EncyclAPPedia: Confronting SidewalkLabs Digital Physical Community

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ENCYCLOPEDIA,
OR
DICTIONARY OF APPLICATIONS
OF SURVEILLANCE
AND OF ARCHITECTURE
FOR A COMMUNITY OF DIGITAL AND PHYSICAL DEVICES

Arranged and developed by KATHARINA ELISA KÖRBER, student of the School of Architecture at SYRACUSE UNIVERSITY, NEW YORK, Advisor: Prof. Mark Linder

“most measurable community, built from the internet up” (Dan Doctoroff)
HORAY.

VOLUME ONE

SYRACUSE, NY

Architecture for

- HUMAN, as physical and digital self
- DEVICE, as ubiquitous technology
- TOOL, as active craft
- KNOWLEDGE, as information through data

MMXIX
Syracuse University New York, School of Architecture
Google’s SidewalkLabs claims that its plans for Quayside in Toronto will result in the “most measurable community build from the Internet up,” [Dan Doctoroff, CEO Sidewalk Labs]. But how can we understand the realities and implications of an urbanism that so radically challenges our current physical and mental relationship between humans and digital devices, humans and architecture, and architecture and digital devices? **This thesis examines the roles of architects when a city and its architecture are planned as a community of digital devices.** It explores ways to disrupt and conceptualize Sidewalk Labs’ strategy of a community where humans and non-human devices “live” among systems made for high-efficiency and performance, and the devices target the humans as subjects for data surveillance.

The digital community has become as important as the one with human bodies inhabiting actual physical space. In this case, the institution that is creating the community is a non-spatial network that allows inhabitants to connect socially and transactionally through devices. Apps have replaced architectural typologies.

If Diderot and d’Alembert’s “Encyclopedia” can be considered as a cornerstone of human enlightenment - what is the iPhone today? Both are a created, collected and limited through human knowledge that sees the device as a physical and mental extension of the body. The tool has become a device. It captures the human and creates a digital reality. Architecture here is a blank space to facilitate that. In that word, good Internet connections in virtual space are more valued than social interactions in physical space. Architecture now has to accommodate a new kind of equality among its human and non-human inhabitants. Since the collection of private data, the resource for the rendering of that raum has shifted from mining raw material to human experience. Behaviour data is turned into a quantifiable product that allows to analyse, optimize and predict. **Architecture has to accommodate a community for physical digital bodies. How can architects still exist in this environment?**
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CHAPTER ONE:

CLAIMS
This project examines the role of **Architects** when Architecture is planned by a corporation as a **community of physical and digital devices**.
SideWalkLabs CEO imagines the “most measurable community built from the internet up” an environment planned for efficiency, performance and profit. The Smart-phone functions as a mediator between user and architecture.

“is replicating the digital experience in physical space...”

“In effect what we’re doing is replicating the digital experience in physical space.... so ubiquitous connectivity; incredible computing power including artificial intelligence and machine learning; the ability to display data; sensing, including cameras and location data as well as other kinds of specialized sensors... We fund it all through a very novel advertisement model... we can actually then target ads to people in proximity, and then obviously over time track them through things like beacons and location services as well as their browsing activity.”

1, 2 Doctoroff, Dan. 2016. "Google City” public lecture, Toronto.
18 “Screenshot of Phillip Schiller speaking at the Keynote iPhoneX release, 2017”
Human Bodies Mind Recognition Tool Perception Knowledge Digital Nomad Non-human Device Ubiquitous Technology Information Data Internet Measurable Surveillance Architecture Physical Infrastructure Service System Economy Culture Community

11 “Plate 281 - Architecture Couvreur from Encyclopédie”
18 “Screenshot of Phillip Schiller speaking at the Keynote iPhoneX release, 2017”
Architecture for Human?

Human

Architecture for Devices?

Device

Architecture

11 “Plate 281 - Architecture Couvreur from Encyclopédie”
18 “Screenshot of Phillip Schiller speaking at the Keynote iPhoneX release, 2017”
En - cycl - APP - ed - ia

1. A set of apps using human experience as raw material to generate information
2. A device that contains information on all branches of knowledge about one’s digital life from data surveillance
3. A surveillance economy where architecture serves for behavioural modification
CHAPTER TWO:

ANALYSIS
Institution as Architecture

Institution as Device

Marketing has become the centre or the “soul” of the corporation. We are taught that corporations have a soul, which is the most terrifying news in the world. The operation of markets is now the instrument of social control and forms the impudent breed of our masters. Control is short-term and of rapid rates of turnover, but also continuous and without limit, while discipline was of long duration, infinite and discontinuous.

Gilles Deleuze (philosopher), Postscript on the Societies of Control, 1992

Today, it is all-pervasive. Like the Church, the Monarchy and the Communist Party in other times and places, the corporation is today’s dominant institution. 150 Years ago, the business corporation was a relatively insignificant institution.

From movie “The Corporation” , 2003
The institution manifests itself no longer through architectural typologies. They are replaced by apps. The institution becomes is a non-spatial network of devices.

“Today, it is all-pervasive. Like the Church, the Monarchy and the Communist Party in other times and places, the corporation is today’s dominant institution. 150 Years ago, the business corporation was a relatively insignificant institution.” ³

“Marketing has become the centre or the “soul” of the corporation. We are taught that corporations have a soul, which is the most terrifying news in the world. The operation of markets is now the instrument of social control and forms the impudent breed of our masters. Control is short-term and of rapid rates of turnover, but also continuous and without limit, while discipline was of long duration, infinite and discontinuous.” ⁴

⁵ “Institution as an Architectural Typology based on “ Plate 281 - Architecture Couvreur”
⁶ “Google Spirit as Institution”
If you give up Google and all the companies it owns, you're cut off from participating in your community, whatever your community may be.

Kashmir Hill, Senior Reporter "Cutting the 'Big Five"
Digital infrastructure allows communication to take place between device and device and sometimes device and human. Google provides and controls most internet traffic.

“If you give up Google and all the companies it owns, you’re cut off from participating in your community, whatever your community may be.”

“The faculties of the mind worked solely on data provided by the senses. All knowledge therefore derived from sensation, and the faculty of reason, which transformed sense data into knowledge, deserved a central place in any attempt to map the world of knowledge.”

21 “Communication in “Encyclopédies Plate 281 - Architecture Couvreur”
22 “Communication chain between devices”
Surveillance capitalists claim human experiences, such as a walk with the dog, as raw data that they translate into behavioural data. With machine learning, these become prediction products, predicting what you will do now, later and ever. By trading these predictions they earn big money.

Shoshana Zuboff, at presentation of her book 'Ubiquitous Computing' names the third wave in computing, just now beginning. First were mainframes, each shared by lots of people. Now we are in the personal computing era, person and machine staring uneasily at each other across the desktop. Next comes ubiquitous computing, or the age of calm technology, when technology recedes into the background of our lives.'

Mark Weiser (scientist XEROX), 1995

---

Direct View

Data Collection

Collecting Behavioural Data

Machine Intelligence

Prediction Product

(Computational prediction of what user does now, soon, later)

Appears on devices

Private Human Experience

Sold to market place

Derivatives of users behaviours

Makes bets on future behaviour
Surveillance

From a form of social control to preserve quality to a form of quantitative data collection every inhabitant contributes to Google's Data Supply Chain, which serves as a form of surveillance.

“Surveillance capitalists claim human experiences, such as a walk with the dog, as raw data that they translate into behavioural data. With machine learning, these become prediction products, predicting what you will do now, later and ever. By trading these predictions they earn big money.” 7

“Ubiquitous Computing names the third wave in computing, just now beginning. First were mainframes, each shared by lots of people. Now we are in the personal computing era, person and machine staring uneasily at each other across the desktop. Next comes ubiquitous computing, or the age of calm technology, when technology recedes into the background of our lives” 8

8 Weiser, Mark (scientist XEROX). 1995.
23 “Surveillance in “Encyclopédies Plate 281 - Architecture Couvreur”
24 “Google’s Data Supply Chain”
A parasitic economic logic in which the production of goods and services is subordinated to a new global architecture of behavioral modification.

Quayside is a space where architecture serves for **behavioural modification**. The physical environment is a **infrastructure for data surveillance**, that accommodates life in the **digital raum**.

“A parasitic economic logic in which the production of goods and services is subordinated to a new global **architecture of behavioural modification**.”

---

25 “Plate 1 - Architecture from Encyclopédie”
26 “Cutout from “Encylopdies Plate 281 - Architecture Couvreur”
27 “Architecture is a Blank Space”
28 “Visualization of SidewalkLabs Ubiquitous Sensors at Quayside”
What role can an Architect take in an environment focusing on digital experience, data surveillance and behavioural modification?
What role can an Architect take in an physical environment focusing on digital experience, data surveillance and behavioural modification?

Out of the 115 employees at SideWalkLabs, only one carries the title architect on their website. Most of them are software engineers. (Highlighted in red)
The first iPhone

The latest Encyclopedia

Observation
definite encyclopedia
Enlightenment
restricted

Knowledge
definite encyclopedia
Enlightenment
restricted

Tool
craft
active
specific

Device
i
ubiquitous
technology
adaptive

Information
quantifiable data
human as input
constantly accessible

Monitoring
invisible
quantifiable data
behavioral data
tracking
Accomodating “human”

Institution
- tree hierarchy
- memory
- reason

Organization
- tree hierarchy
- memory
- reason

Interface
- networked media
- connection to information
- connection to community

Corporation
- non spatial
- spirit
- service

Human
- body
- mind

Architecture for humans
Architecture as Art and Science.

Architecture for devices
relies on Internet 2.0. Shaping of digital and physical space through the user rather than the architect

Post-Human
merging of device and human physical and digital self

Rethinking Architecture

31 “first iPhone - latest encyclopedia diagram”
How can we understand the realities and implications of an architecture that so radically challenges our current physical and mental relationship between human and digital device, human and architecture, and architecture and digital device?

32 “Apps are replacing Tools”
CHAPTER THREE:

PROCESS
Nature as resource for material.

1. RESOURCE

Human
Mining of human Experience
2. PRODUCTION

Through specific knowledge material is formed into a product in a repetitive process.

Behavioural Data
high quantity of behavioral data turns data into information.

Input through device

---

³³“Plate 277 - Gypsum Mining from Encyclopédie, highlighted is the raw material”
³⁴“Plate 278 - Tiles I from Encyclopédie, forming of quantifiable products”
³⁵“SideWalkLabs “Screen 1 - Physical Monitoring, physical mining of human”
³⁶“SideWalkLabs “Screen 2 - Digital Monitoring, forming of behaviour products”
3. APPLICATION

Specific knowledge is required to develop and operate advanced tools.

Digital Tools

Digital Apps replace physical typologies through human operation

ARCHITECTURAL SCREENS
SideWalkLabs EncyclAPPedia
4. CONSTRUCTION

Architecture

Manifestation of human knowledge

Physical + Virtual

Human in this environment are only as different as their screens of devices are.
A product of data surveillance.

Output through device

---

37 “Plate 19 - Architecture Careleur from Encyclopédie, physical tools to shape physical space”
16 “Plate 283 - Stonework II from Encyclopédie”
39 “SideWalkLabs Application diagram, interaction through digital apps”
40 “SideWalkLabs physical and digital Architecture schema”
ARCHITECTURAL PLATE
Diderot and d’Allember

The categorization of knowledge is a tool of power. The encyclopedia is an attempt to restructure all knowledge and to draw boundaries between the knowable and the unknowable. Tools are categorized, each designated to a specific task. The plate illustrate how one might use the tool.
Physical Monitoring
ARCHITECTURAL SCREEN
SideWalkLabs

In Quayside humans are captured by physical devices that are implemented into private and public space. They capture the habitants physically through sensors (motion, gesture, heat, airflow, pressure, voice, visual) in order to collect behaviour data. The human is the inventor, the user and operator and target at the same time.
ARCHITECTURAL SCREEN
SideWalkLabs

Individuals are captured through their digital devices mainly the smart-phone. Digital lives are being tracked. Data and digital files are collected to generate a virtual profile of each inhabitant. Architecture might no longer focus on human but on the device instead.

36 “SideWalkLabs “Screen 2 - Digital Monitoring, forming of behaviour products”
Side Walk Labs Preset Applications
To operate and interact in the environment Side-walk Labs provides a series of apps. These allow the inhabitant to improve (socially, economically, in performance, optimize time, and live more sustainable). Everybody contributes to the generation of knowledge by being surveiled, tracked and protected by data mining.
ARCHITECTURAL SCREEN
SideWalkLabs EncycIAPPedia

To interrupt SideWalkLabs performance and optimization driven environment this collection suggests to use the generated surveillance data to create a digital experience in physical space. Through a series of additional apps inhabitants can interact with their digital lives generated through surveillance data, as a form of education, entertainment, leisure and future prediction.

42 “SideWalkLabs “Screen 4 - EncycIAPPedia extension”
CHAPTER FOUR:

DESIGN INTERVENTION
EncyclAPPedia is a series of applications, that respond to situations of SideWalkLabs proposal. In Quayside habitants are forced to permanently interact look at their screens. Only by considering the screen when designing the audience can be reached in this enviroment. The intend is to create an architectural overlay (physical and digital) that generates an experience merging Quayside reality with a reality generated through surveillance data. Thanks to the high density of surrveillance devices the results are very accurate.

In the following chapter four situations that SideWalkLabs proposes are analysed regarding their implcation of human behaviour data. Responses are proposed, how architecture can interrupt and respond to the optimization and performance driven environment in Quayside.
Stationary Activity Map

Collect a snapshot of what activities people are doing in a place and where, typically once per hour. Demo studies will not save.

People Moving Count

Count how many people walk or cycle by a place in a given amount of time, typically 10 minutes. Demo studies will not save.
LOCATION: PUBLIC REALM
App: Replica

Replica is an app developed by SideWalkLabs that creates a digital data base of moments at Quayside. People mark themselves and others (even strangers) in places within the neighbourhood. Based on data patterns of use relationships are created. In addition to the numerical data such as age, gender, posture, activity, time,... that is being collected audio data as well as photos and videos files can be added to the data base.
Meet your digital relatives.

BASEMAP
a hilled topography that allows to explore familytree

FAMILYTREE
views relationships between people in several digital generations
ARCHITECTURE: BASEMAP
App: Family-tree

The family-tree app allows the inhabitant to visualize relationships based on data linked through the Replica app. People might not be relatives in physical life, but they are in digital. A forest of columns serves as orientation to explore shared moments of the past. Spatial situation are created through the arrangement of the data moments itself. Here architecture becomes a digital layer only visible though the smartphone screen.

51 “Plan Basemap - a hilled topography that allows to explore familytree”
52 “Perspective Familytree - views relationships between people in several digital generations”
Modular
Precast slabs to enable faster maintenance and replacement

Heated
Conductive concrete to melt snow and ice

Dynamic
LED Lights to signal changes in road use throughout the day

Green Zones
Dedicated landscape zones to bring green into streets and absorb stormwater
LOCATION: MAINSTREET
Device: Physical Sensors

The environment is almost seamingless planted with sensors, which are integrated into the architecture and infrastructure. Humans are understood as physical bodies that are constantly captured in the space through sensors such as motion, gesture, heat, airflow, pressure, voice, vision. The intend is to monitor and learn from their behaviour. Therefore the sensors communicate which each other to construct an environment that operates and adjust itself around the individual habitant. Here humans and non-human devices “live” among systems made for high-efficiency and performance.

53 “Sensors in Public Realm, SideWalkLabs”
54 “Pavement for People, SideWalkLabs”
We keep track for you.

We keep track for you.

a path of to review a passage of timeline

a visual passage of data collected by sensors planted in public space
ARCHITECTURE: TRACK
App: Timeline

Through the timeline app inhabitants can access the sensors and view their footage. Thanks to the seemingless density multiple camera angles can be taken into concideration. By doing so, one can learn about their physical condition and behaviour in the public raum. Through the app a virtual path is created that the inhabitant can walk along to review data and generate more data.

55“Plan Track - a path of to review a passage of timeline”
56“Perspective Timeline - a visual passage of data collected by sensors planted in public space”
LOCATION: STORE FRONT
App: Prediction Advertisement

SideWalkLabs intends to provide personalized location-based advertisement in order to facilitate its store-front. Based on behaviour patterns personalized ads appear on the phone or store-fronts and influence the occupants buying behaviour. The concept is based on Google's advertisement supply chain algorithm, personalizes advertisement when browsing online.

57 “Store Front Visualisation, SideWalkLabs”
Want to take a peak at tomorrow?

Immerse into your future

Learn from mistakes

Evaluate your digital life

TIMECAPSULE
a container storing a future prediction

PREDICTION PRODUCT

EVALUATING BEHAVIOUR DATA

EXPERIENCE

FORECAST
a prediction or estimate of future events based on uploaded data
ARCHITECTURE: TIMECAPSULE

App: Forecast

Despite other Apps this app doesn’t look into the past but allows a peak into the future. Pods come in three different sizes and are situated in SideWalk-Labs most popular shopping areas. The app goes one step further than ads. Inhabitants can test out how they will interact with their future purchases before they make buying decisions. The architecture is an enclosed space that allows occupants to block out the hectic reality and immerse into predicted futures.

58 “Plan Timecapsule - a container storing a future prediction”
59 “Perspective Forecast - a prediction or estimate of future events based on uploaded data”
Laneway
TAILORED TO PEDESTRIANS
4 MPH / 8 KM/H

Accessway
TAILORED TO BICYCLES
14 MPH / 22 KM/H

Transitway
TAILORED TO TRANSIT
25 MPH / 40 KM/H

Boulevard
TAILORED TO ALL MODES
25 MPH / 40 KM/H
LOCATION: TRANSITWAY
App: Streetcar

Quaysides Transitway infrastructure principle is designed for humans, self driving cars, public transport, delivery- and waste-vehicles to share one transit path. The street car app provided by Side-WalkLabs, only for Quayside calculates the most efficient mode of travel to get from one place to another. With such a density of infrastructure usage one might not be able to travel within the neighborhood without using the app.
Don’t worry about forgetting something again.

PANAPPTICON
A circular server cell from which occupants can observe memory.

MEMORY
Collection of information stored and remembered by the G-Life.
ARCHITECTURE: PANAPPTICON
App: Memory

The Panappticon is a physical architectural intervention, that interrupts the high pace of Quayside everyday life by situating itself within the infrastructure system. The circular forces people, self driving vehicles and automated devices to slow down and interact with the space. Through entering into the space all digital files stored in the “G-Life” server of individuals can be accessed. Standing in the middle of the circle provides an optimal view onto the surrounding data. Instead of being watched, the occupant can watch and surveil their own digital life. Moments that might have been forgotten by the human memory can be accessed through the memory app.

62 “Plan Panappticon - A circular server cell from which occupants can observe memory”
63 “Perspective Memory - collection of information stored and remembered by the G-Life”
ARCHITECTURE: TRACK
App: Timeline

The design of the screen might have more relevance in Quayside that the design of actual physical spaces. Quayside's occupants, always depended on the device can only be reached through their devices therefore EncyclAPPedias apps are designed to merge physical and digital and get once attention within the environment. Interface design becomes an architectural matter and allows occupants to personalize, and modify their environment through the screen. In Quayside people are only as different as their screens are.

64“Screenshots from Interaction with Timeline App”
Books

   Includes architecture related Encyclopedia Plates
   Introducing pervasive digital systems that layer cities; Imagines “futurecraft” participation by designers and the public in our cities to collectively shaped future
   Examples of technologies in everyday life and relationship to architecture
   Former Google CEO gives insights into Management and Googles Workculture.
Kling, Marc Uwe. 2017. “Qualityland”, Ullstein Verlag GmbH.
   A satire novel that takes place in the digital future in QualityLand a land completely run by corporations.
   Explanations how target groups are formed
   Examination of unprecedented form of power called “surveillance capitalism,” and explanation how corporations predict and control behavior.

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20 “Google Spirit as Institution”
21 “Communication in “Encyclopédies Plate 281 - Architecture Couvreur”
22 “Communication chain between devices”
23 “Surveillance in “Encyclopédies Plate 281 - Architecture Couvreur”
24 “Googles Data Supply Chain”
25 “Plate 1 - Architecture from Encyclopédie”
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28 “Visualization of SidewalkLabs Ubiquitous Sensors at Quayside”
29 “Architect in “Encyclopédies Plate 281 - Architecture Couvreur”
30 “Chart of SidewalkLabs Employees occupations”
31 “first iphone - latest encyclopedia diagram”
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33 “Plate 277 - Gypsum Mining from Encyclopédie, highlighted is the raw material”
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34 “Plate 278 - Tiles I from Encyclopédie, forming of quantifiable products”
    Diderot, Denis, and d’Alembert, Jean Le Rond 1751, “Encyclopédie, ou dictionnaire raisonné des sciences”
35 “SideWalkLabs “Screen 1 - Physical Monitoring, physical mining of human”
36 “SideWalkLabs “Screen 2 - Digital Monitoring, forming of behaviour products”
37 “Plate 19 - Architecture Careleur from Encyclopédie, physical tools to shape physical space”
    Diderot, Denis, and d’Alembert, Jean Le Rond 1751, “Encyclopédie, ou dictionnaire raisonné des sciences”
38 “Plate 283 - Stonework II from Encyclopédie, architecture as art and science”
    Diderot, Denis, and d’Alembert, Jean Le Rond 1751, “Encyclopédie, ou dictionnaire raisonné des sciences”
39 “SideWalkLabs Application diagram, interaction through digital apps”
40 “SideWalkLabs physical and digital Architecture schema”
41 “SideWalkLabs “Screen 3 - Preset Applications”
42 “SideWalkLabs “Screen 4 - EncyclAPpedia extension”
43 “Advertisement Poster SideWalkLabs “Timeline”
44 “Advertisement Poster SideWalkLabs “Memory”
45 “Advertisement Poster SideWalkLabs “Typology”
46 “Advertisement Poster SideWalkLabs “G-Life”
47 “Advertisement Poster SideWalkLabs “Knowhow”
48 “Advertisement Poster SideWalkLabs “Playstore”
49 “Public Realm, SideWalkLabs”
50 “Replica App Interface, SideWalkLabs”
51 “Plan Basemap - a hilled topography that allows to explore familytree”
52 “Perspective Familytree - views relationships between people in several digital generations”
53 “Sensors in Public Realm, SideWalkLabs”
54 “Pavement for People, SideWalkLabs”
55 “Plan Track - a path of to review a passage of timeline”
56 “Perspective Timeline - a visual passage of data collected by sensors planted in public space”
57 “Store Front Visualisation, SideWalkLabs”
58 “Plan Timecapsule - a container storing a future prediction”
59 “Perspective Forecast - a prediction or estimate of future events based on uploaded data”
60 “Subterranean Level Visualization, SideWalkLabs”
61 “Street design principle, SideWalkLabs”
62 “Plan Panapptic - A circular server cell from which occupants can observe memory”
63 “Perspective Memory - collection of information stored and remembered by the G-Life”