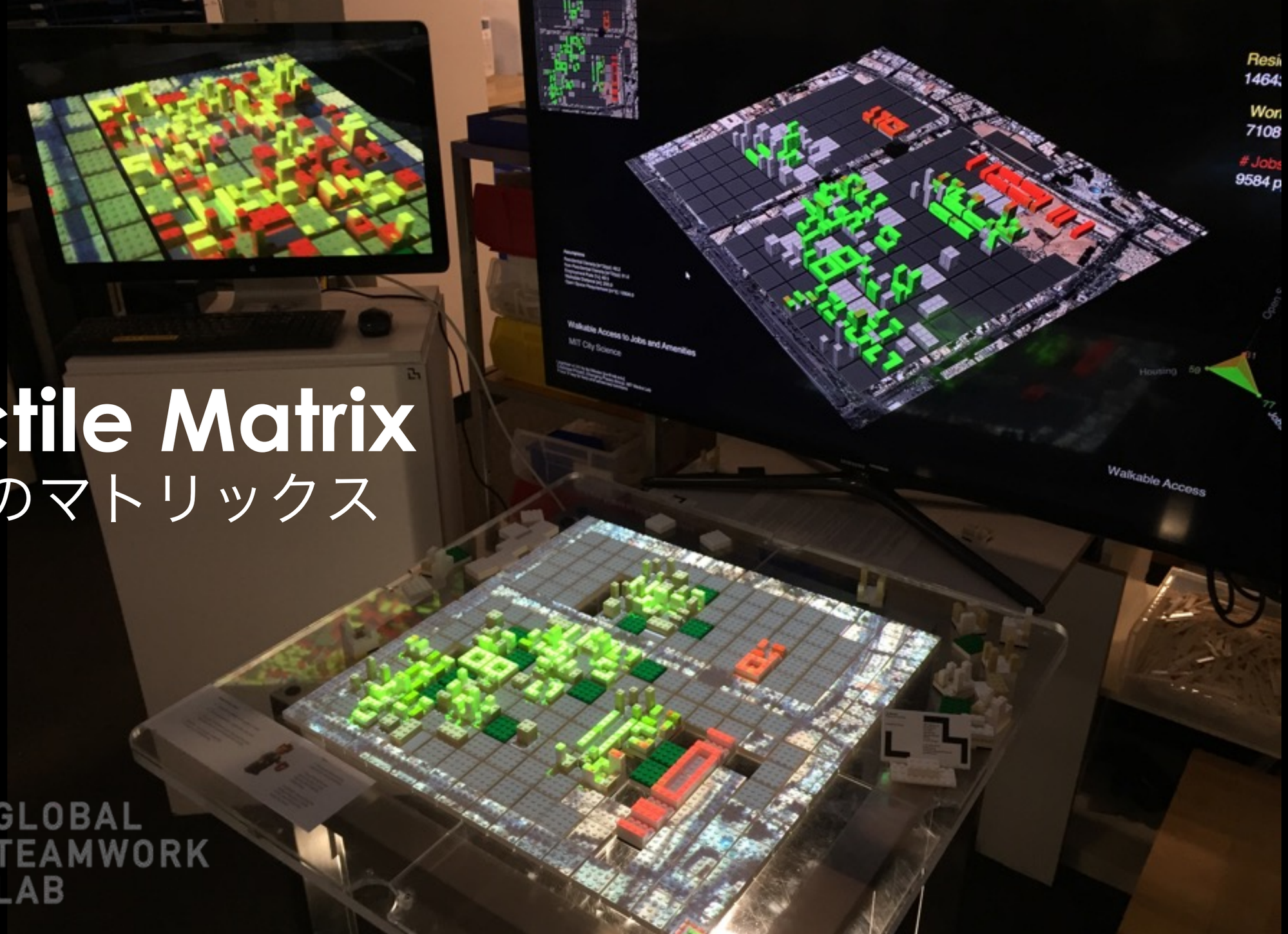
Kent Larson

Tactile Matrix
触覚のマトリックス



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触覚のマトリックス

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触覚のマトリックス

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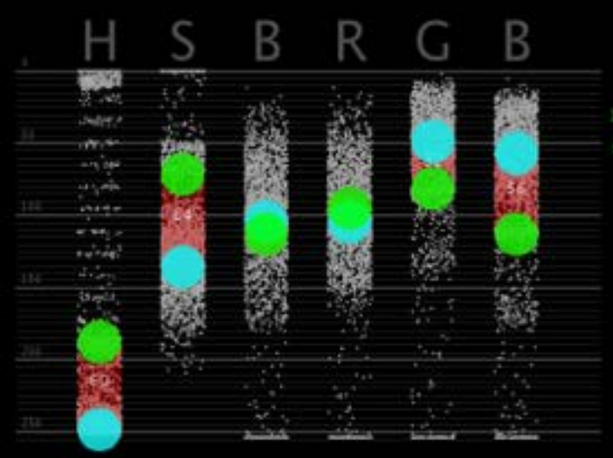
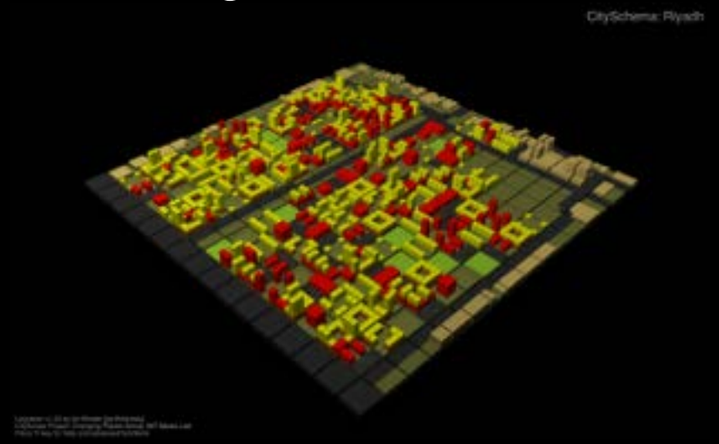
I. Hardware

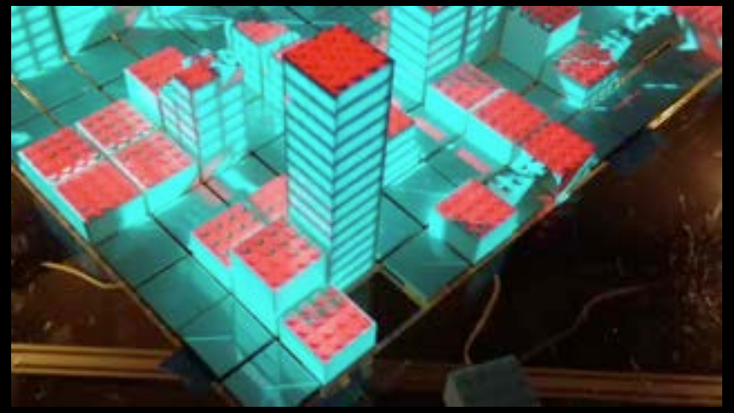
II. Computer Vision



III. 3D Engine



IV. Projection Mapping



Platform | プラットフォーム

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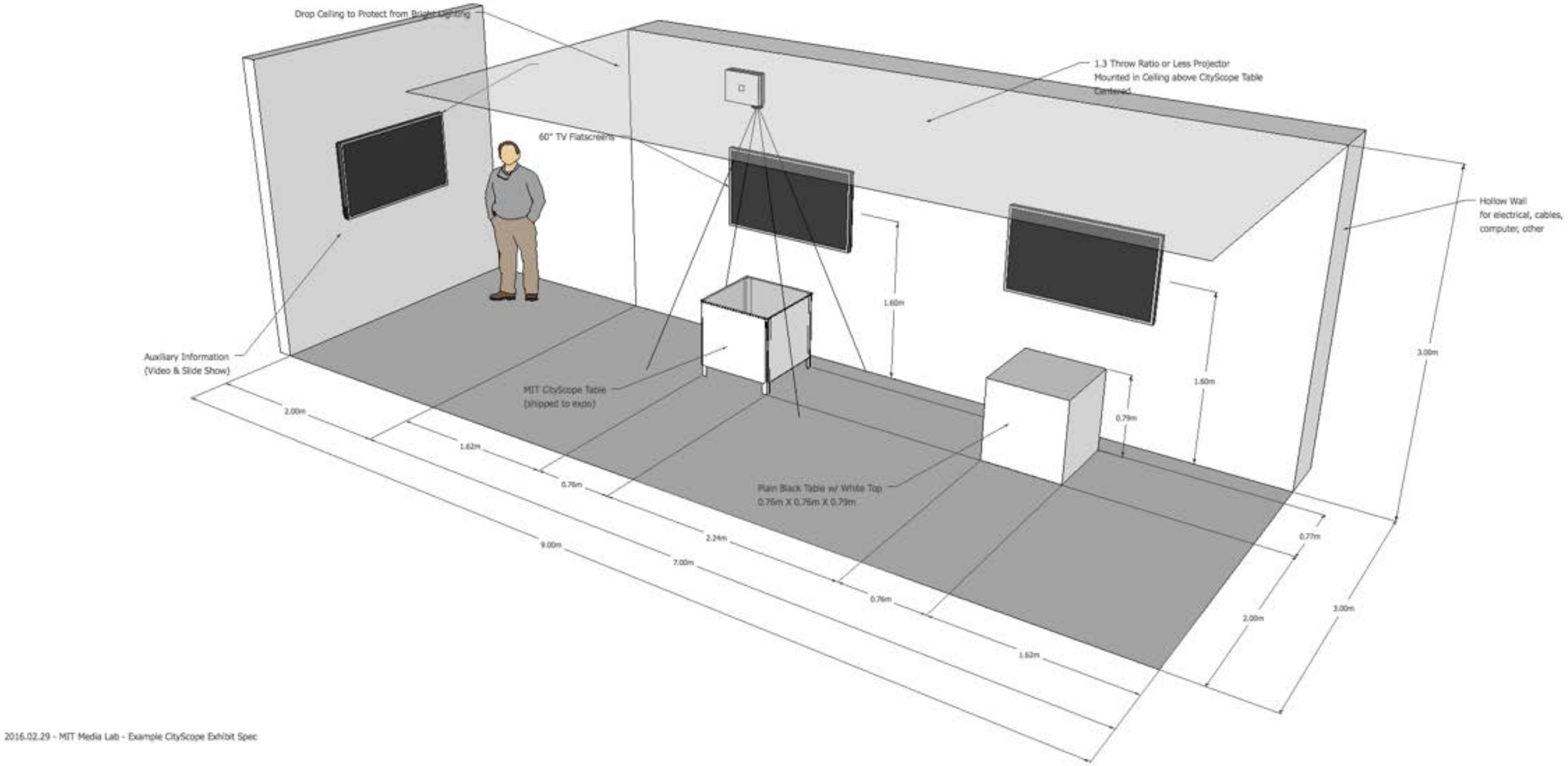

Platform | プラットフォーム

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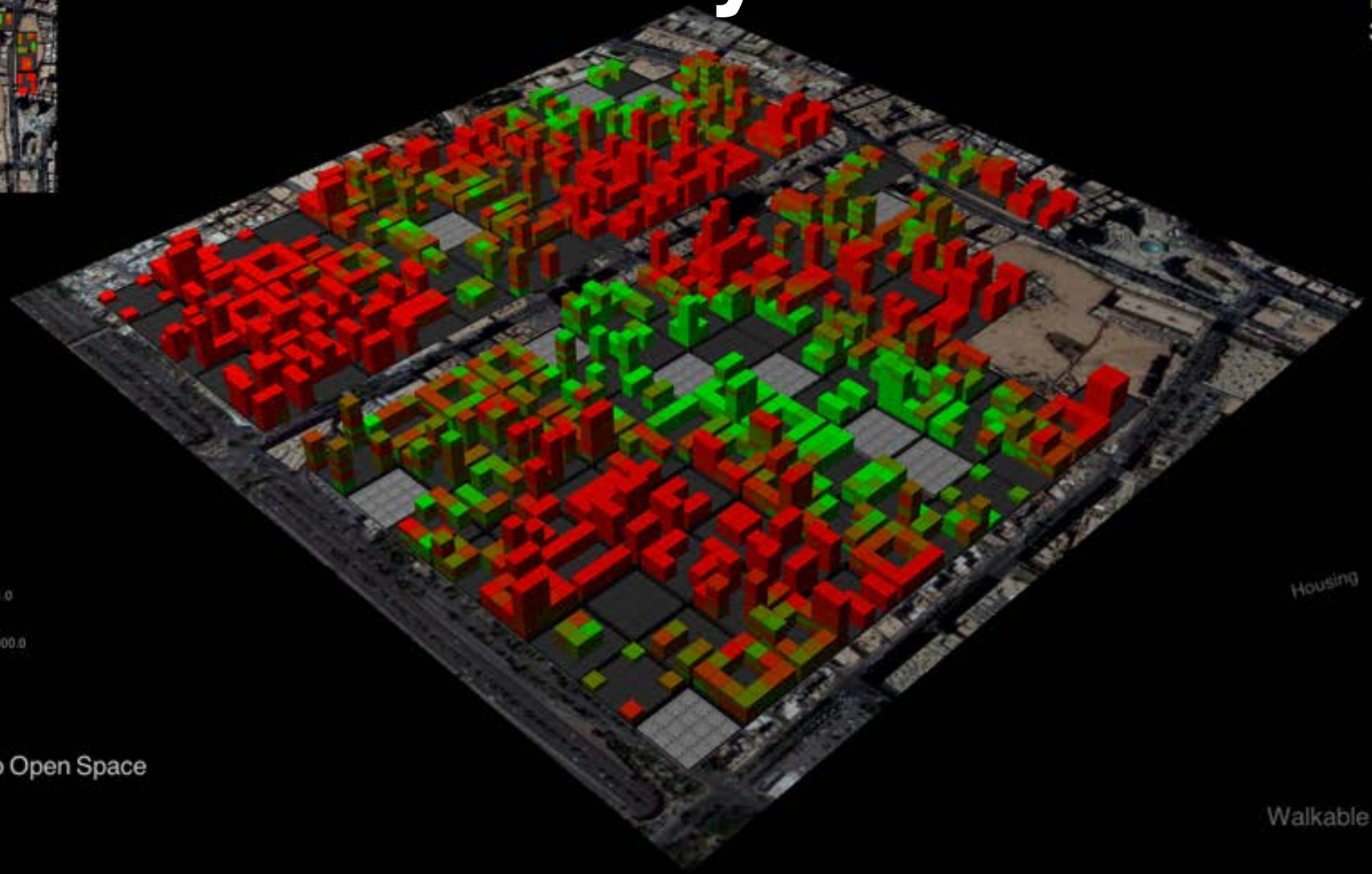
Analytics



CityScope: Riyadh

Residential Pop.
33520 ppl

Working Pop.
16272 ppl

Jobs
26821 ppl

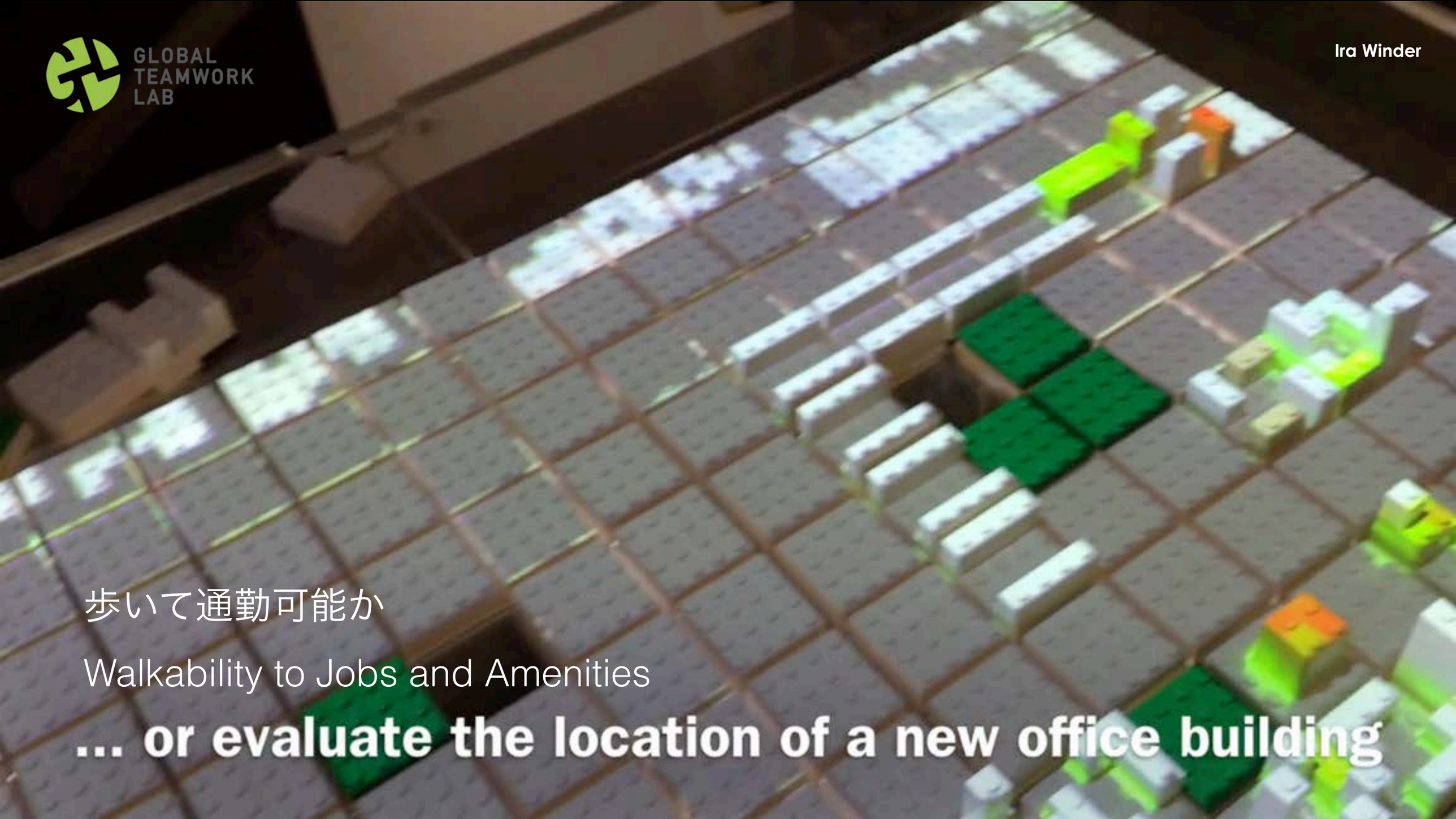
Assumptions
Residential Density [m^2/pp]: 48.2
Non-Residential Density [m^2/pp]: 31.0
Employment Rate [%]: 48.5
Walkable Distance [m]: 250.0
Open Space Requirement [m^2]: 12800.0

Walkable Access to Open Space

MIT City Science

Walkable Access

Ira Winder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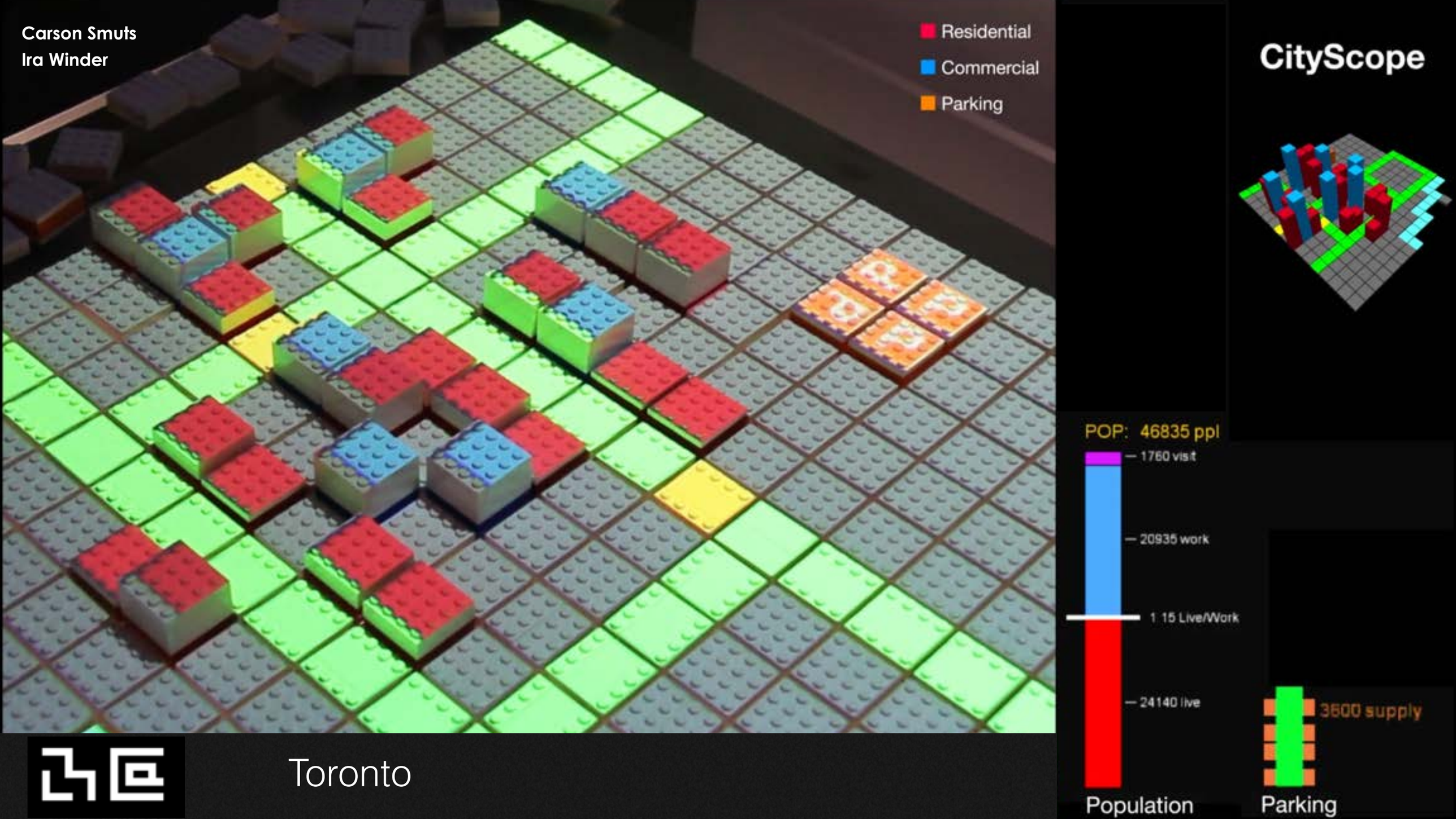
歩いて通勤可能か
Walkability to Jobs and Amenities
... or evaluate the location of a new office building

Carson Smuts
Ira Winder

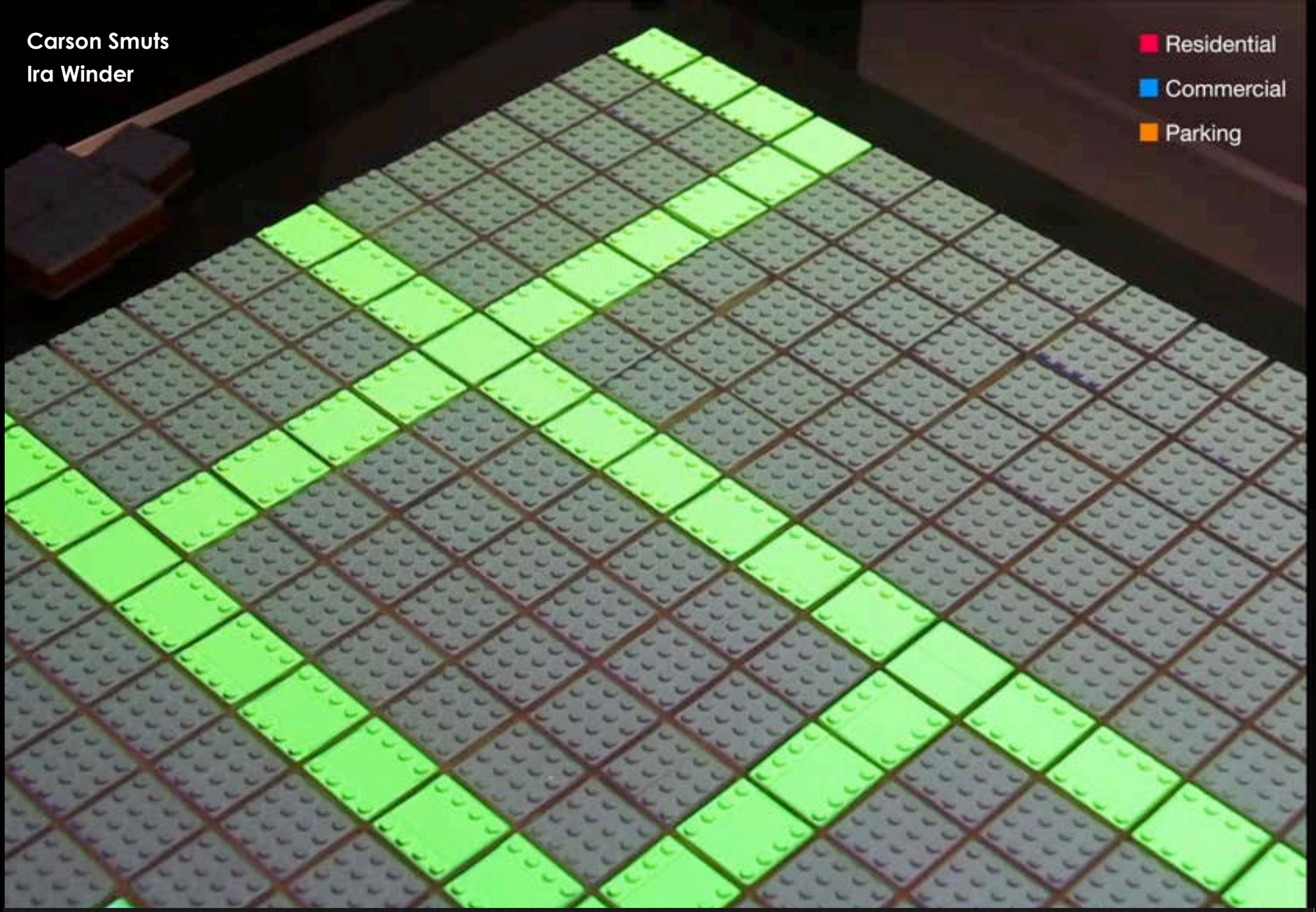
Toronto

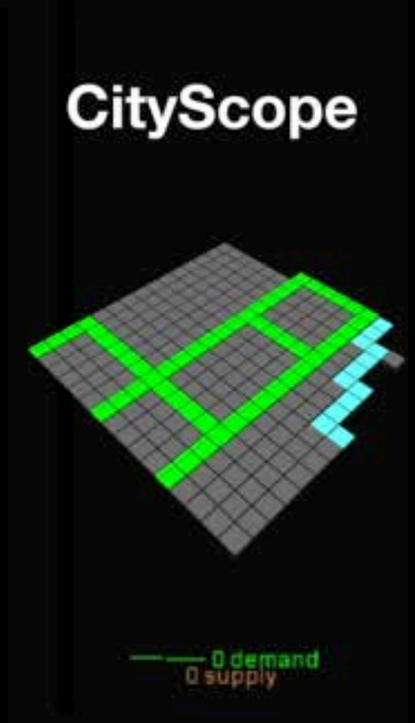
Carson Smuts
Ira Winder



Toronto

Carson Smuts
Ira Winder





Toronto

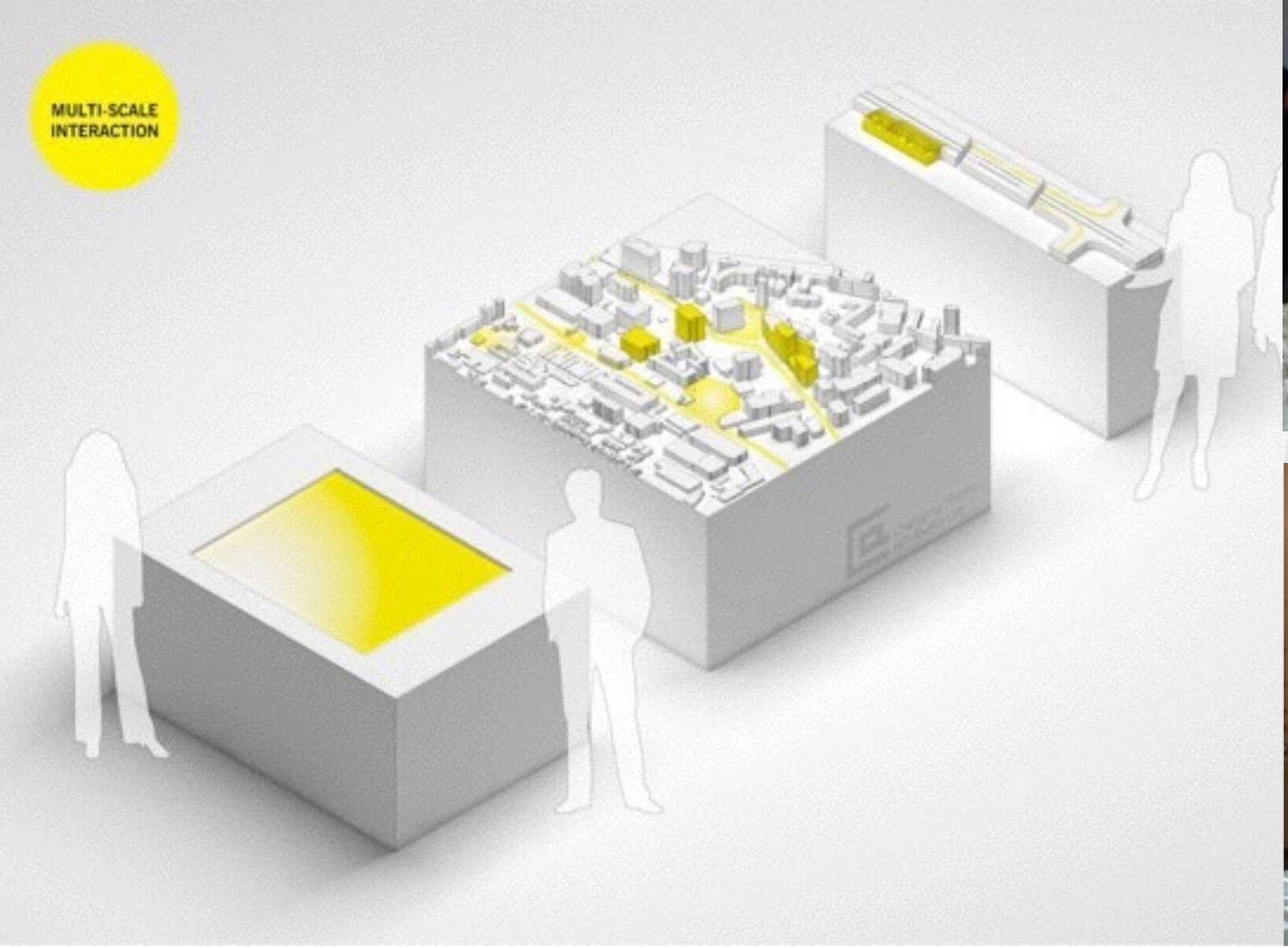
Traffic Congestion

POP: 0 ppl

Parking

Boston BRT Community Engagement Workshops

Ariel Noyman
Ira Winder



Boston BRT Community Engagement Workshops

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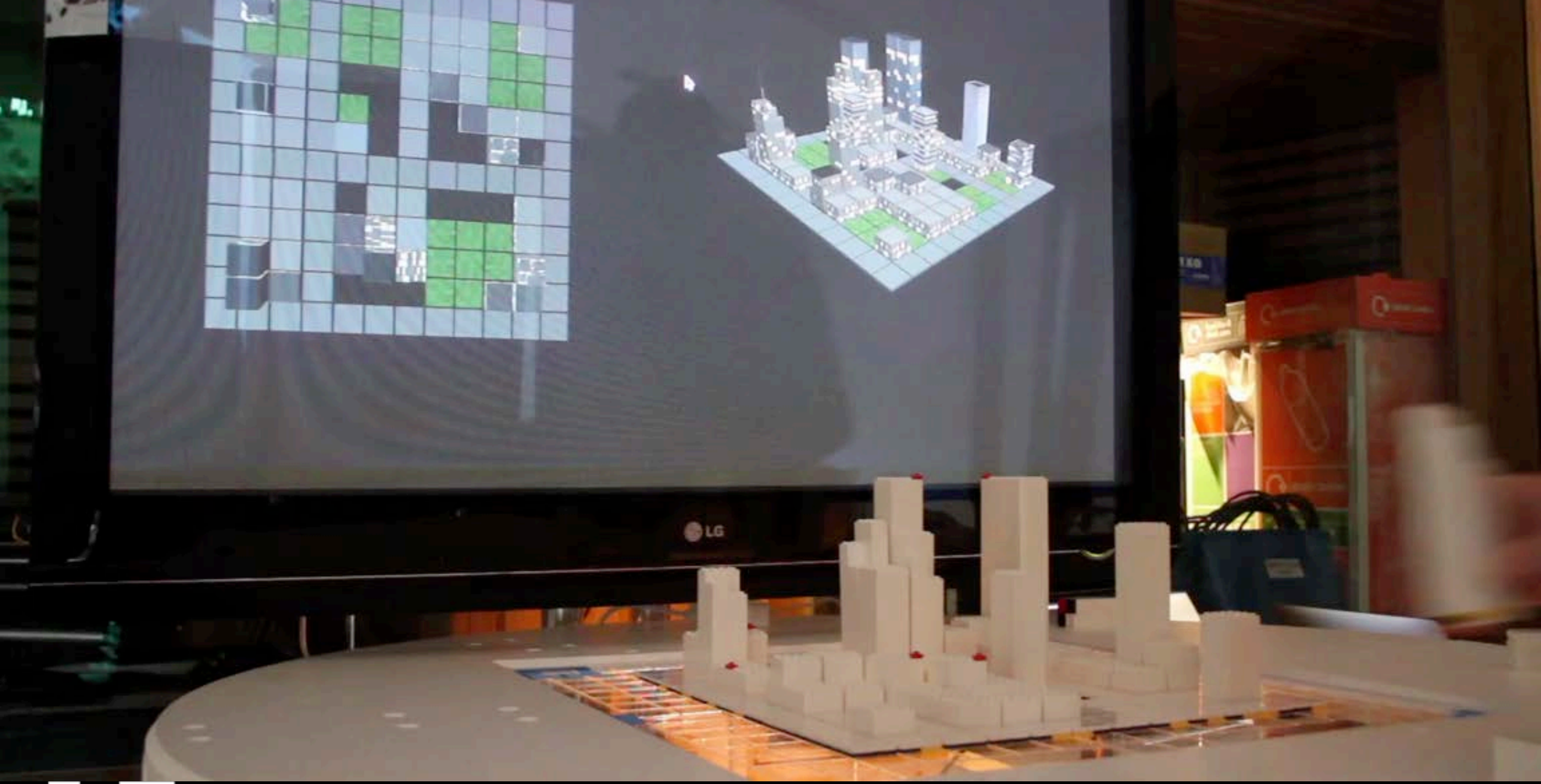
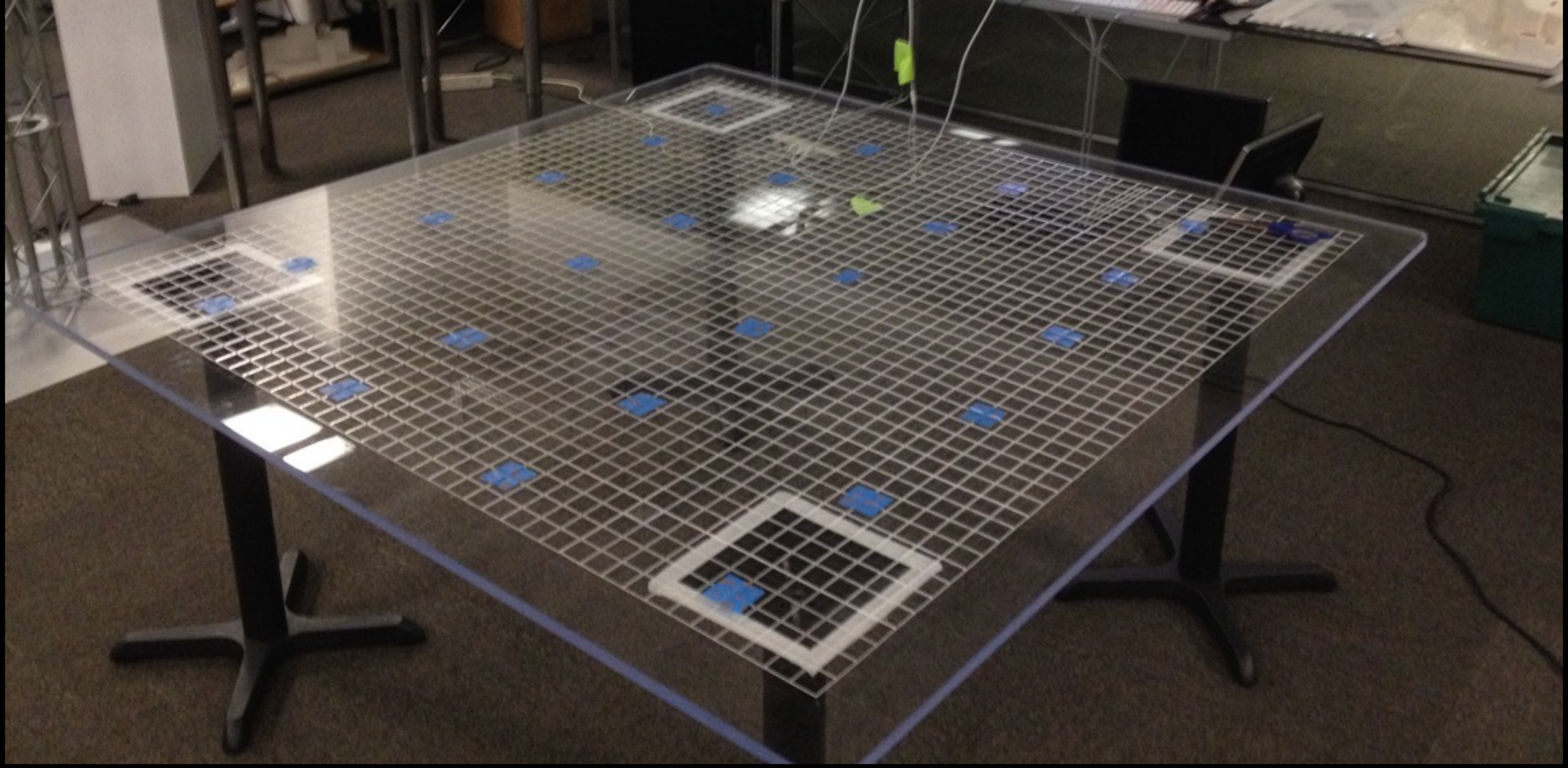
Ira Winder


LG



MIT Media Lab
Changing Places

CityScope Playground:

Ira Winder
Ariel Noyman
Lezhi Li

MIT Media Lab
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Ariel Noyman
Lezhi Li

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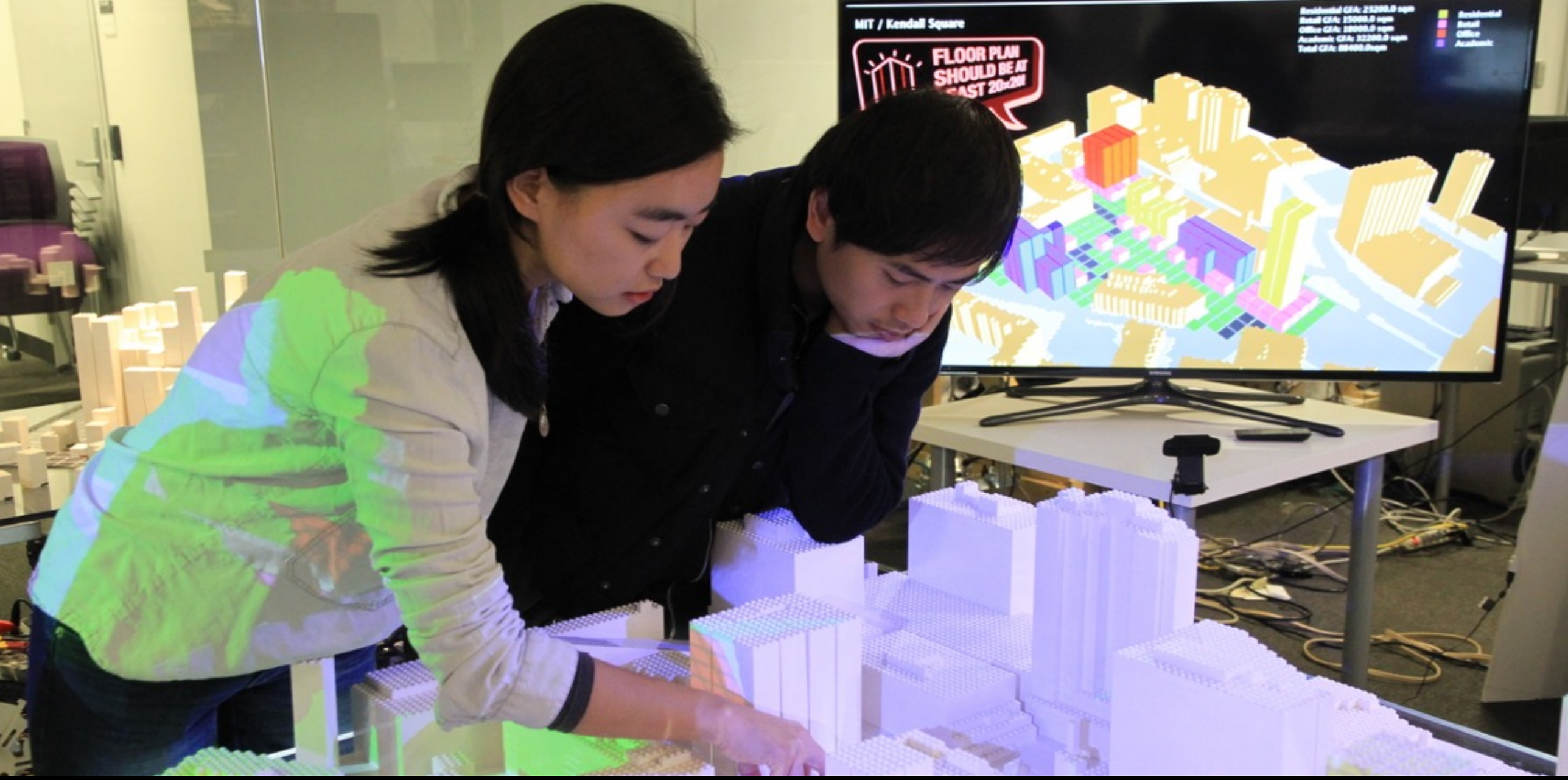

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CityScope Playground:

Ira Winder
Ariel Noyman
Lezhi Li

Ira Winder, Ariel Noyman, Lezhi Li, Wei Lin, Shilpa Idnani, CCES

Data
データ

Multi-Mobility

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Changing Places

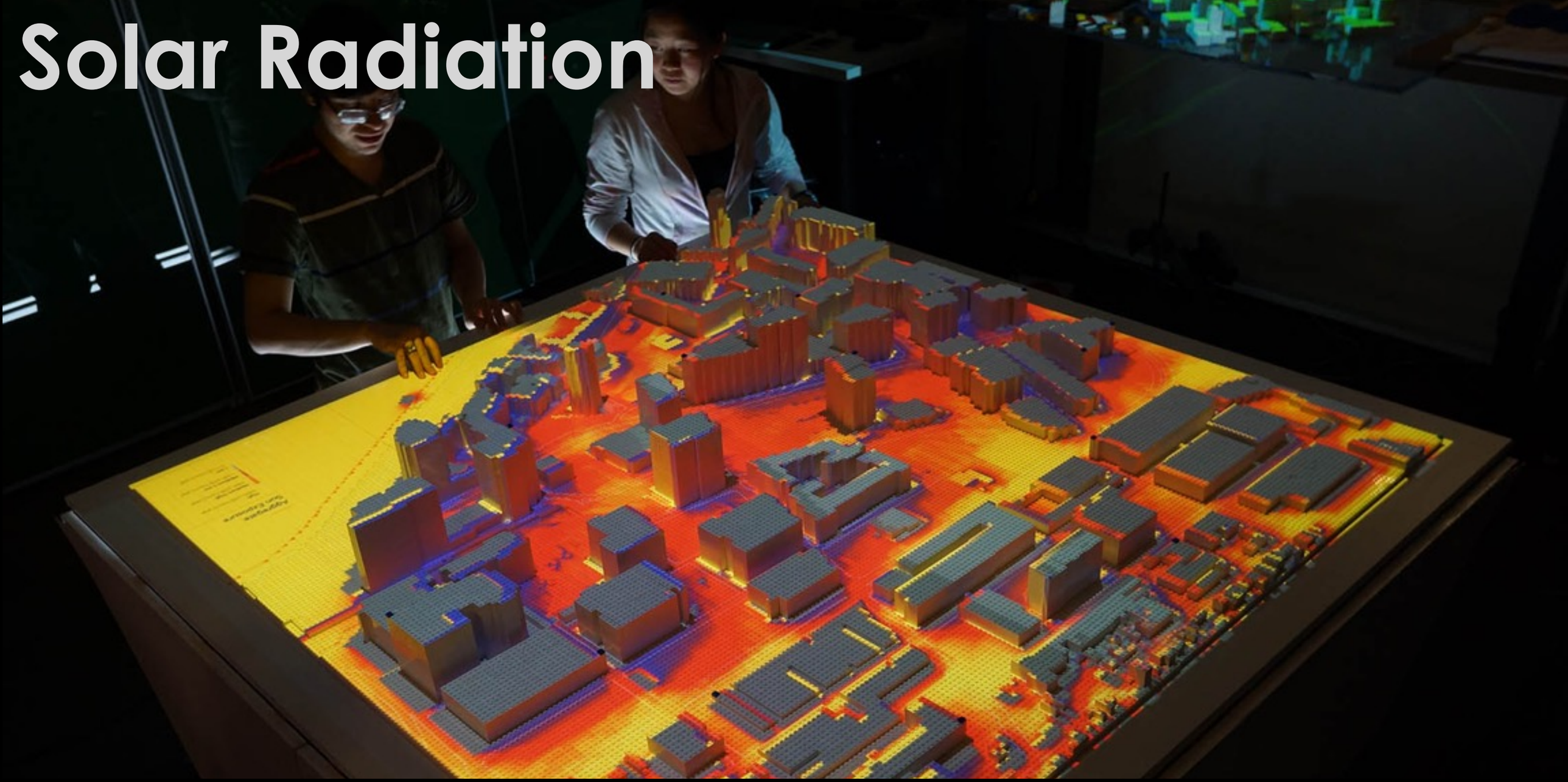
Ira Winder
Mohammad Hadrawhi

Data Observatory

MIT Media Lab
Changing Places

Ira Winder
Mohammad Hadrawhi

Solar Radiation



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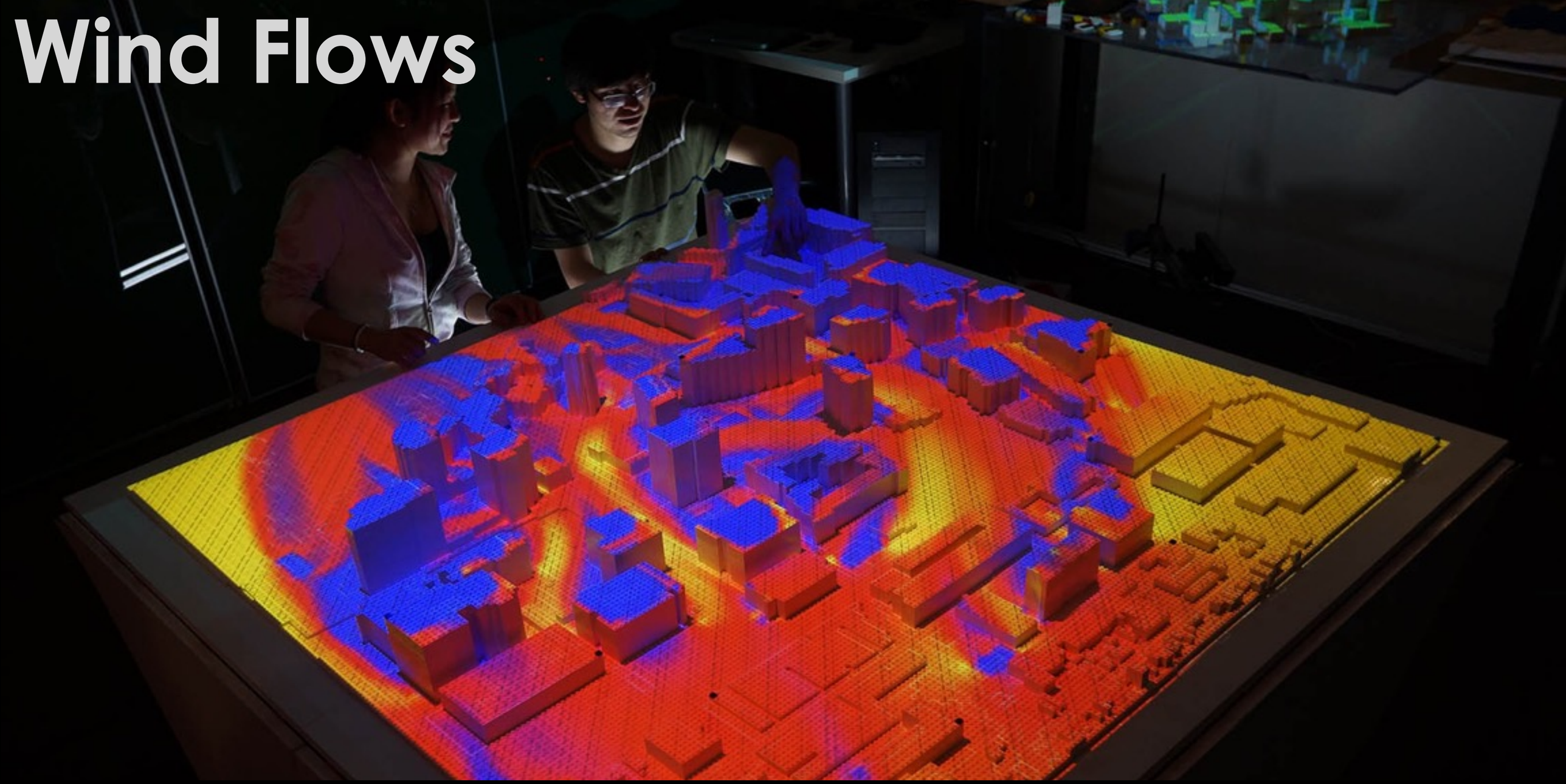
Mohammad Hadrawhi

Wind Flows



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Venture Capital

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Ira Winder
ContextLabs

Tweets

MIT Media Lab
Changing Places

Ira Winder
Carson Smuts

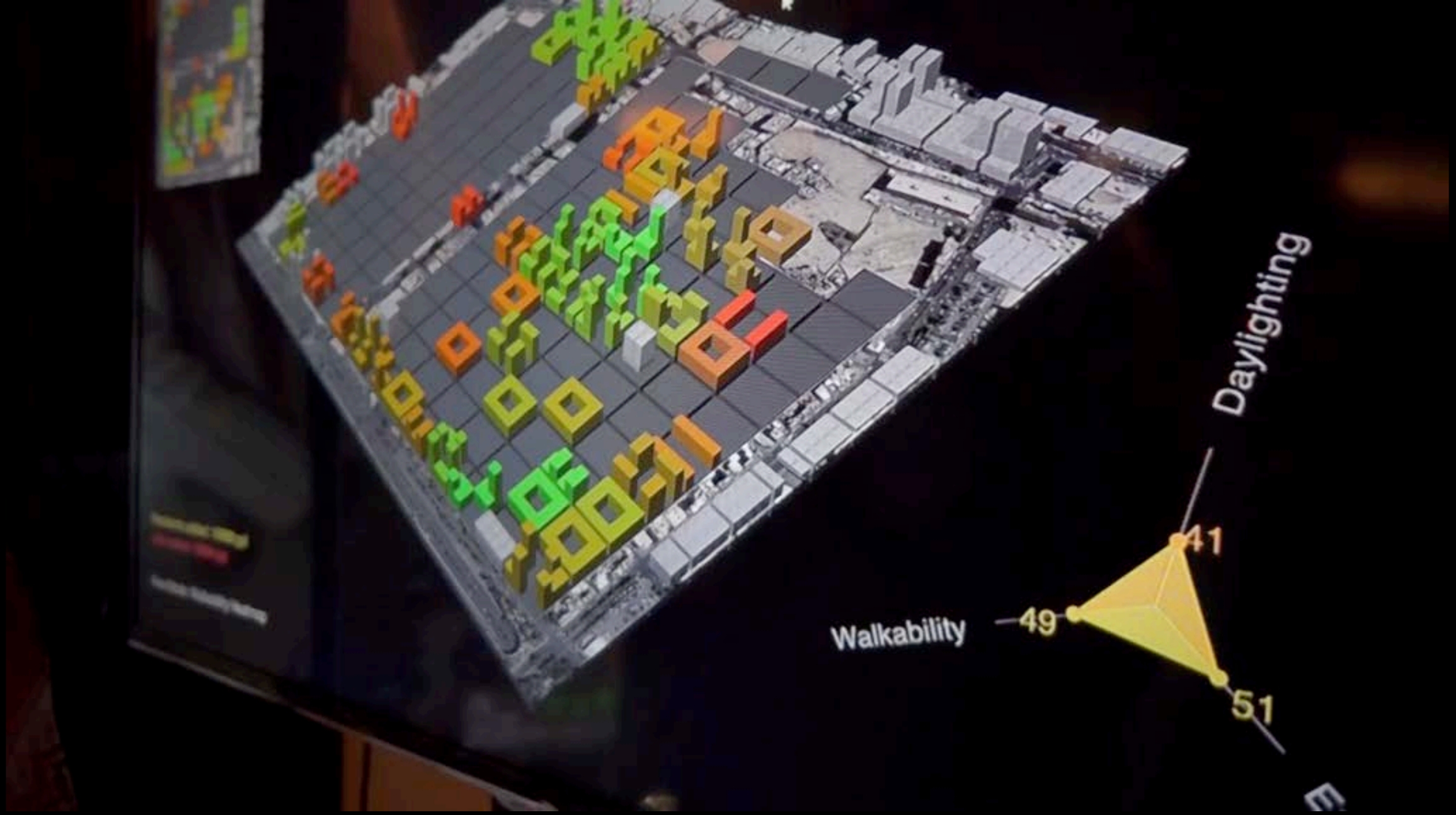
Case Studies
ケーススタディ

Riyadh - King Abdullah University of Science and Technology

MIT / KACST
Ira Winder

Riyadh - King Abdullah University of Science and Technology

MIT / KACST
Ira Winder



Tactile Matrix - Analyzing User Interventions

MIT / KACST
Ira Winder

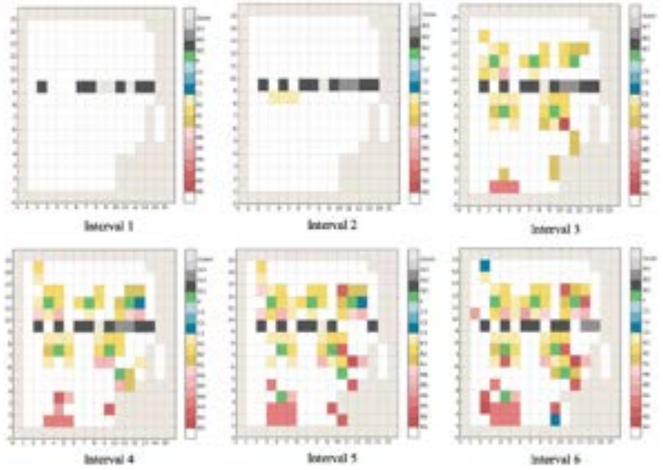


Figure 16. Recreated Snapshots of the grid at the end of each 5-minute interval for game session 2

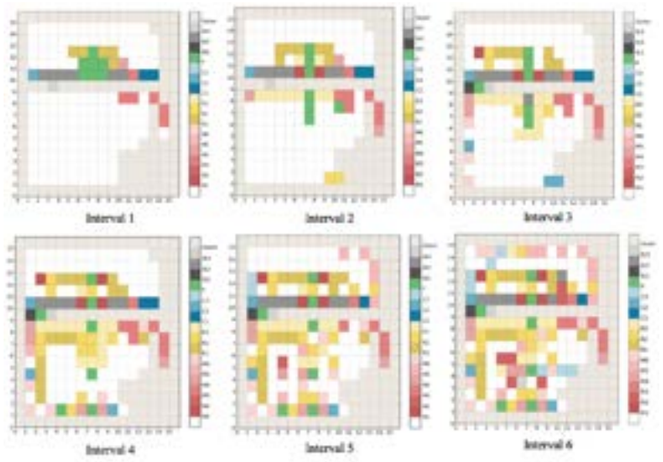


Figure 17. Recreated Snapshots of the grid at the end of each 5-minute interval for game session 3

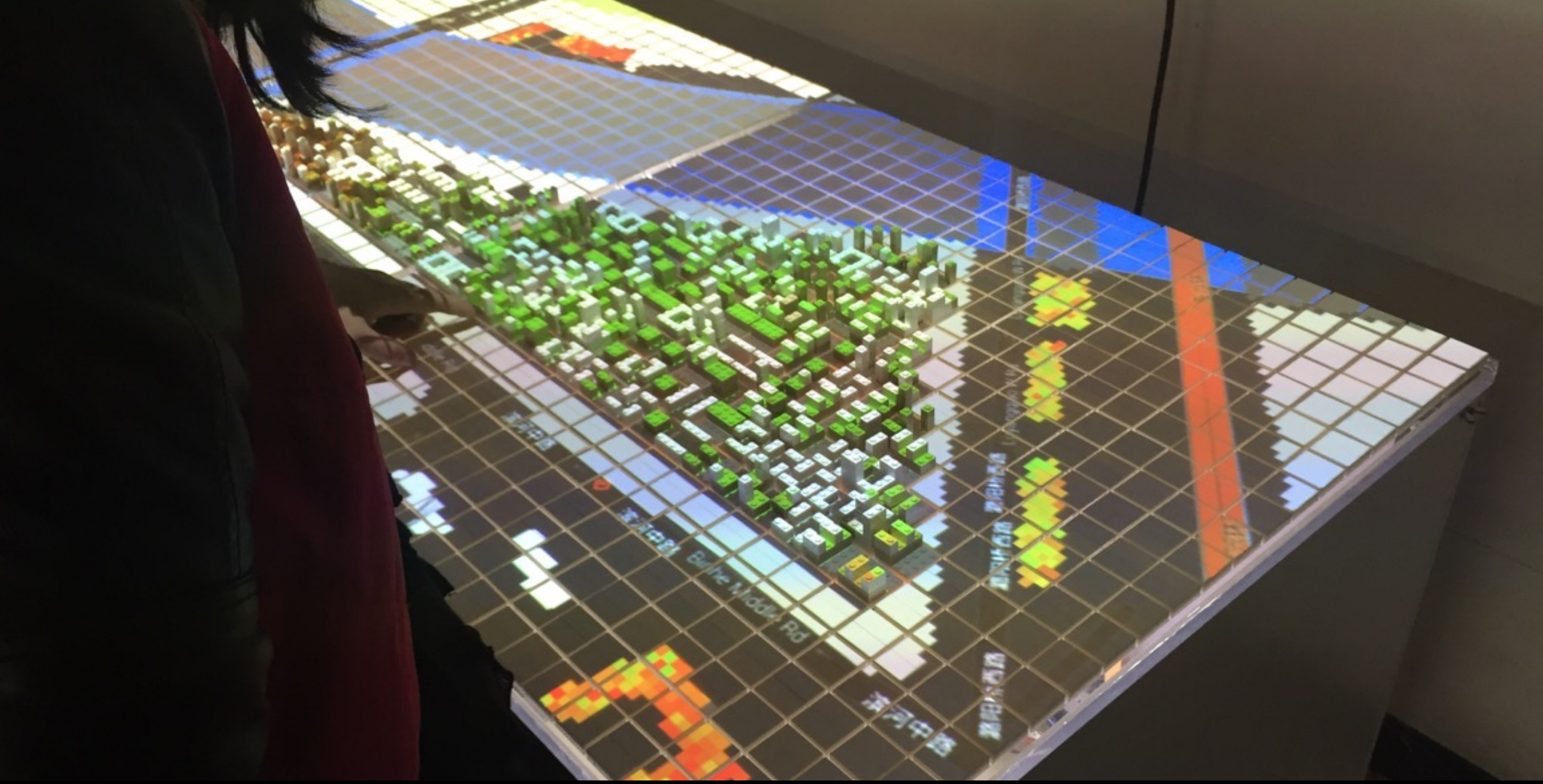
Source: Tariq Alhindi, Tarfah Alrashed, Almaha Almalki, Faisal Aleissa, Cody Rose, Ira Winder, Anas Alfaris, Areej Al-Wabil

Source: Ira Winder

Tactile Matrix - Analyzing User Interventions

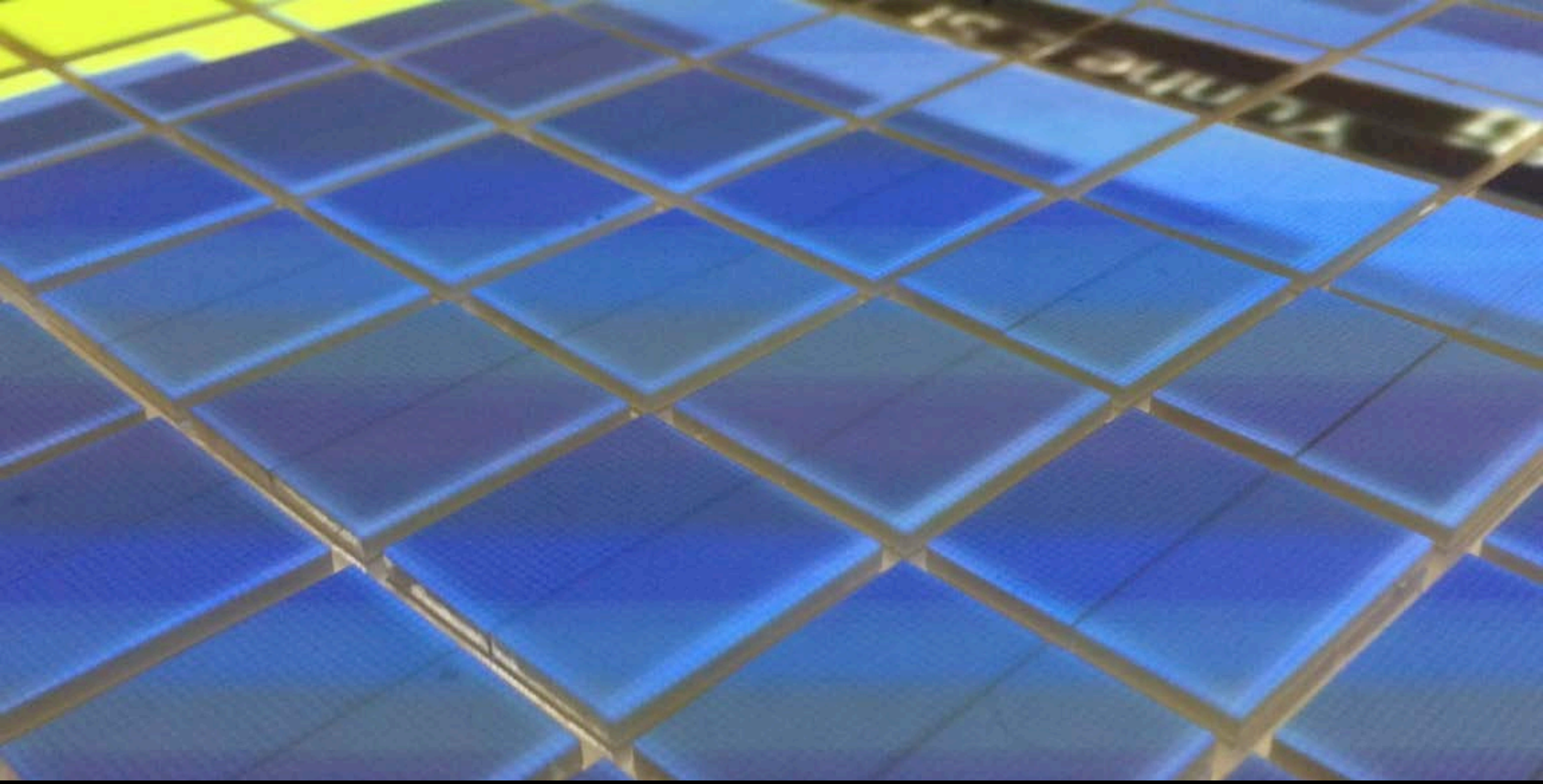
Riyadh - King Abdullah University of Science and Technology

iSoftStone
Ira Winder



Tongzhou, China - iSoftStone + MIT

iSoftStone
Ira Winder



Tongzhou, China - iSoftStone + MIT

iSoftStone
Ira Winder

Andorra Living Lab

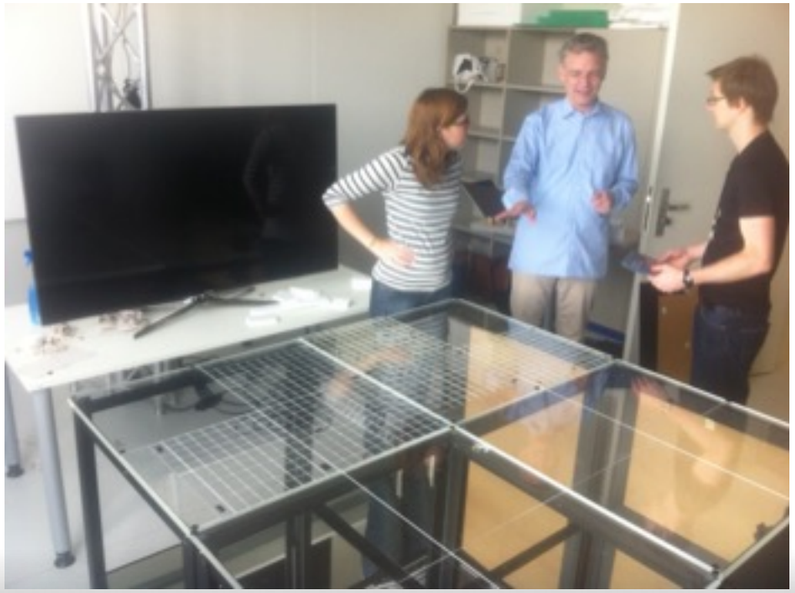
Luis Alonso
Juanita Devis
Carson Smuts
Naichen Chun
Ira Winder

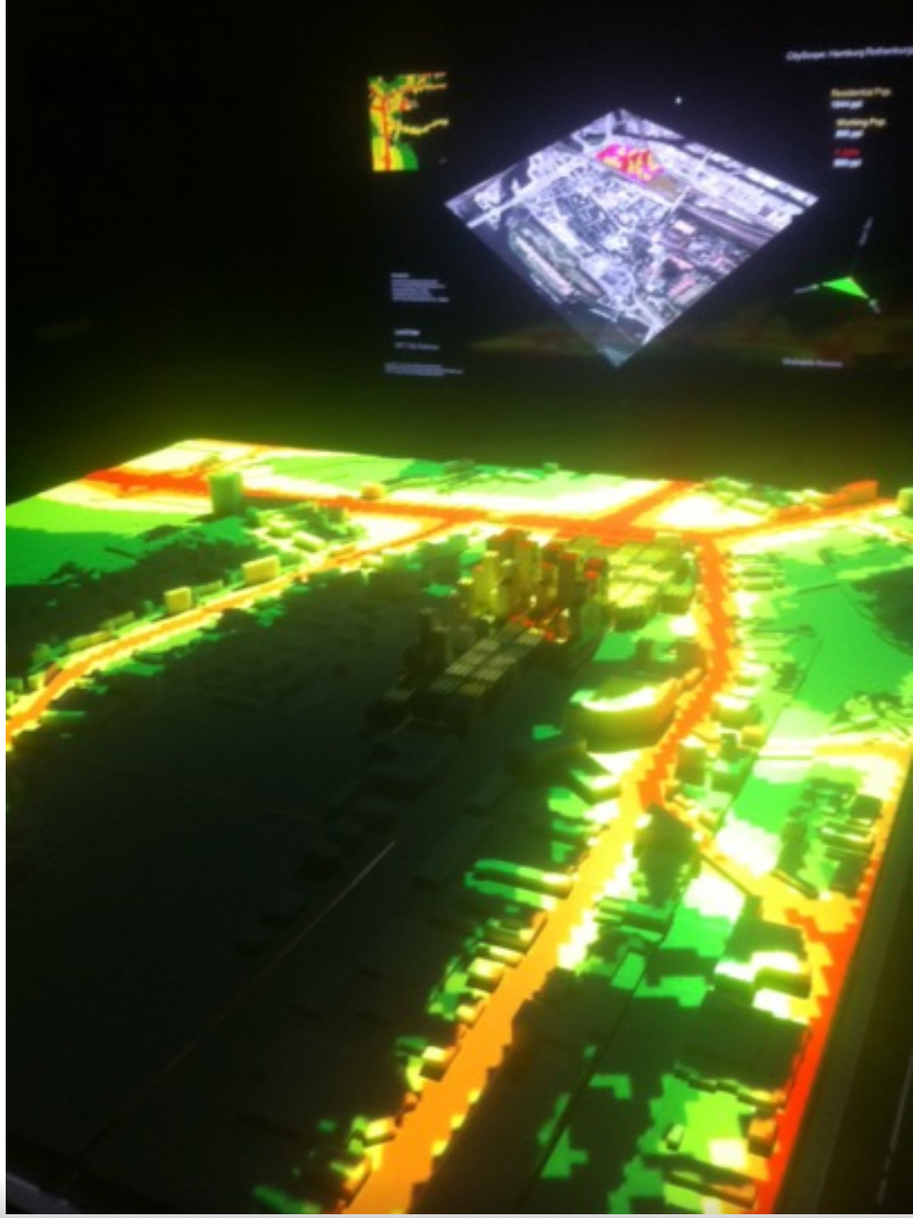
Video: Carson Smuts

Cirq du Soleil July 1-4 2015

Source: Ira Winder

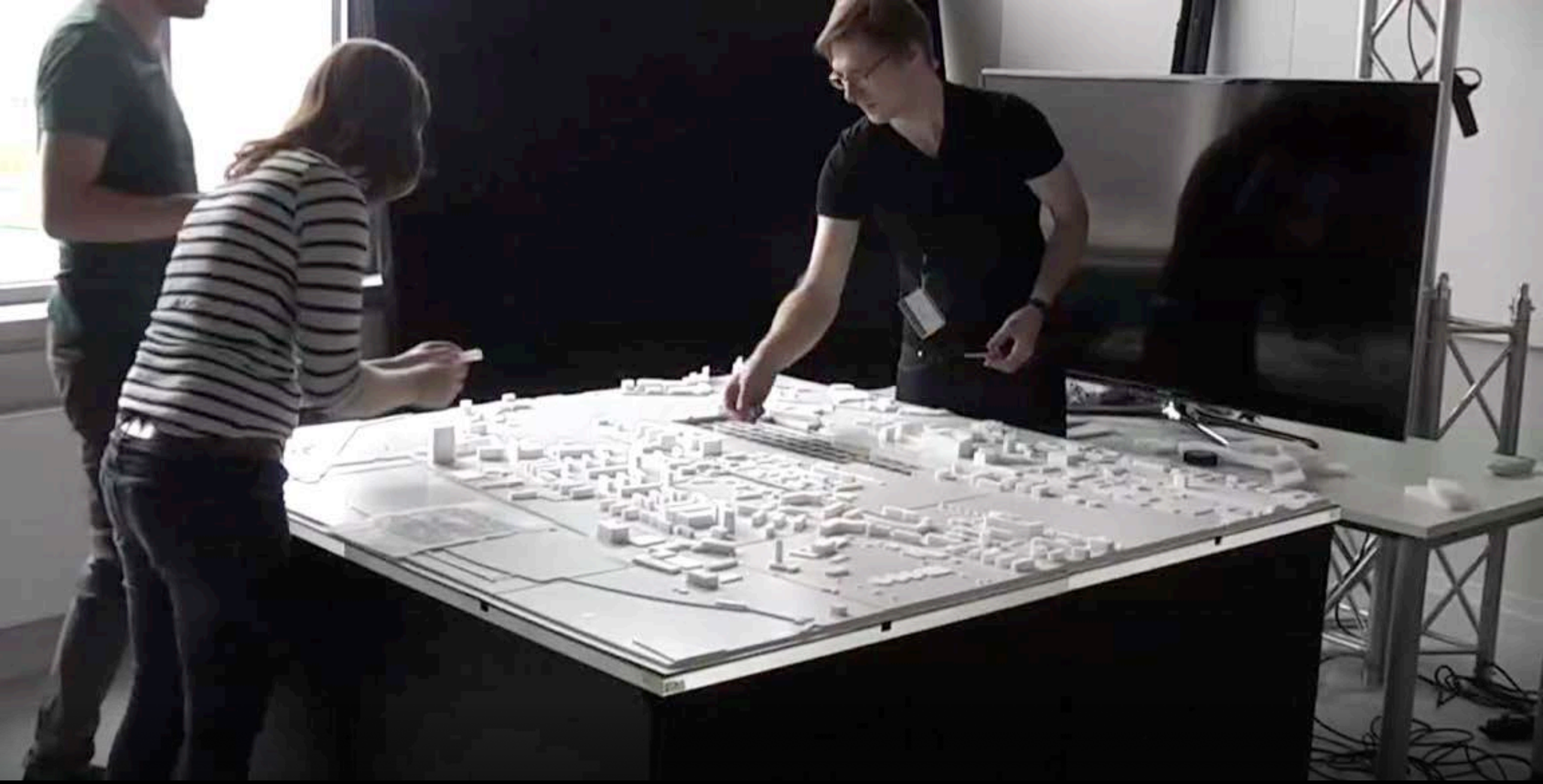
Hamburg Living Lab - HafenCity University





Hamburg Living Lab - HafenCity University

Hafencity University
Ira Winder

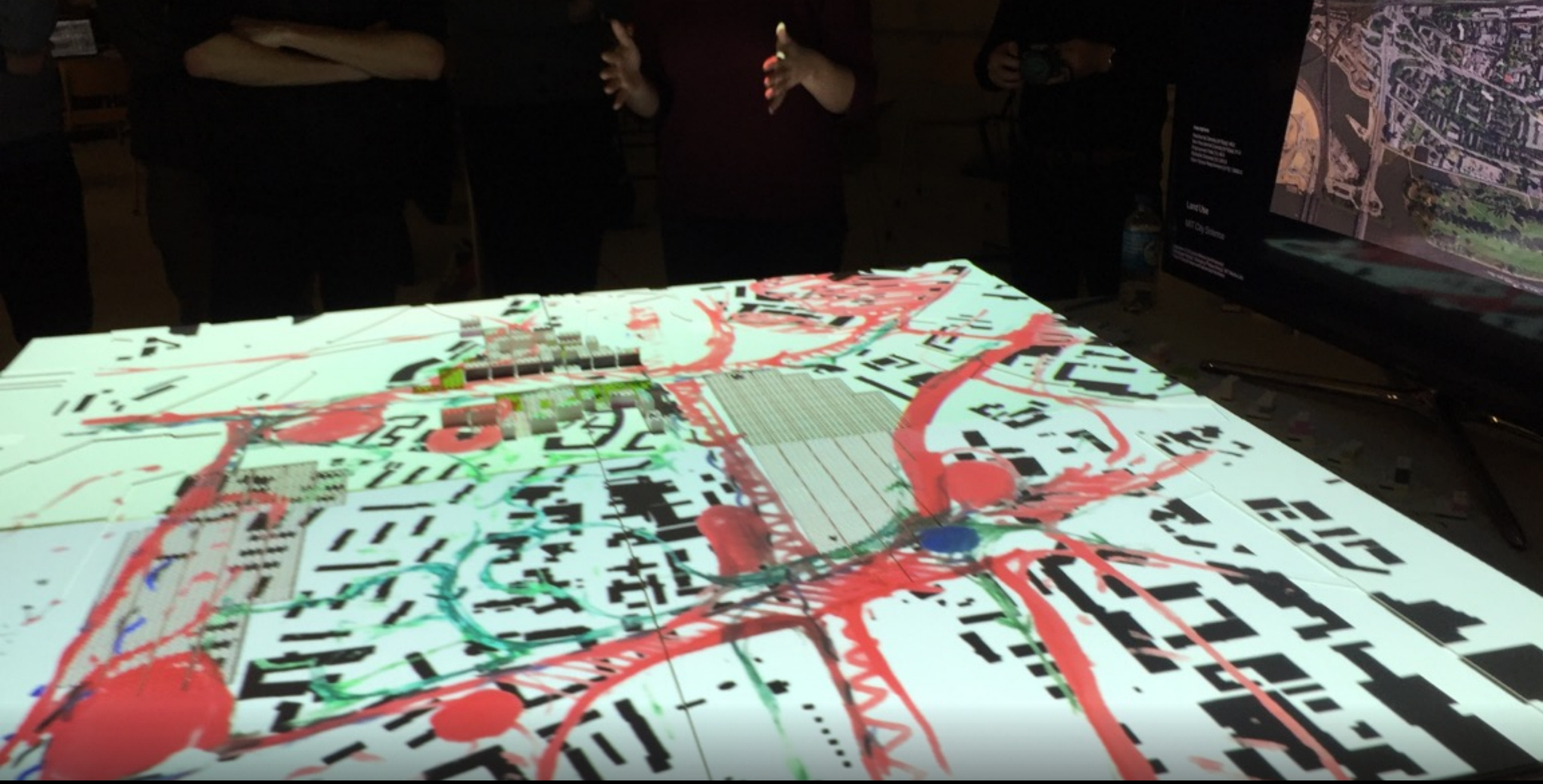


Hamburg Living Lab - HafenCity University

Hafencity University
Ira Winder

Hamburg Living Lab - HafenCity University

Hafencity University
Ira Winder



Hamburg Living Lab - Student Surveys

Hafencity University
Ira Winder

Hamburg Living Lab - Refugee Crisis

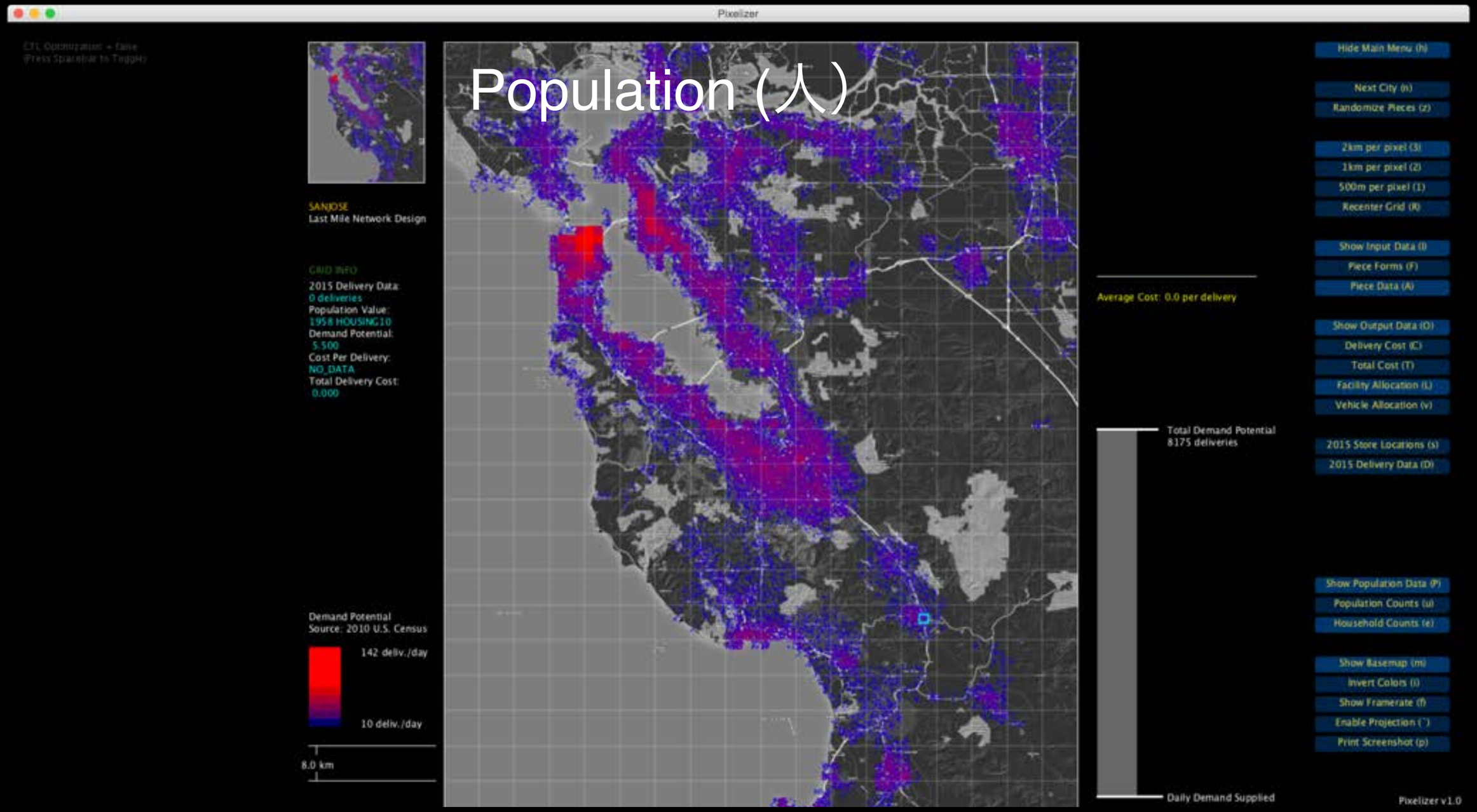
Hamburg Living Lab - HafenCity University

Last Mile Logistics Platform | 配達のロジスティクス

Matthias Winkelbach
Ira Winder

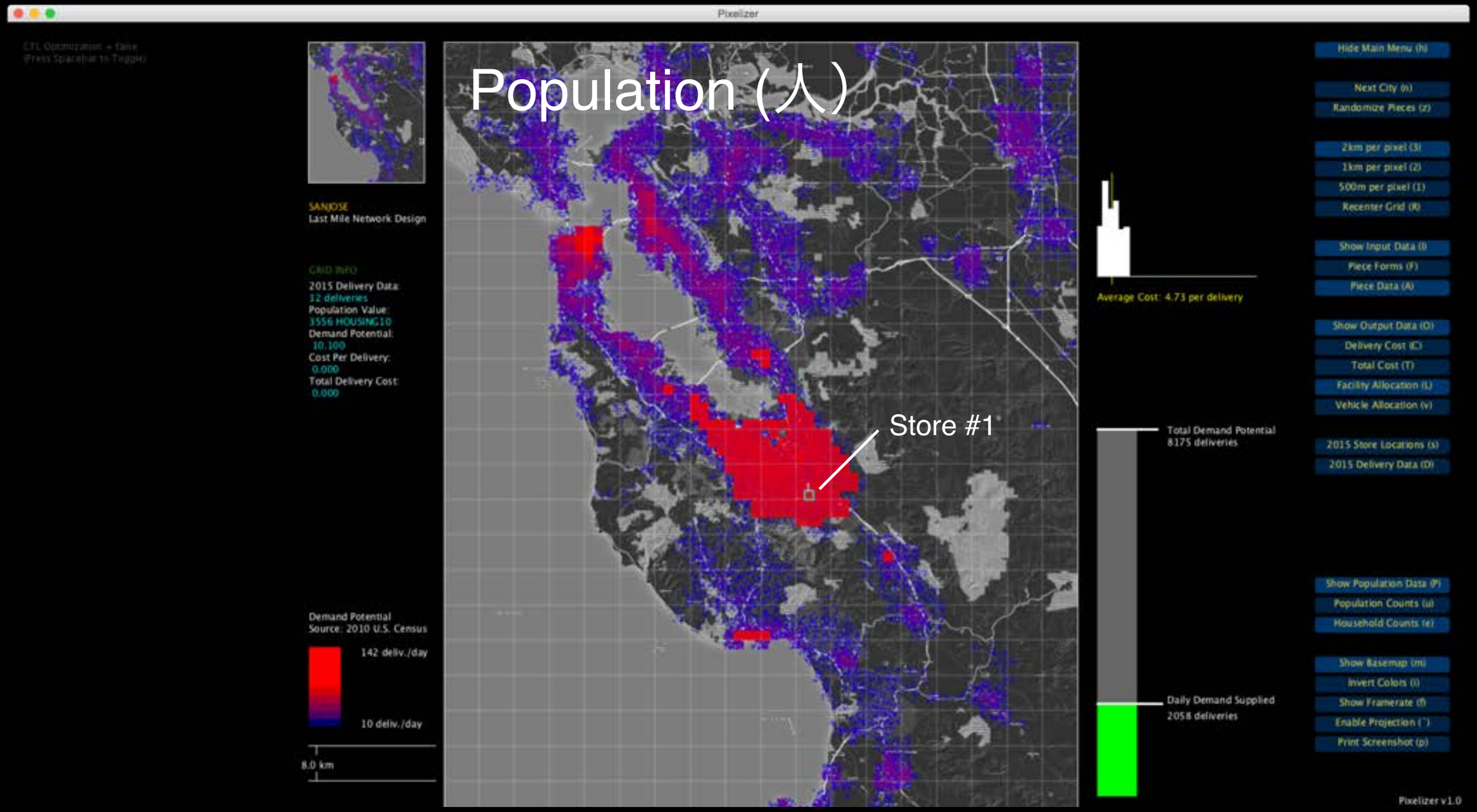
Last Mile Logistics Platform | 配達のロジスティクス

Matthias Winkelbach
Ira Winder



Last Mile Logistics Platform | 配達のロジスティクス

Matthias Winkelbach
Ira Winder



Last Mile Logistics Platform | 配達のロジスティクス

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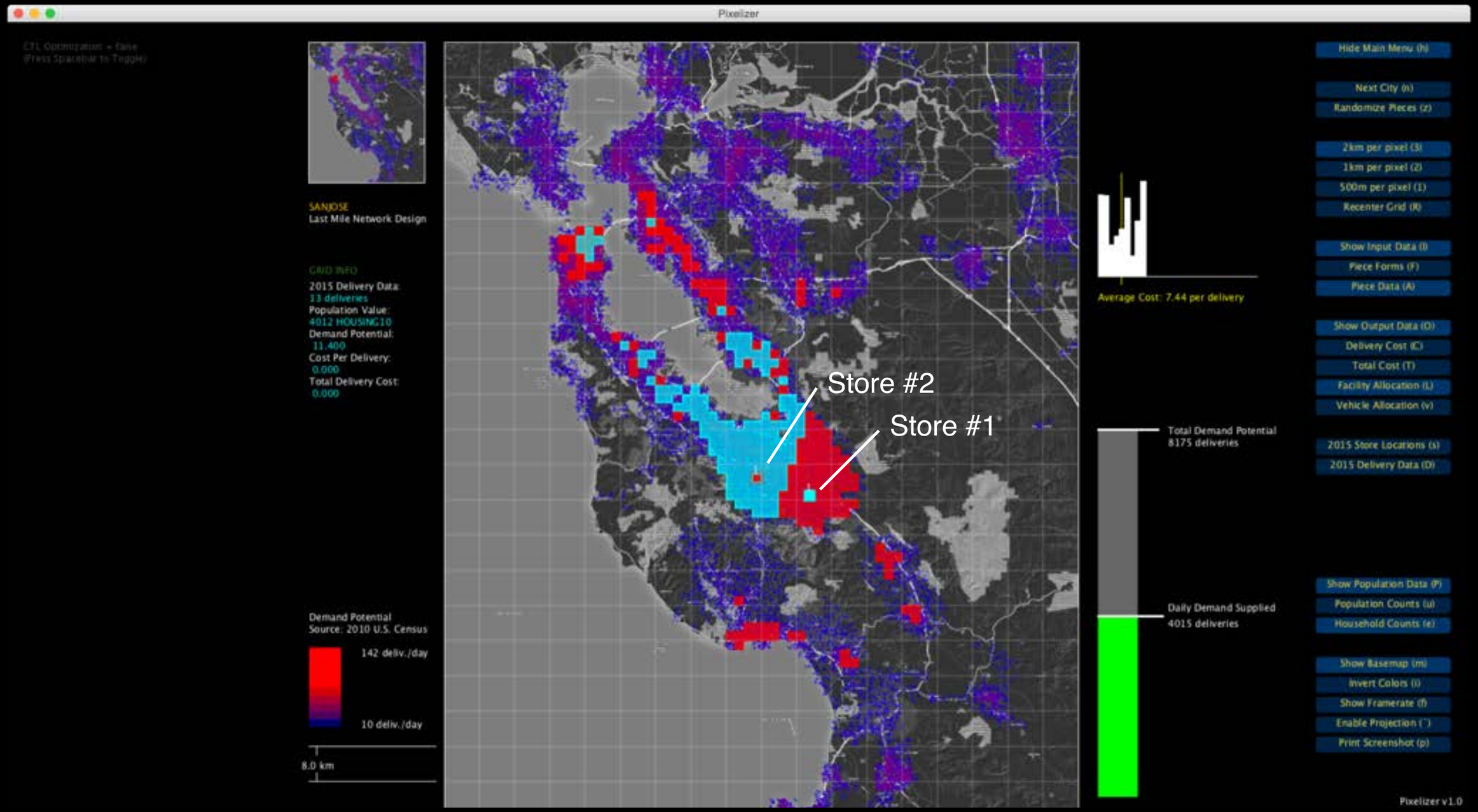

Last Mile Logistics Platform | 配達のロジスティクス

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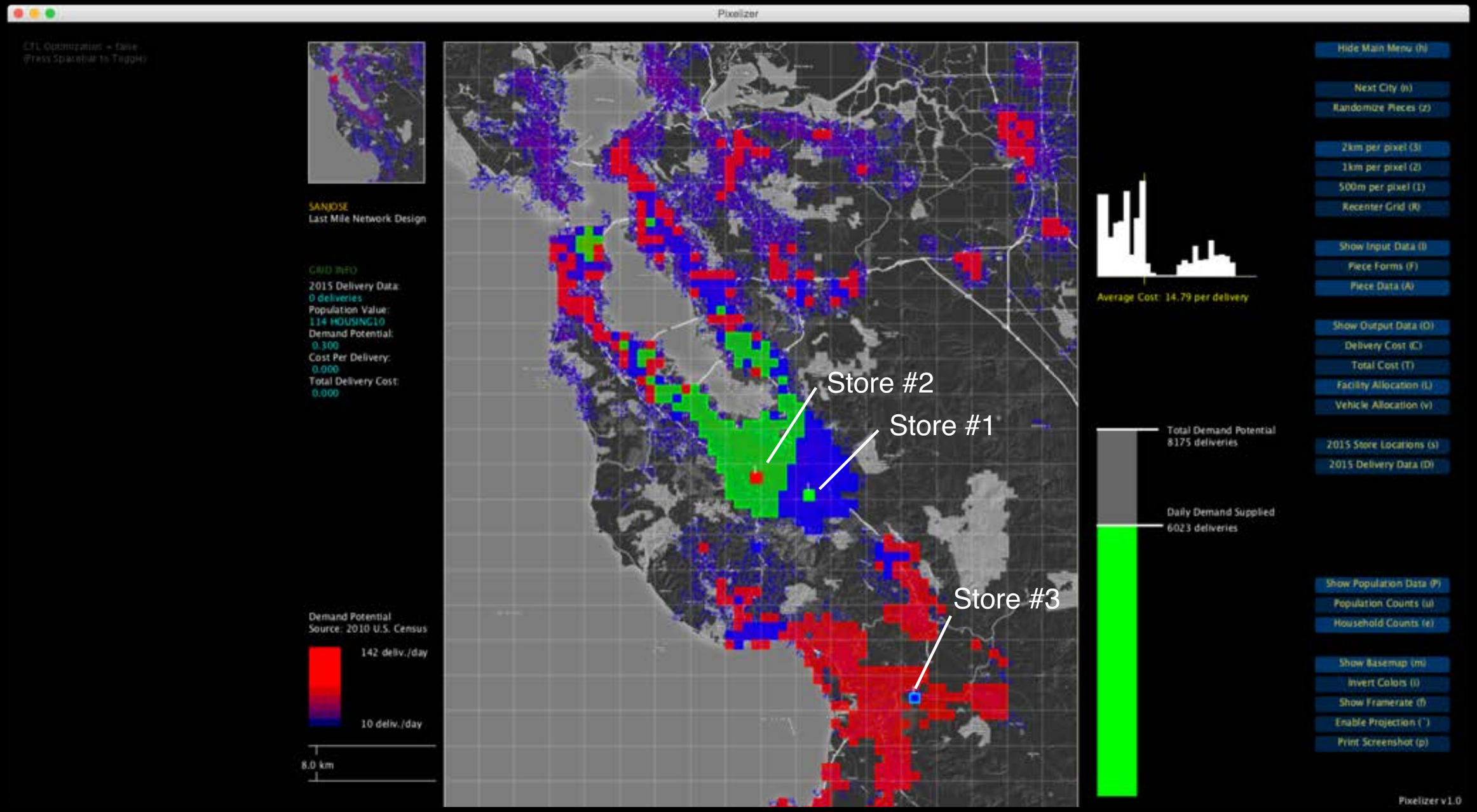

Last Mile Logistics Platform | 配達のロジスティクス

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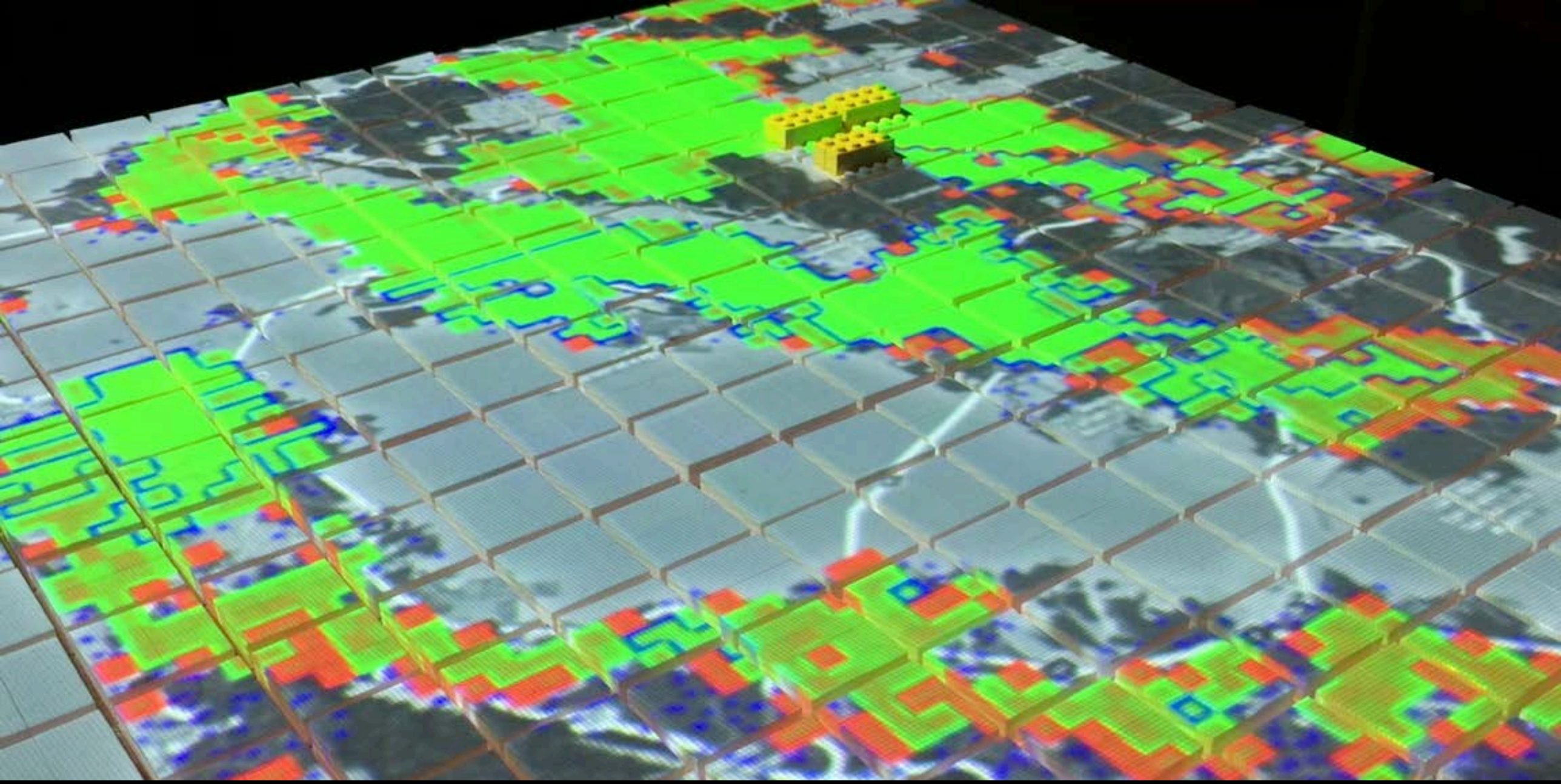
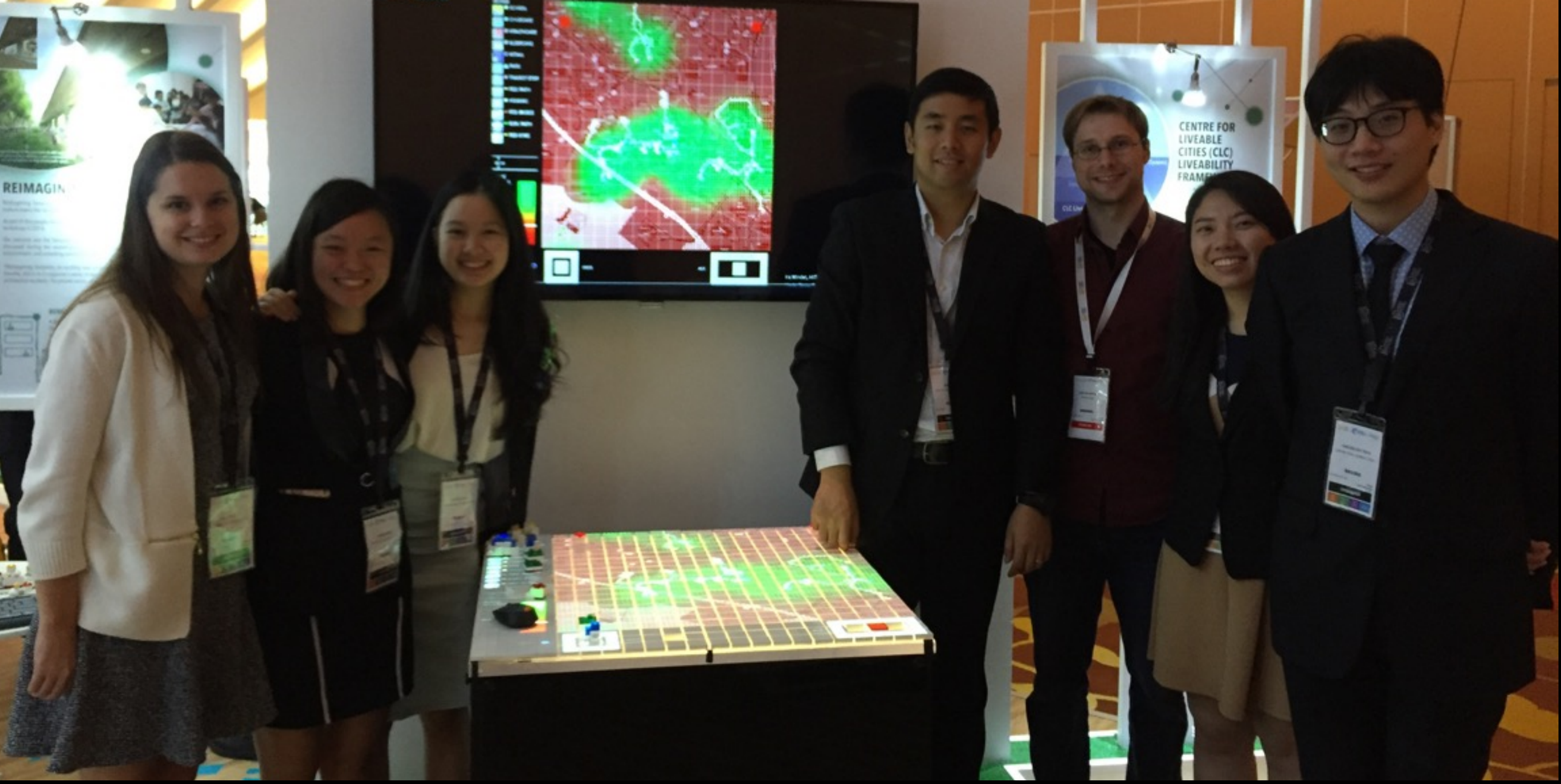
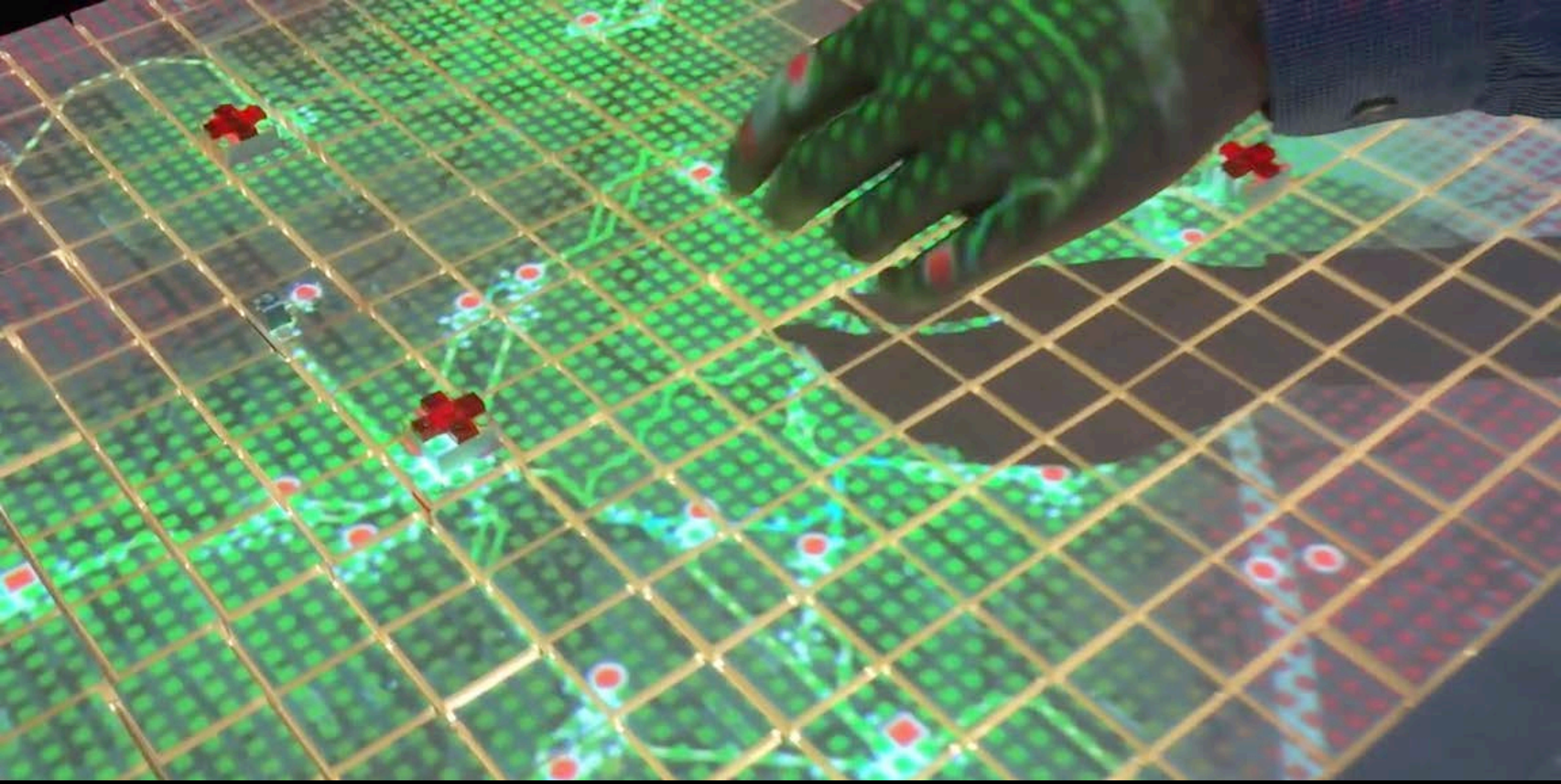


Last Mile Logistics Platform | 配達のロジスティクス



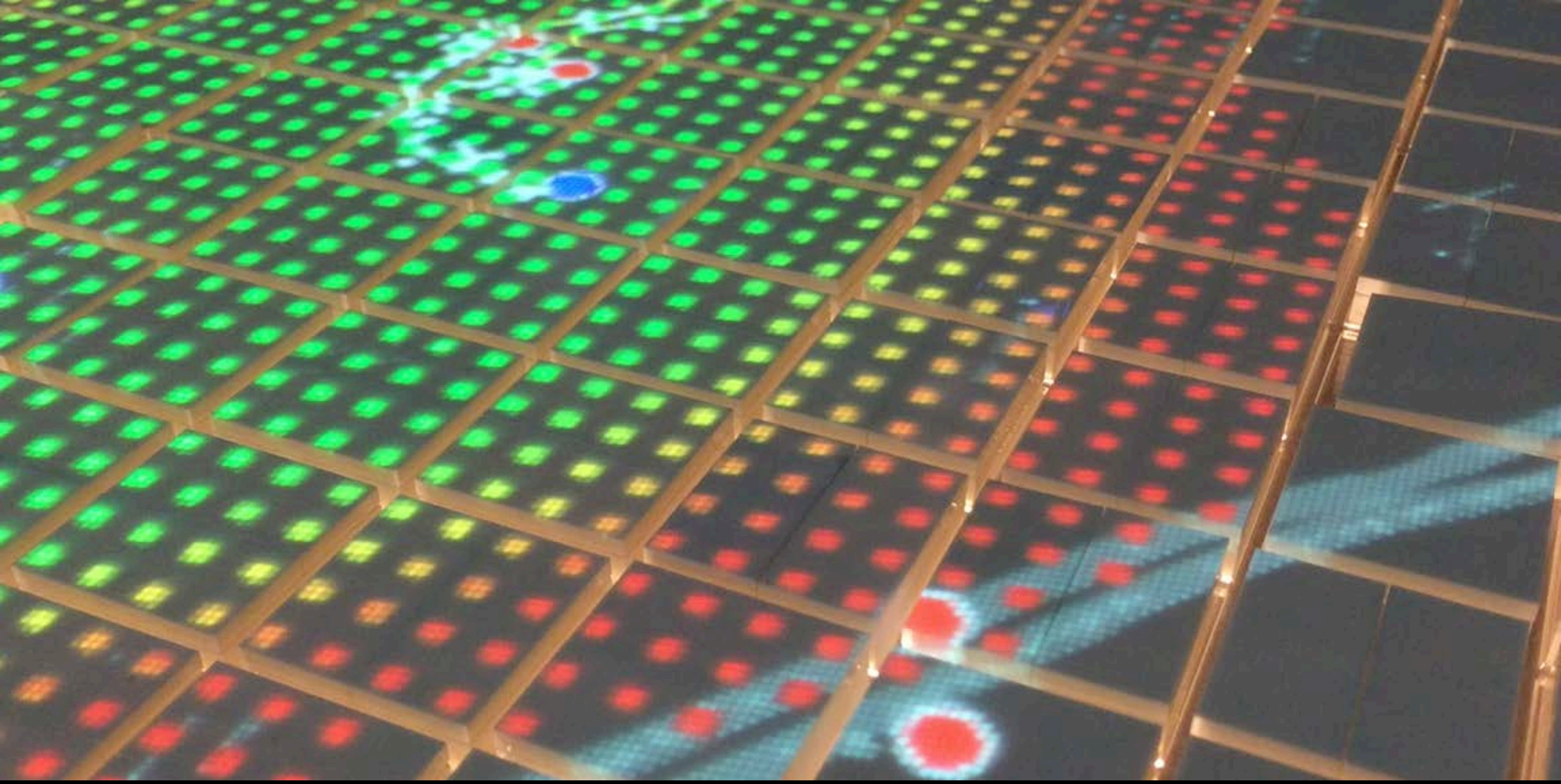
Pedestrian Access Simulation for Civic Amenities

Ira Winder



Pedestrian Access Simulation for Civic Amenities

Ira Winder

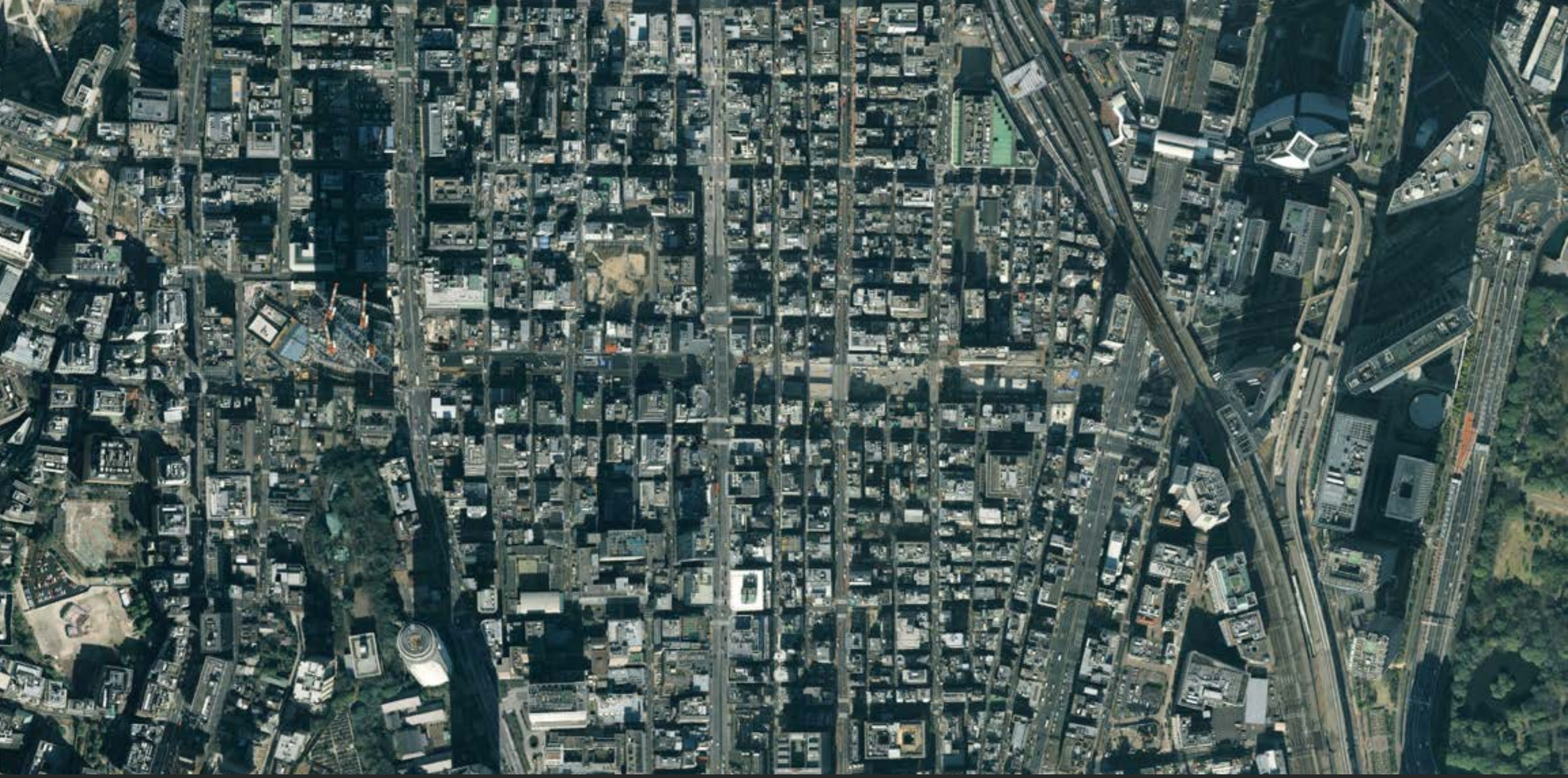


Pedestrian Access Simulation for Civic Amenities

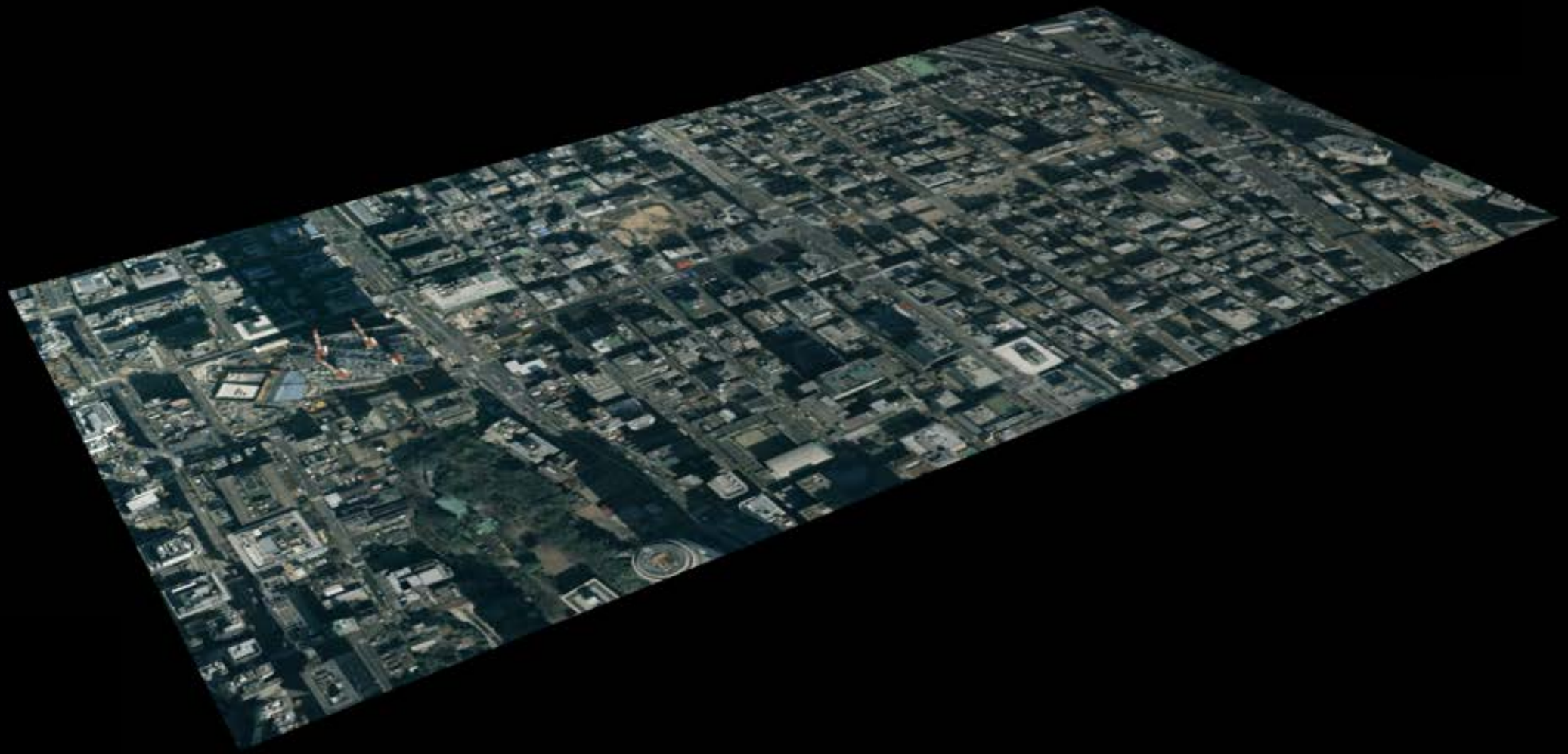
Ira Winder

Somewhere near you?

Meiji Jingu Gaien
Toranomon
Olympic Village



Toranomon



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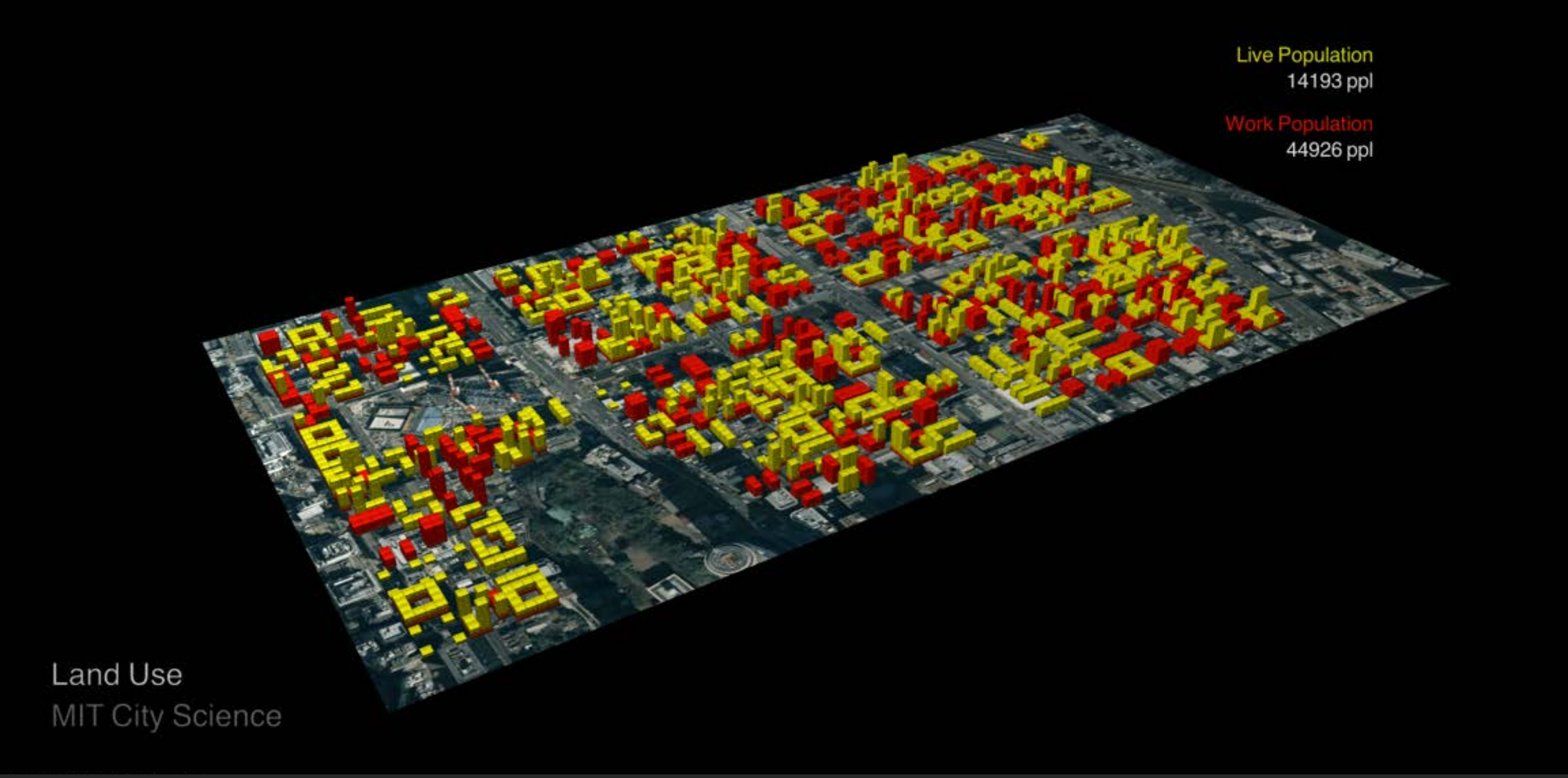
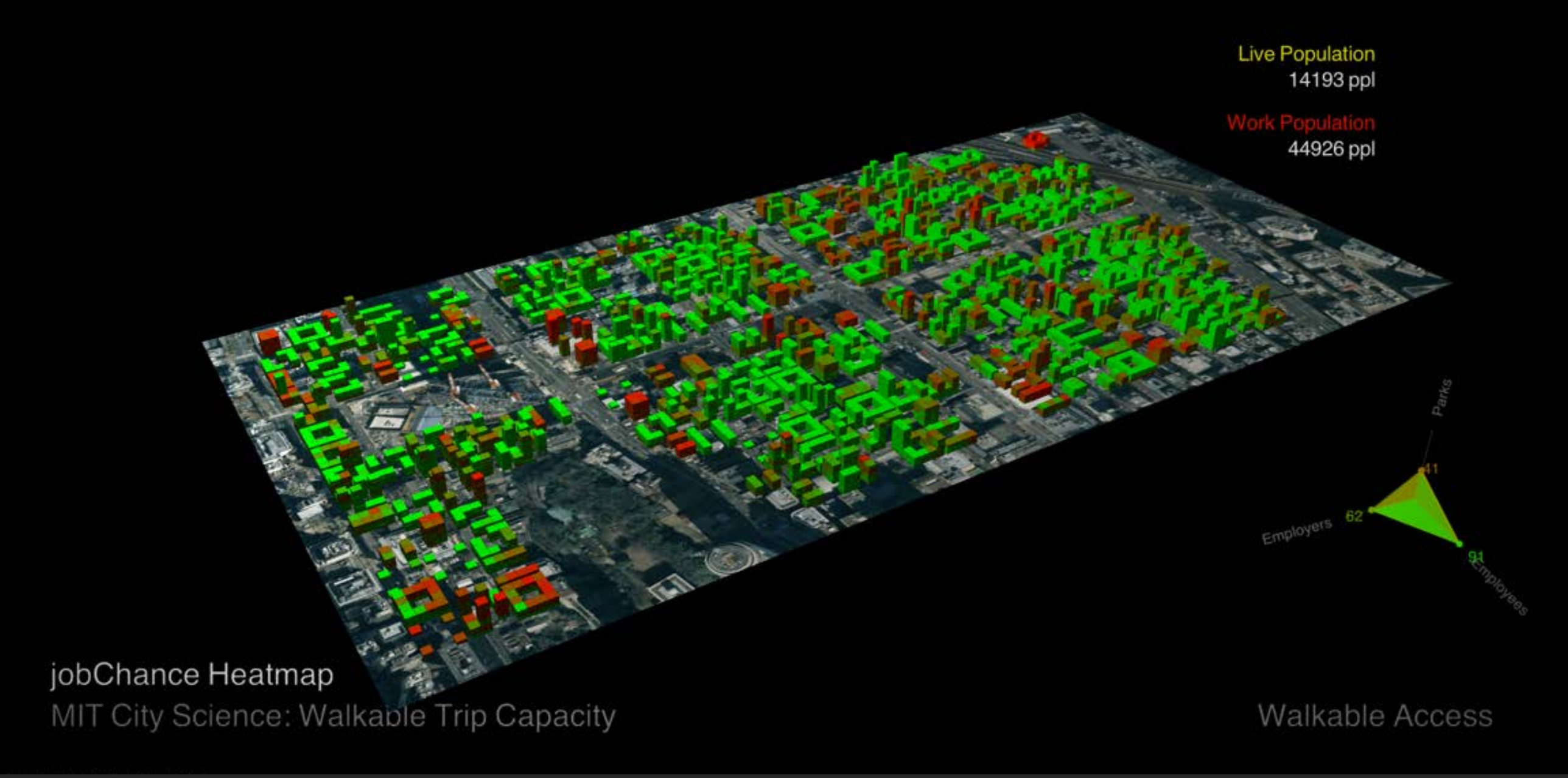

Live Population
14193 ppl
Work Population
44926 ppl
Land Use
MIT City Science

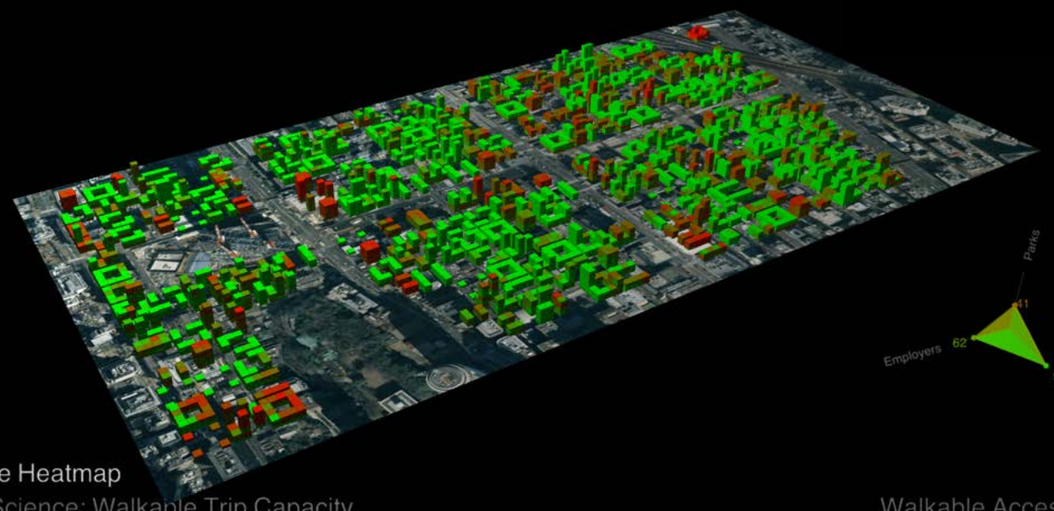
Toranomon


Live Population
14193 ppl
Work Population
44926 ppl
Parks
41
Employers
62
91
Employees
jobChance Heatmap
MIT City Science: Walkable Trip Capacity
Walkable Access

Toranomon

Form
MIT City Science

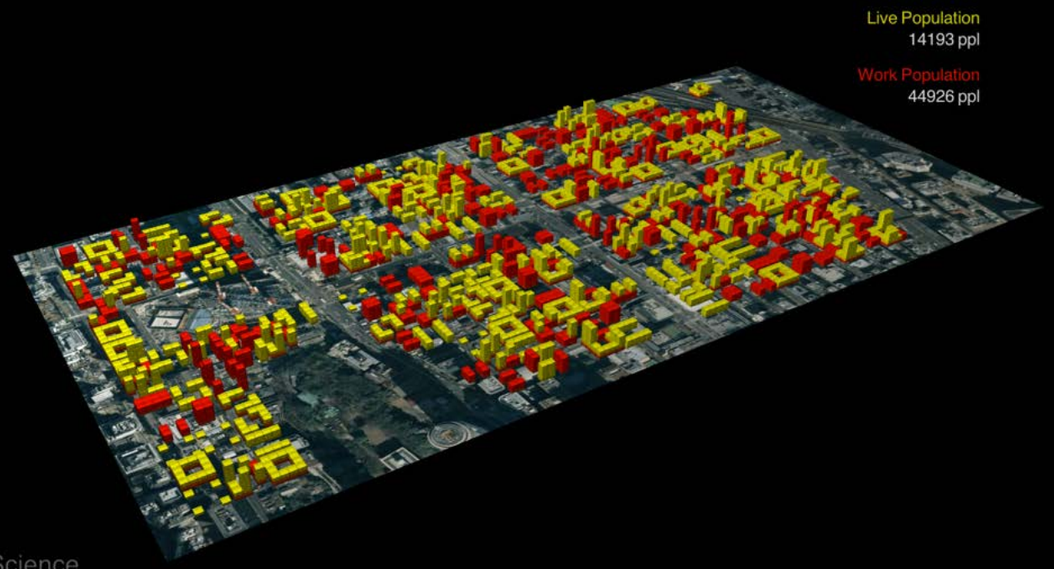
CityScope: Toranomon



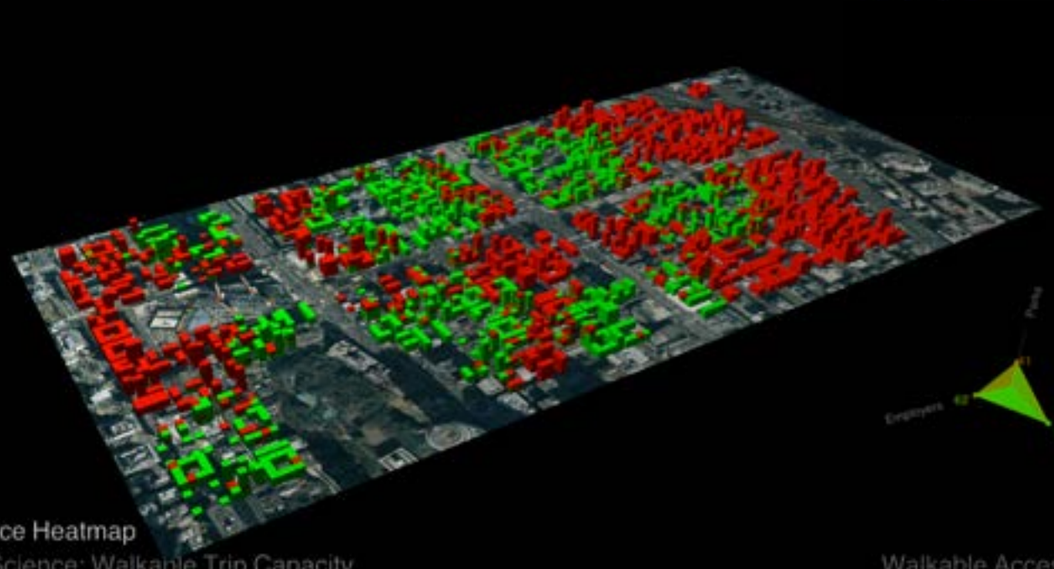
jobChance Heatmap
MIT City Science: Walkable Trip Capacity

Walkable Access

CityScope: Toranomon



Land Use
MIT City Science



parkChance Heatmap
MIT City Science: Walkable Trip Capacity

Walkable Access

Toranomon

Interactive Visualization
インタラクティブ　ビジュアリゼーション

アイラ・ウィンダー
Ira Winder

Novel Interfaces for collaborative decision-making

協力して決断するための目新しいインタフェース

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