Examine applied technologies in action to measure education space performance

Session CN041

SCUP 2019 Pacific Regional Conference
Boulder, Colorado

Agenda

- ➔ Post Occupancy Evaluation: Quantitative vs. Qualitative
- ➔ Technology Toolkit
- ➔ The Data
- ➔ Trends
- ➔ Creating Your Own POE

Learning Objectives

1. Participants will gain insight into the process of capturing and analyzing environmental and behavior data and how it directly translates to the design, operations, maintenance of educational facilities.

2. Participants will discover the methodology and process of collecting quantitative data for post-occupancy evaluation of areas ranging from classrooms and offices, entire buildings and campus-wide resources.

3. Participants will learn how to think about critical issues, information collected, and success metrics.

4. Participants will learn about new processes and technology tools to create their own DIY post-occupancy evaluation survey.

Senior Workplace Knowledge Consultant

Herman Miller

Jesse Garcia

12 years at Herman Miller

Leads workplace strategy consulting for the Western US and Canada

Adjunct faculty at Texas Woman's University - College of Business

Dallas, Texas

Educational
Psychologist
& Research Scientist

University of Washington

Janice Fournier

13 years with UW IT, Academic Experience Design & Delivery

Leads research on user needs of students, faculty, and staff

Designs and evaluates innovative technology solutions to improve users' experience

Tech Studio
Designer

LMN Architects

Plamena Milusheva

Over 10 years of investigating the relationship between design and technology

Leads research efforts on engaging with new tools and technologies and developing new design processes

Builds physical and digital prototypes to test ideas

Seattle, WA

Post Occupancy Evaluation

Quantitative

vs.

Qualitative

QUANTITATIVE Post Occupancy Evaluation

Uses measurable data to formulate facts and uncover patterns

Methods: Tests, any standardized measurement

Tools: Embedded sensors, stand-alone measuring devices, data analysis software, spreadsheets, graphing programs

QUALITATIVE Post Occupancy Evaluation

Uses reported data to understand trends in experience, behavior, or opinion

Methods: Interviews, focus groups, observations, artifact analysis (videos, drawings), surveys

Tools: Pen and paper, web and app-based survey tools, conversation, open-ended questions

Choosing Methods

Methods follow from question(s)

Seek breadth and depth

We need both qualitative and quantitative information to create a full picture of how spaces are used

Technology Toolkit

Herman Miller

Live OS


Live OS℠

Meet Live OS

Live OS is a system of cloud-connected furnishings, app, and dashboard.

Utilization Sensor

Desk Controller

Gateway

App

Dashboard

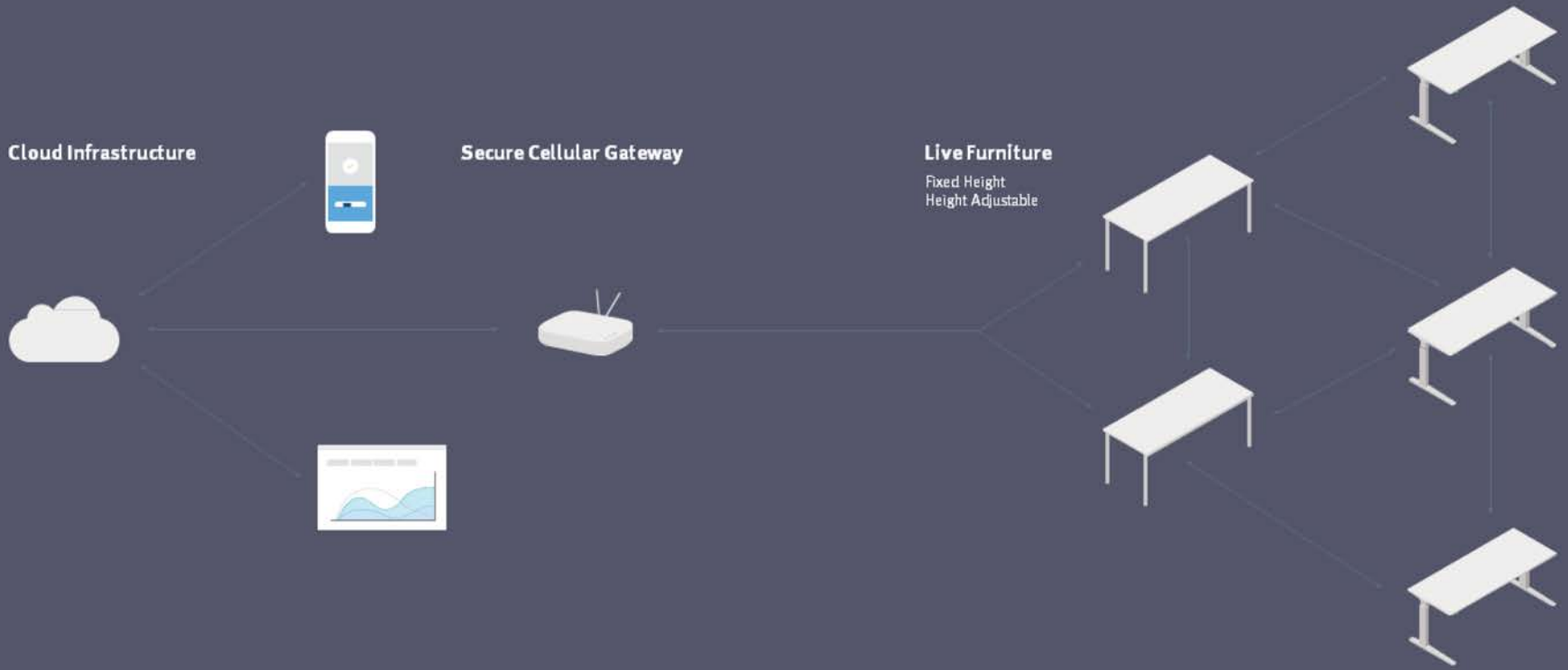
Meet Live OS

Cloud Infrastructure

Secure Cellular Gateway

Live Furniture

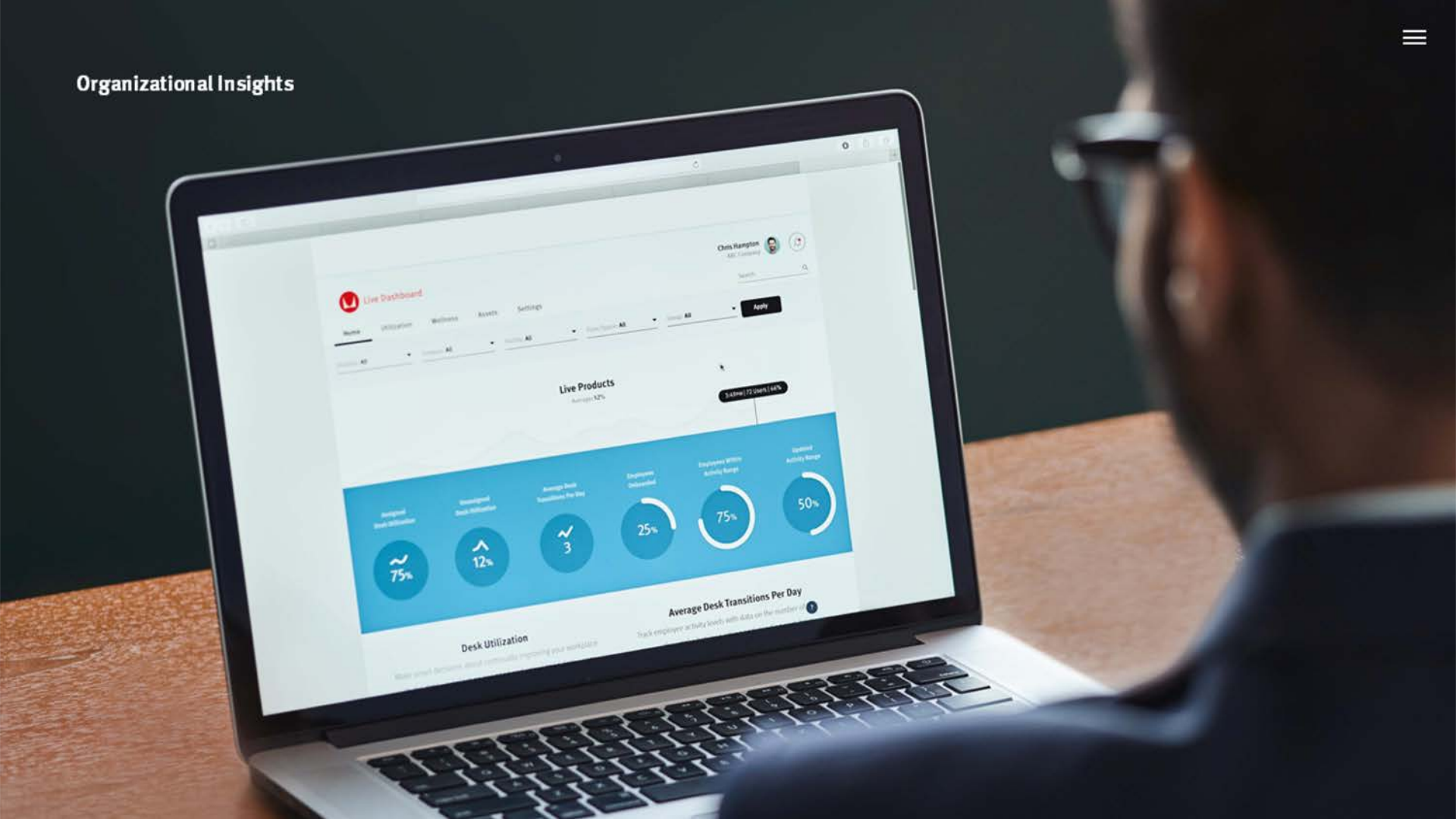
Fixed Height
Height Adjustable



Individual Experience

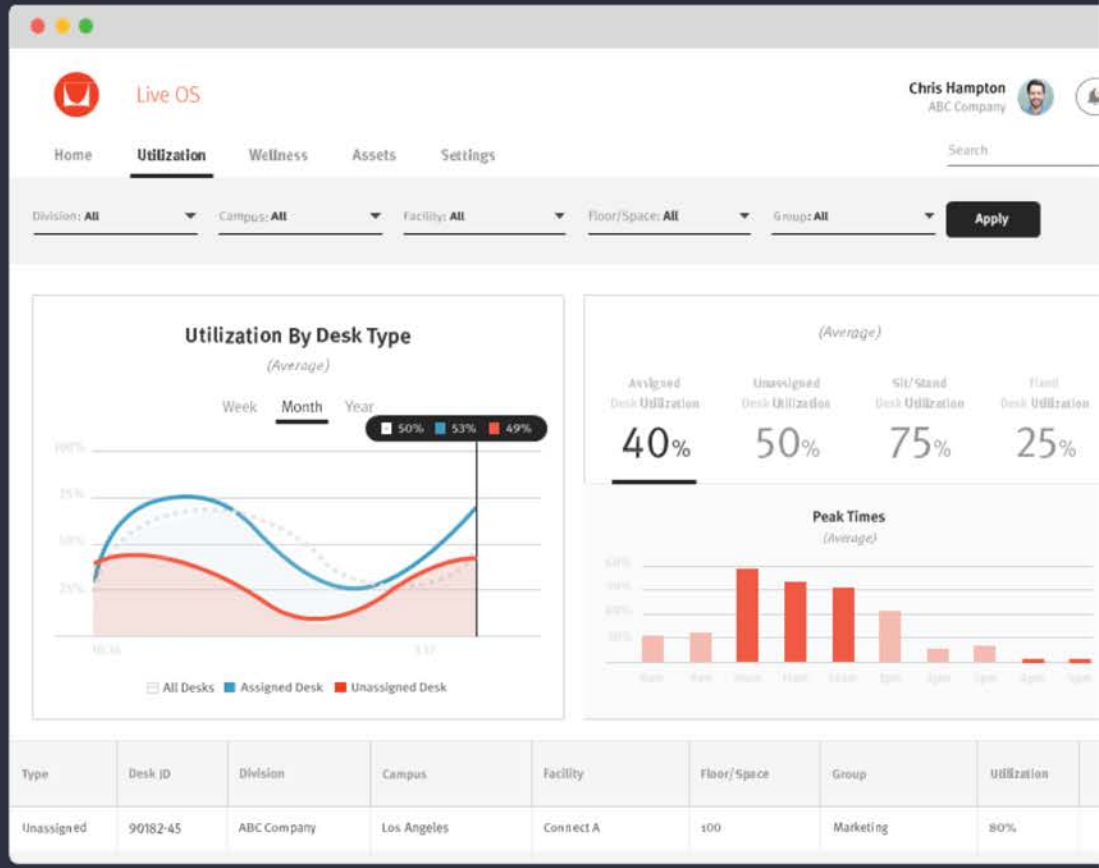
People keep in touch with their ergonomic plans with email updates on their progress.

Organizational Insights



What's Next

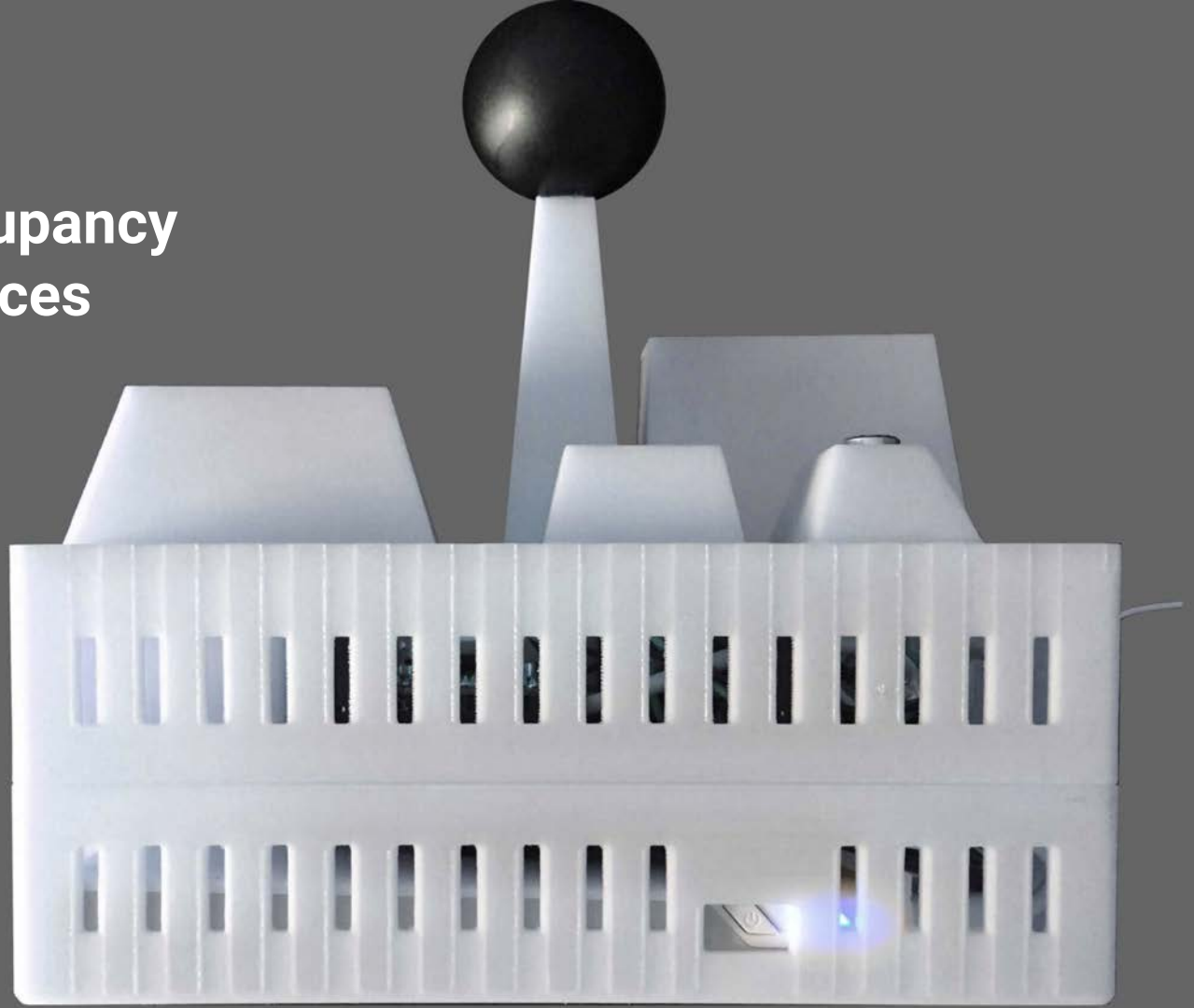
With anonymized data on how people are engaging with and moving in their chairs, organizations get a more holistic view of how the workplace is affecting employee wellness.

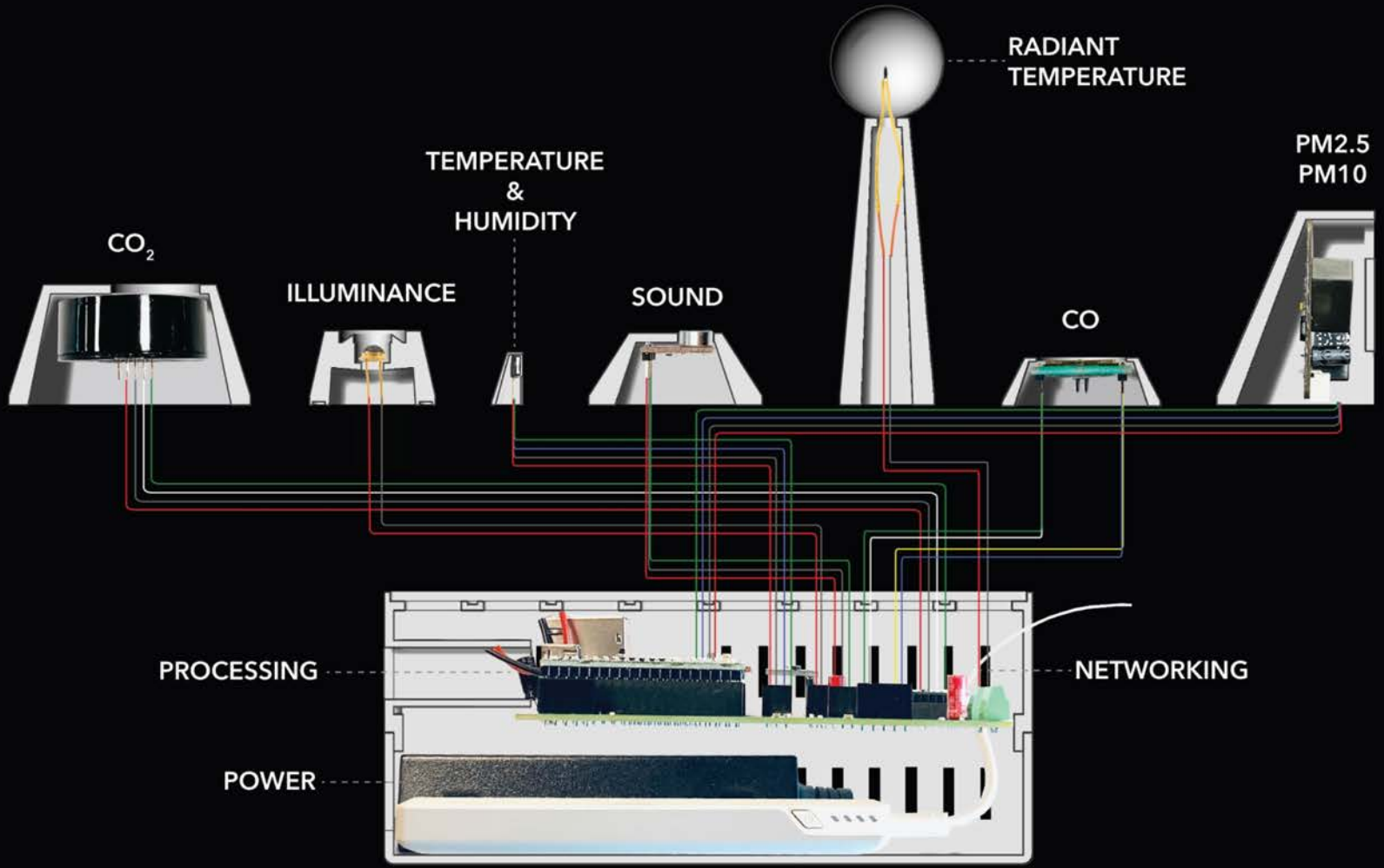


LMN Architects

PODDs

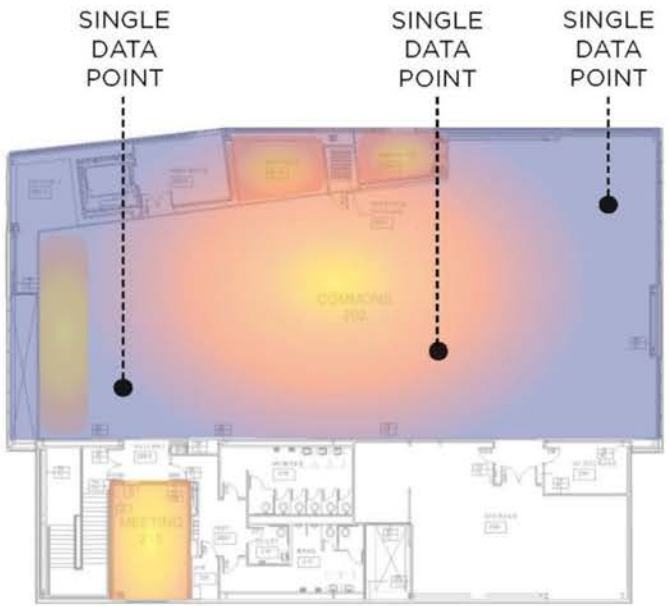
Post Occupancy Data Devices



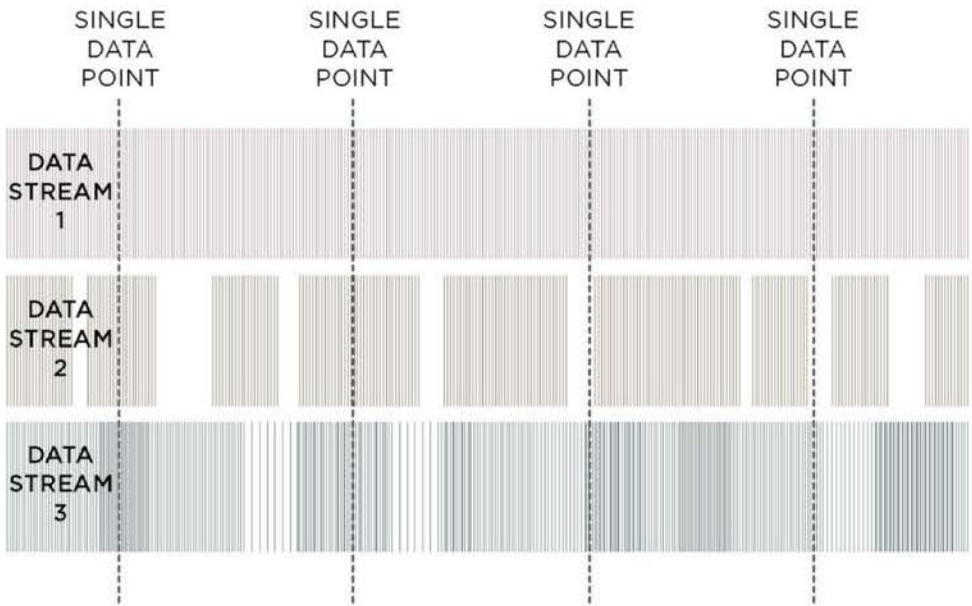

RADIANT
TEMPERATURE
PM2.5
PM10
TEMPERATURE
&
HUMIDITY
CO_2
ILLUMINANCE
SOUND
CO
PROCESSING
NETWORKING
POWER

DATA

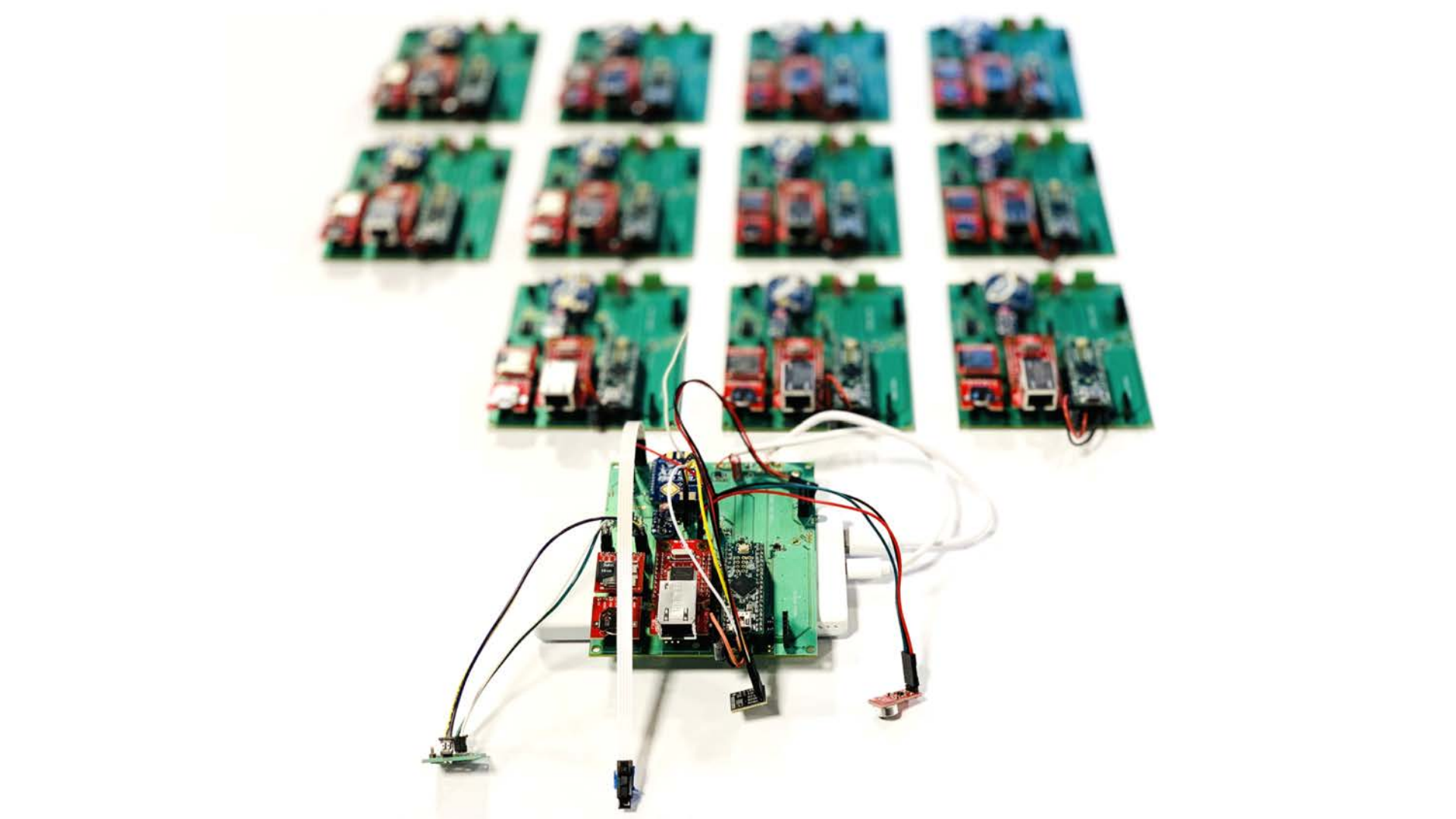
PEOPLE

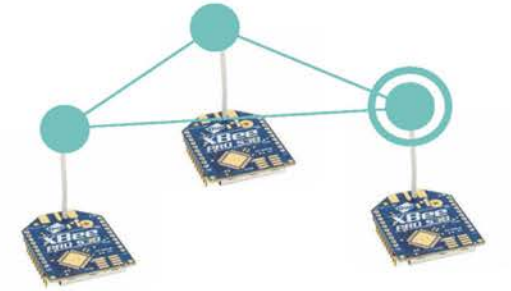


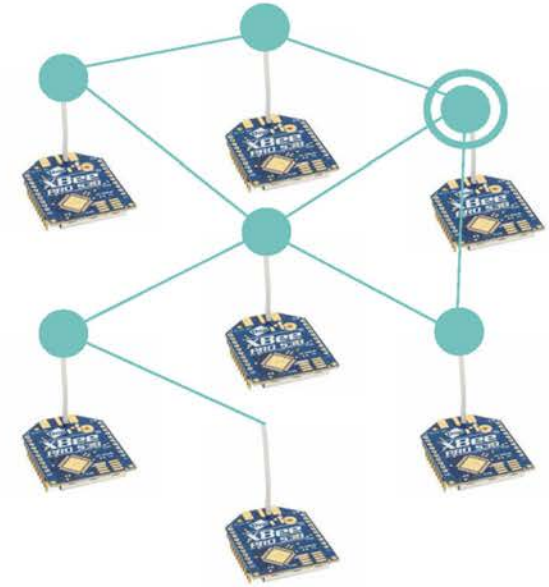
POINT IN SPACE



POINT IN TIME







controller unit
provides connection to the server for data uploading and defines each network cluster

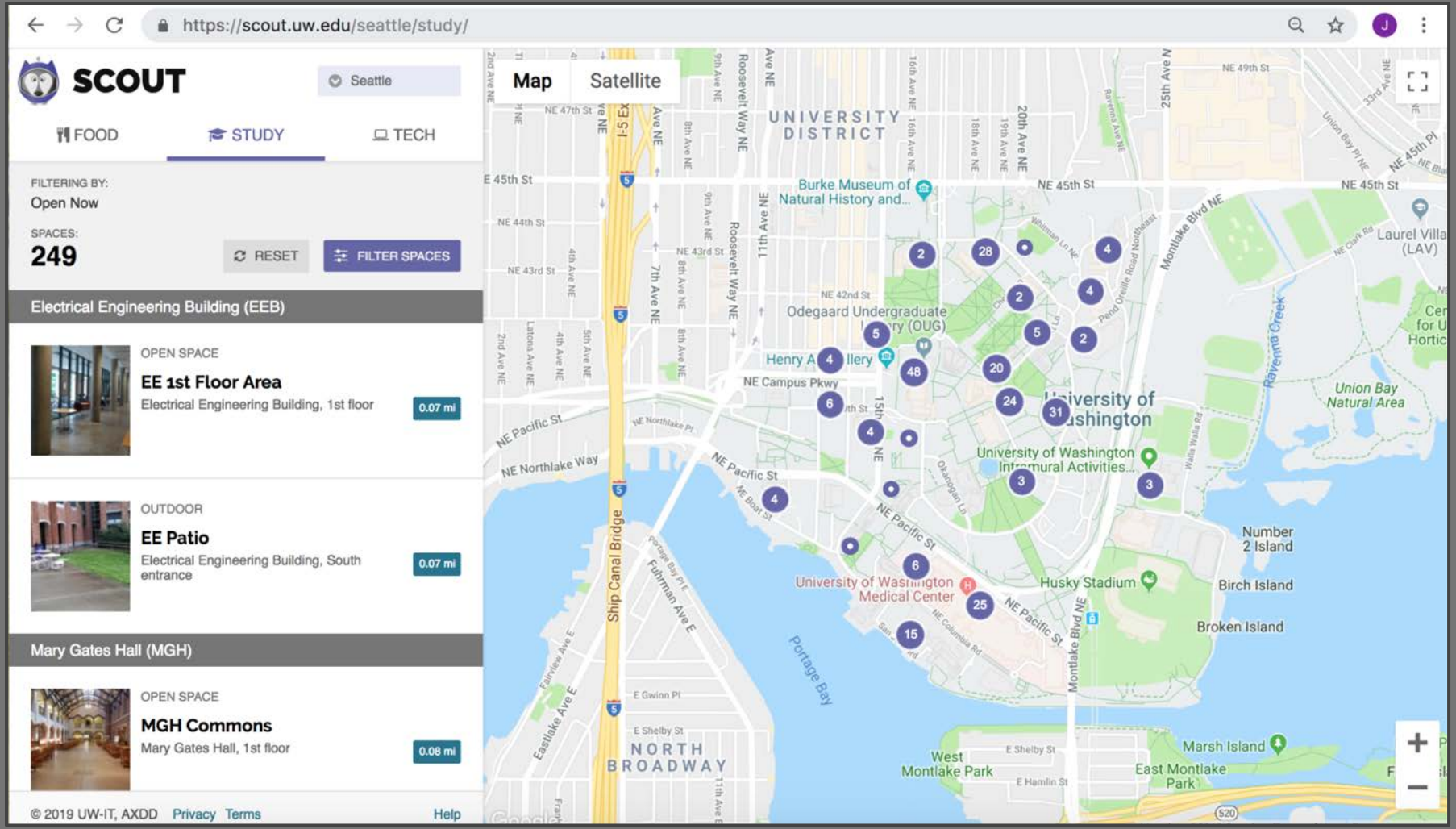
drone unit
collects data from sensors and sends it along network cluster to controller for upload

note:
in the current design all units are the same and their role is defined in software during setup

University of Washington

Scout App


scout.uw.edu


https://scout.uw.edu/seattle/study/
SCOUT
Seattle
FOOD
STUDY
TECH
FILTERING BY:
Open Now
SPACES:
249
RESET
FILTER SPACES
Electrical Engineering Building (EEB)
OPEN SPACE
EE 1st Floor Area
Electrical Engineering Building, 1st floor
0.07 mi
OUTDOOR
EE Patio
Electrical Engineering Building, South entrance
0.07 mi
Mary Gates Hall (MGH)
OPEN SPACE
MGH Commons
Mary Gates Hall, 1st floor
0.08 mi
© 2019 UW-IT, AXDD
Privacy
Terms
Help
Map
Satellite
UNIVERSITY DISTRICT
Burke Museum of Natural History and...
Odegaard Undergraduate Library (OUG)
Henry Art Gallery
University of Washington
University of Washington Intramural Activities...
University of Washington Medical Center
Husky Stadium
Ship Canal Bridge
NORTH BROADWAY
Portage Bay
Union Bay Natural Area
Number 2 Island
Birch Island
Broken Island
Marsh Island
West Montlake Park
East Montlake Park
Laurel Villa (LAV)
NE 45th St
NE 42nd St
NE Campus Pkwy
NE Pacific St
NE Northlake Way
Montlake Blvd NE
Roosevelt Way NE
7th Ave NE
15th Ave NE
20th Ave NE
Ravenna Creek

https://scout.uw.edu/seattle/study/filter/

SCOUT

Seattle

FOOD | STUDY | TECH

TYPE

- [x] Study room
- [ ] Computer lab
- [ ] Conference/classroom
- [x] Lounge
- [ ] Outdoor area
- [x] Study area
- [ ] Production studio
- [ ] Open space
- [ ] Café

RESOURCES

- [x] Whiteboards
- [ ] Computers
- [ ] Large display (for laptop)
- [ ] Printing
- [x] Outlets
- [ ] Scanner
- [ ] Projector

NOISE LEVEL

- [ ] Silent
- [ ] Low hum
- [ ] Chatter

FOOD/COFFEE

- [ ] In space
- [x] In building
- [ ] In neighboring building

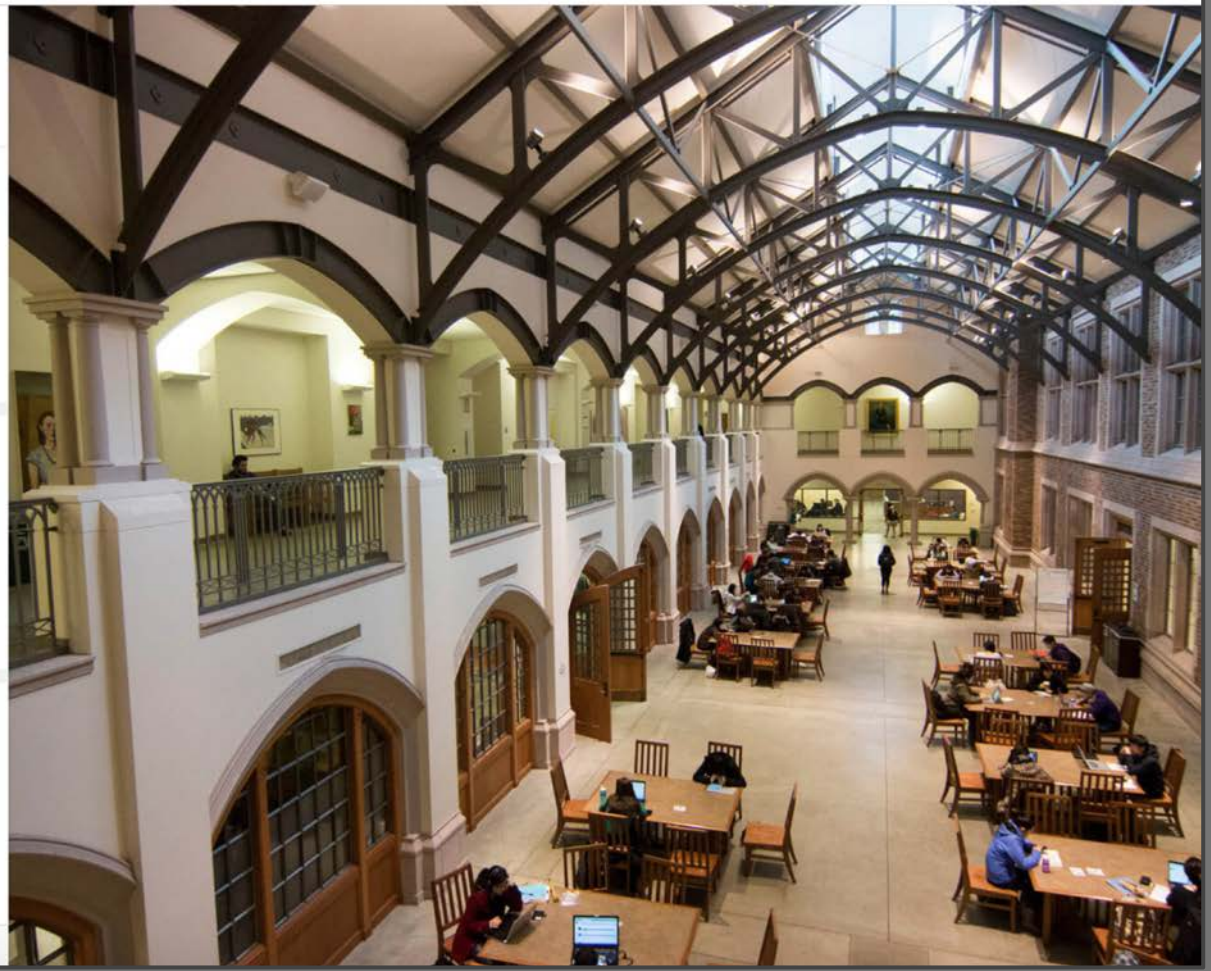
LIGHTING

- [ ] Natural Light

RESERVABILITY

- [ ] Only reservable

 Help



SCOUT

Seattle

FOOD | STUDY | TECH

Pagliacci Pizza, Husky Den

TODAY'S OPEN PERIODS
Morning, Afternoon, Evening

OPEN NOW

View website

(206) 221-1943

TYPE

Food Court

DESCRIPTION

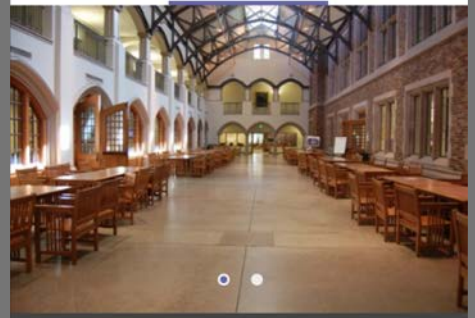
Serving Seattle's best pizza since 1979. Pagliacci is one of 8 pizzarias names Best in America by Bon Appetit. Pagliacci uses the highest quality local ingredients whenever possible and is a leader in green restaurant practices and sustainability.

HOURS

SCOUT

Seattle

FOOD | STUDY | TECH



MGH Commons

RESOURCES
Outlets

Open Space

Chatter

Natural lighting

Available in building

HOURS

Monday:	7 AM - MIDNIGHT
Tuesday:	7 AM - MIDNIGHT
Wednesday:	7 AM - MIDNIGHT
Thursday:	7 AM - MIDNIGHT
Friday:	7 AM - 9 PM
Saturday:	7 AM - 9 PM
Sunday:	CLOSED

SCOUT

Seattle

FOOD | STUDY | TECH

Sony Lavalier Mic

BRAND
Sony

Available: 5

Wireless Microphone System

Reserve Item

5 day checkout

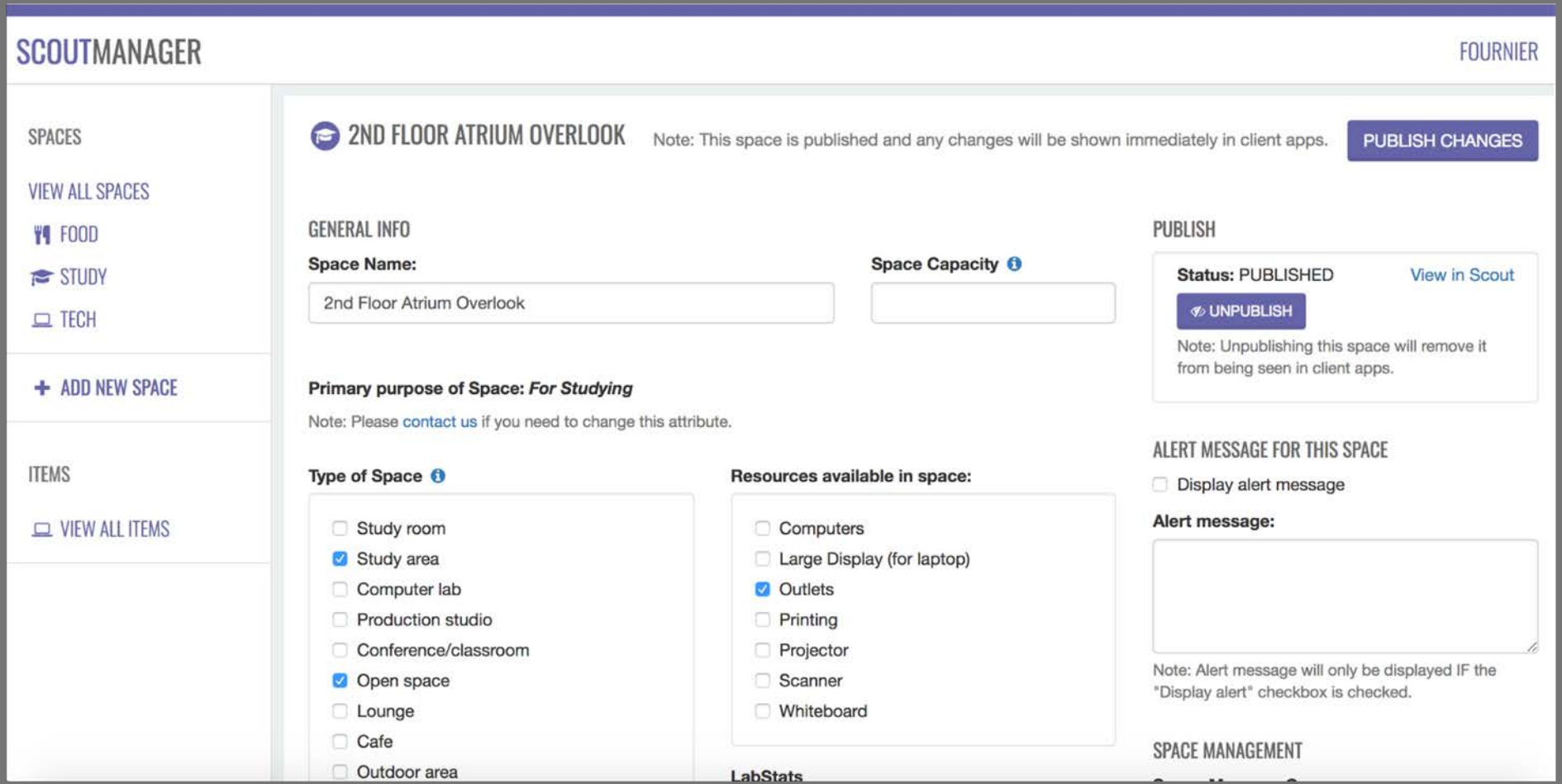
DETAILS

These high-quality wireless microphones allow you to record excellent audio when filming. Please note that these items are better quality than our other wireless microphone systems, but are also more difficult to navigate, so we recommend them for experienced users only. Includes: transmitter, receiver, lapel microphone, optiona

Download user manual

This item is funded by
Student Technology Fee

STF
STUDENT TECH FEE


SCOUTMANAGER
FOURNIER
SPACES
VIEW ALL SPACES
FOOD
STUDY
TECH
ADD NEW SPACE
ITEMS
VIEW ALL ITEMS
2ND FLOOR ATRIUM OVERLOOK
Note: This space is published and any changes will be shown immediately in client apps.
PUBLISH CHANGES
GENERAL INFO
Space Name:
2nd Floor Atrium Overlook
Space Capacity
Primary purpose of Space: For Studying
Note: Please contact us if you need to change this attribute.
Type of Space
Study room
Study area
Computer lab
Production studio
Conference/classroom
Open space
Lounge
Cafe
Outdoor area
Resources available in space:
Computers
Large Display (for laptop)
Outlets
Printing
Projector
Scanner
Whiteboard
LabStats
PUBLISH
Status: PUBLISHED
View in Scout
UNPUBLISH
Note: Unpublishing this space will remove it from being seen in client apps.
ALERT MESSAGE FOR THIS SPACE
Display alert message
Alert message:
Note: Alert message will only be displayed IF the "Display alert" checkbox is checked.
SPACE MANAGEMENT

Activity (5 mins)

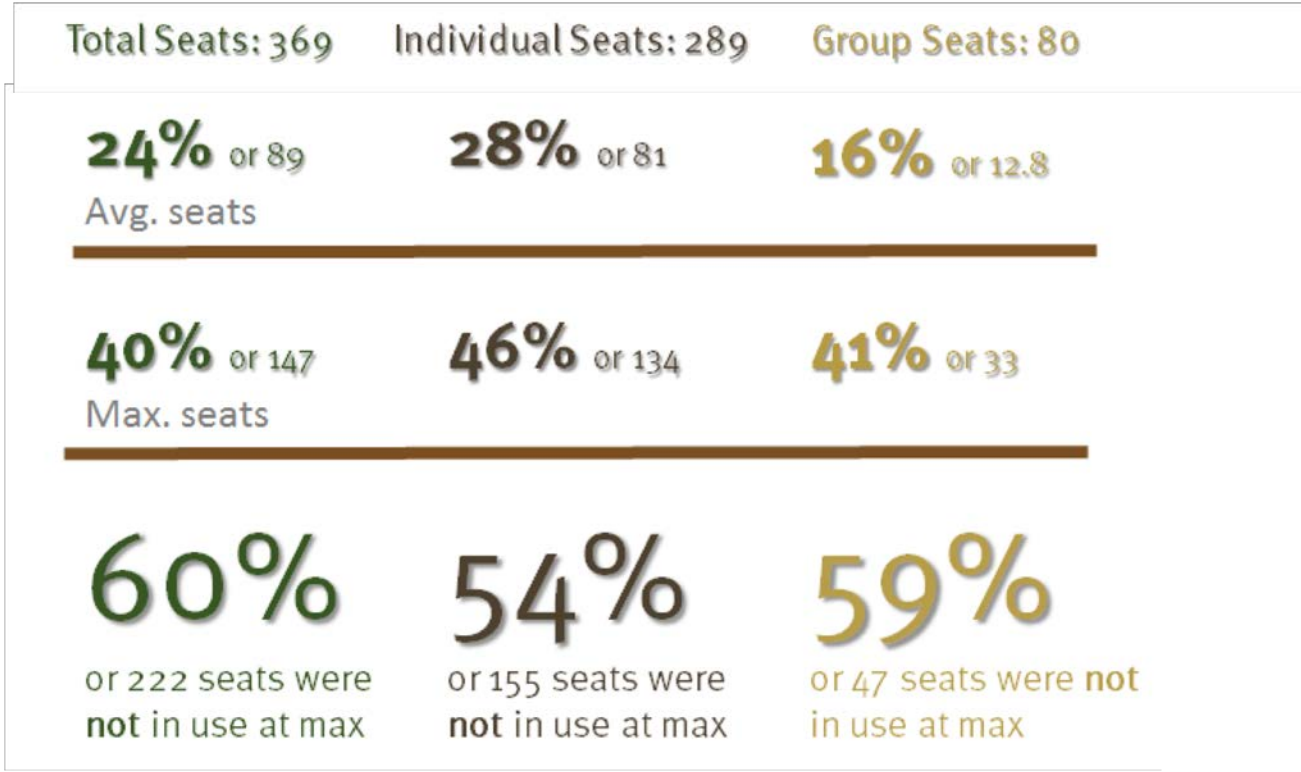
Turn to your neighbor and discuss:

How might you use one of these tools at your institution?

The Data

All Seats by Category

Average & Maximum Seats in Use



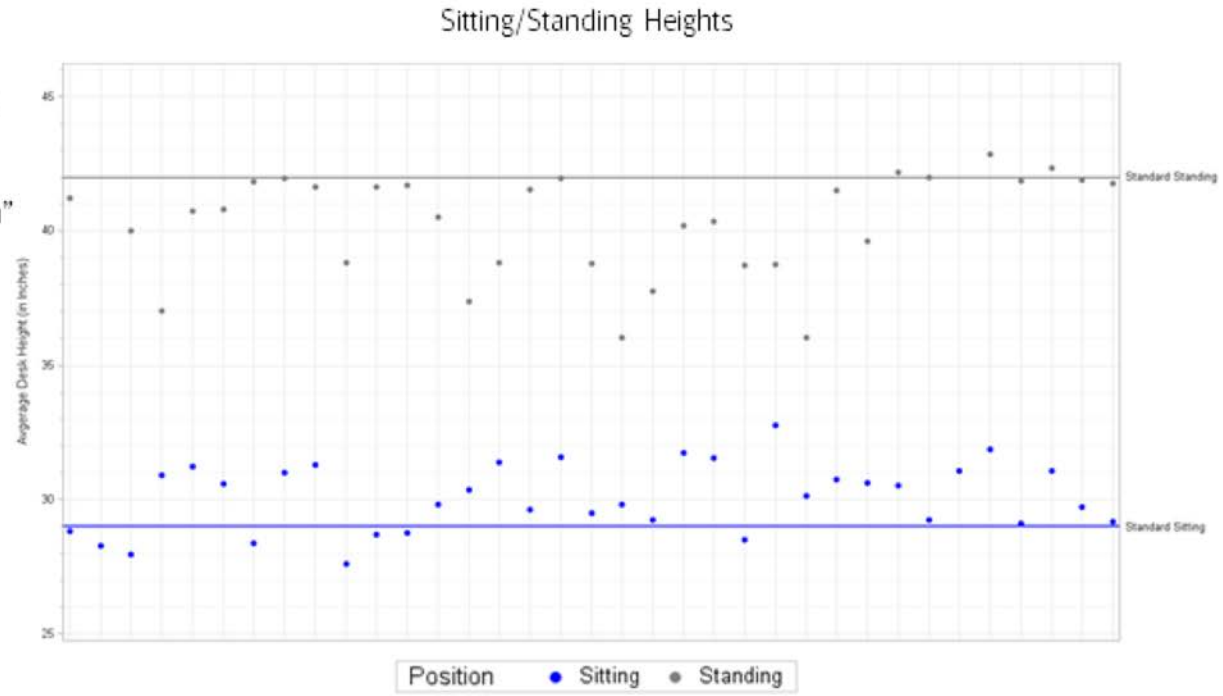
How Many People Might the Space Support?

Usage	# Seats	Scenario A		Scenario B		Scenario C	
		Ratio	# People Supported	Ratio	# People Supported	Ratio	# People Supported
<20%	142	2:1	284	3:1	426	3:1	426
20-39%	126	2:1	252	2:1	252	2:1	252
40-59%	20	1:1	20	1:1	20	1.5:1	30
60-79%	1	1:1	1	1:1	1	1:1	1
80-100%		1:1	0	1:1	0	1:1	0
	289		**557**		**699**		**709**
# of Dedicated Spaces		21	7%	21	7%	1	0%
# of Shared Spaces		268	93%	268	93%	288	100%

Wellness Data – Preferred Heights

Wide variety of preferred desk height at both sitting and standing

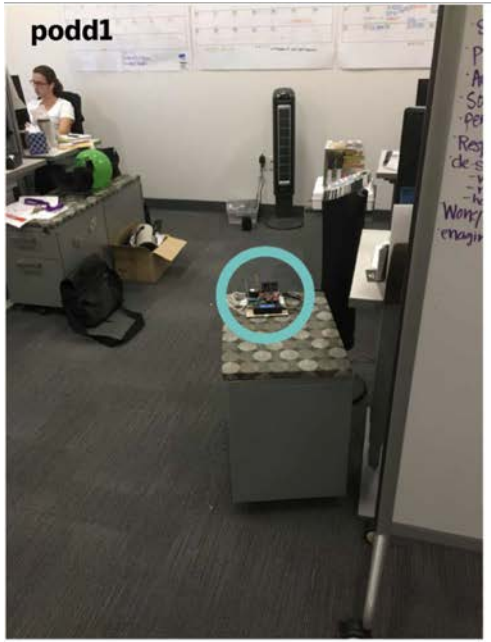
Allows for "Unique to Each" work accommodation

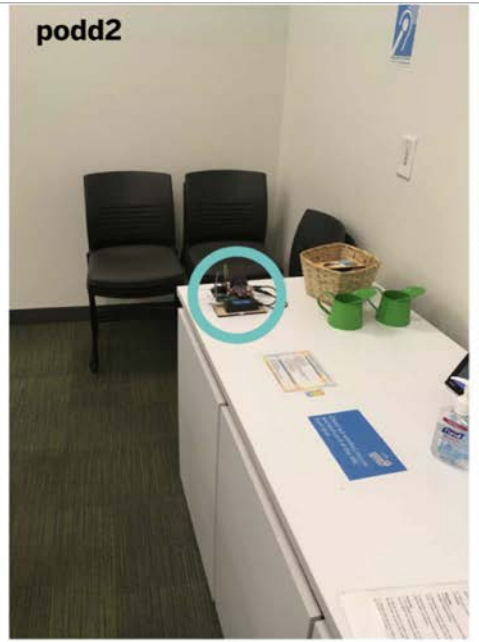


Setting up a testing process

What do we want to learn?

How do we design the experiment?





Space 3: large, sparsely inhabited student work space with cross ventilation

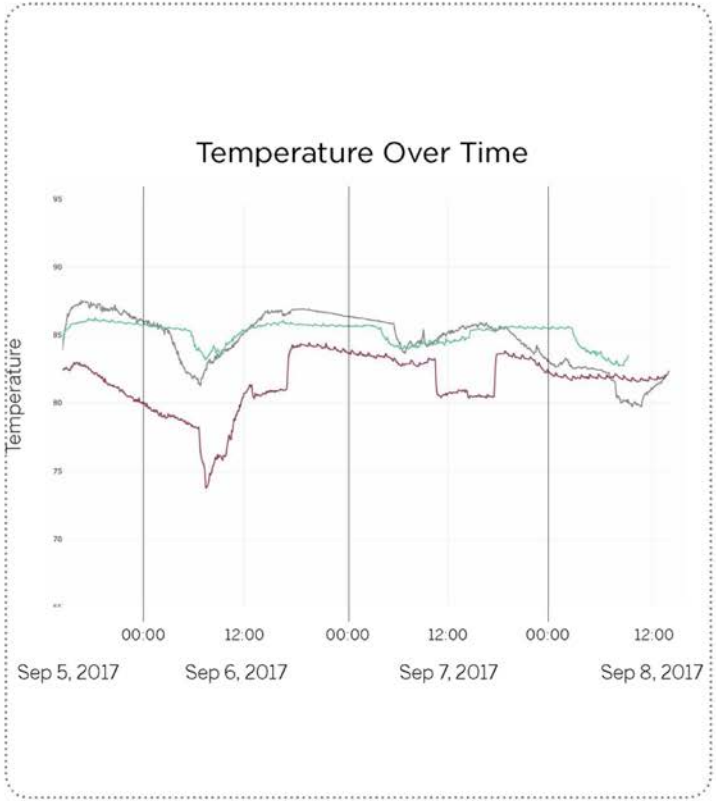
Space 2: medium conference room with no exterior window or door access

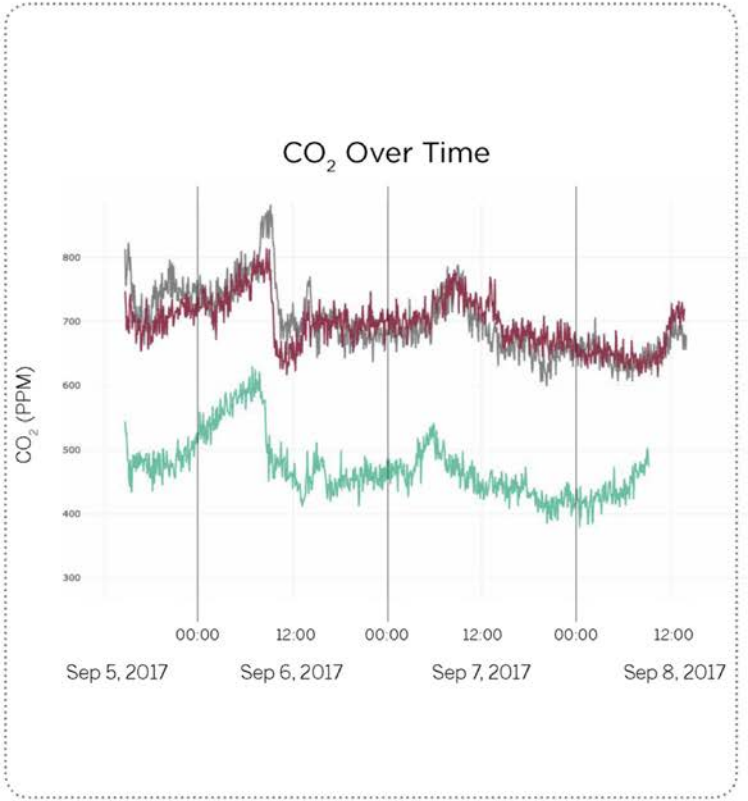
Space 1: medium, densely inhabited office with one-sided ventilation

Engaging with the data

Are there noticeable patterns?

Are there noticeable anomalies?

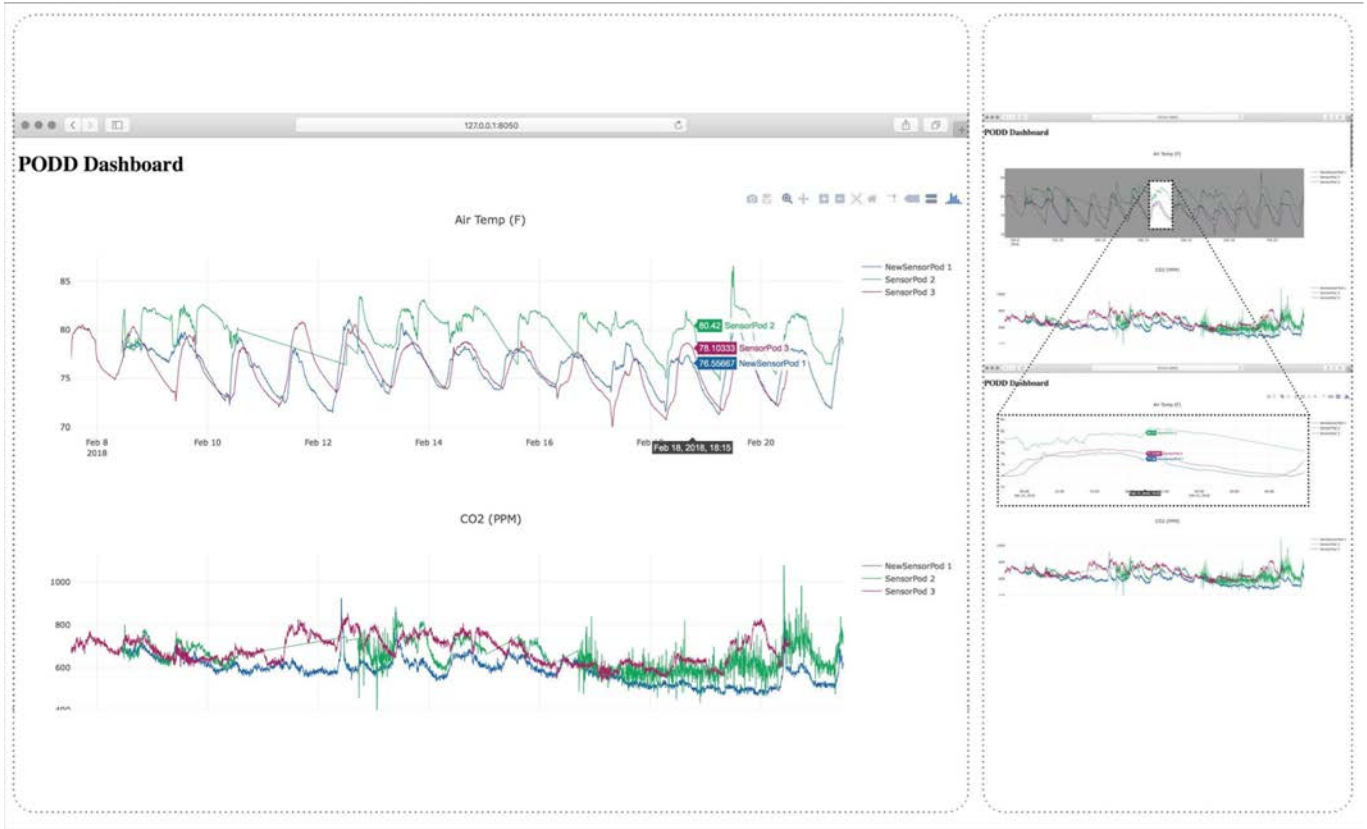




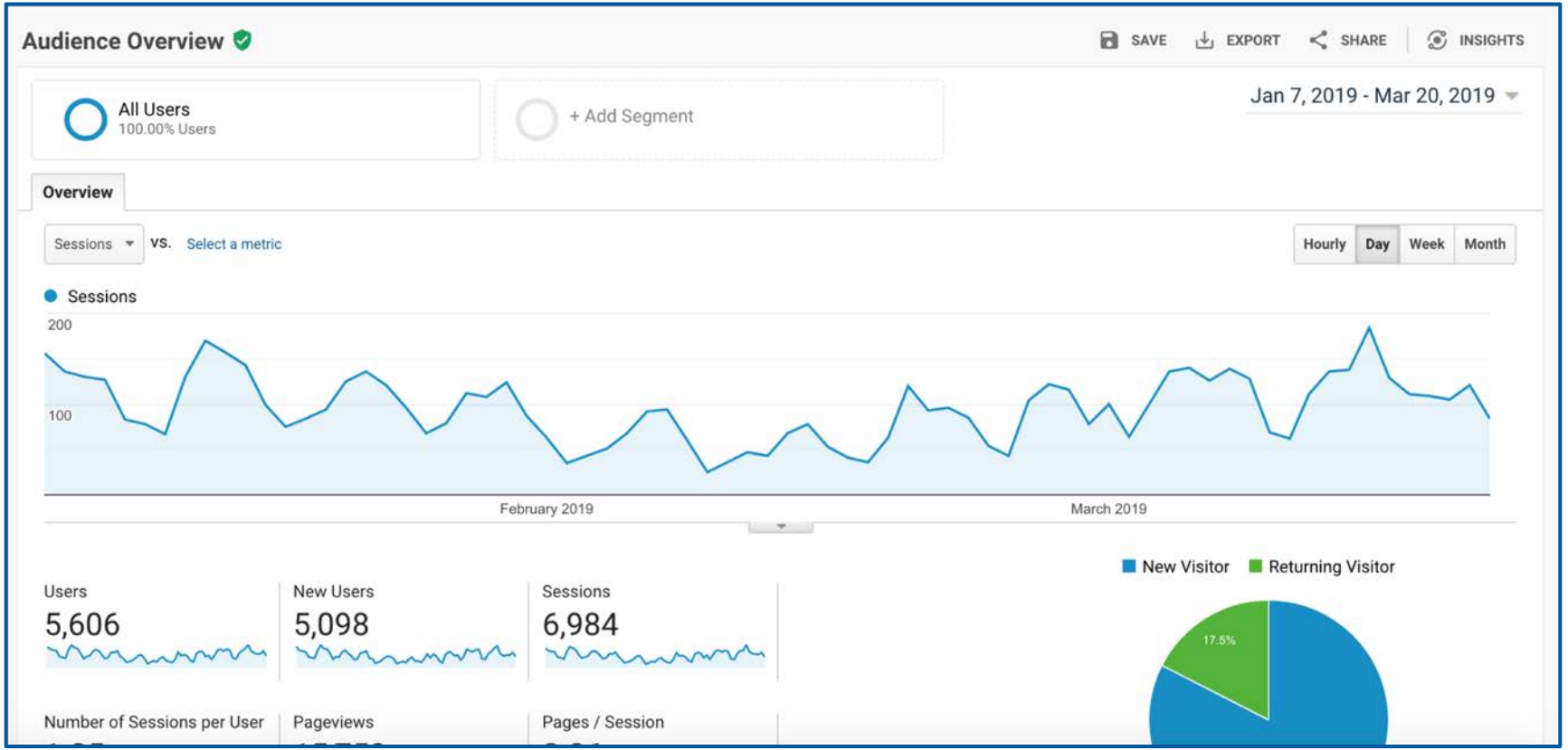
Engaging with the data

Real time
vs.
historic data

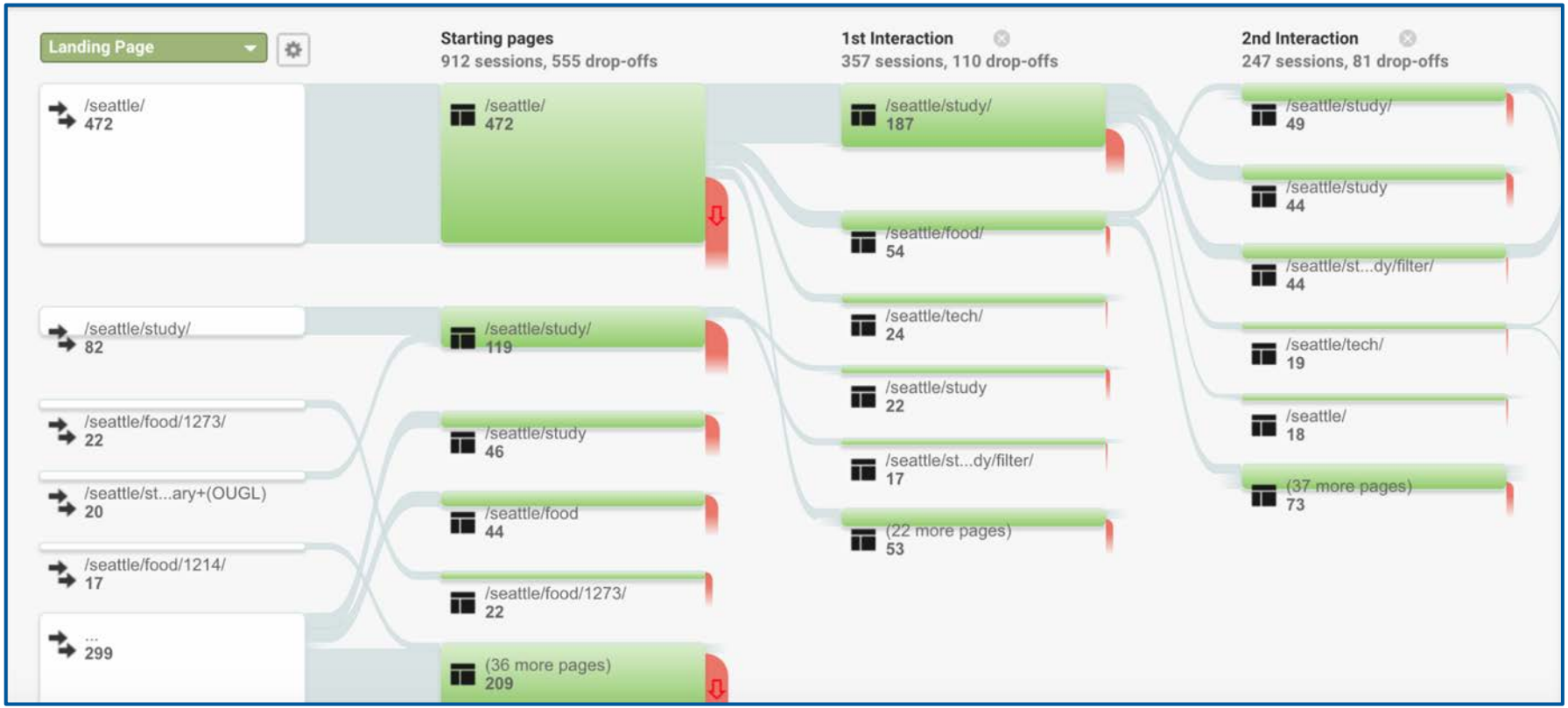
Layering
information



Use of Scout App, Winter Quarter



Behavior Flow



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Where do students go in the app?

Pageviews provide data on the most popular searches

	Page	Pageviews
		2,302 % of Total: 100.00% (2,302)
1.	/seattle/	528 (22.94%)
2.	/seattle/study/	402 (17.46%)
3.	/seattle/study/filter/	138 (5.99%)
4.	/seattle/tech/	88 (3.82%)
5.	/seattle/food/	79 (3.43%)
6.	/seattle/food/?open_now=true	52 (2.26%)
7.	/seattle/food/1178/	25 (1.09%)
8.	/seattle/food/1273/	25 (1.09%)
9.	/seattle/food/1296/	24 (1.04%)
10.	/seattle/study/?building0=Odegaard+Undergraduate+Library+(OUGL)	23 (1.00%)

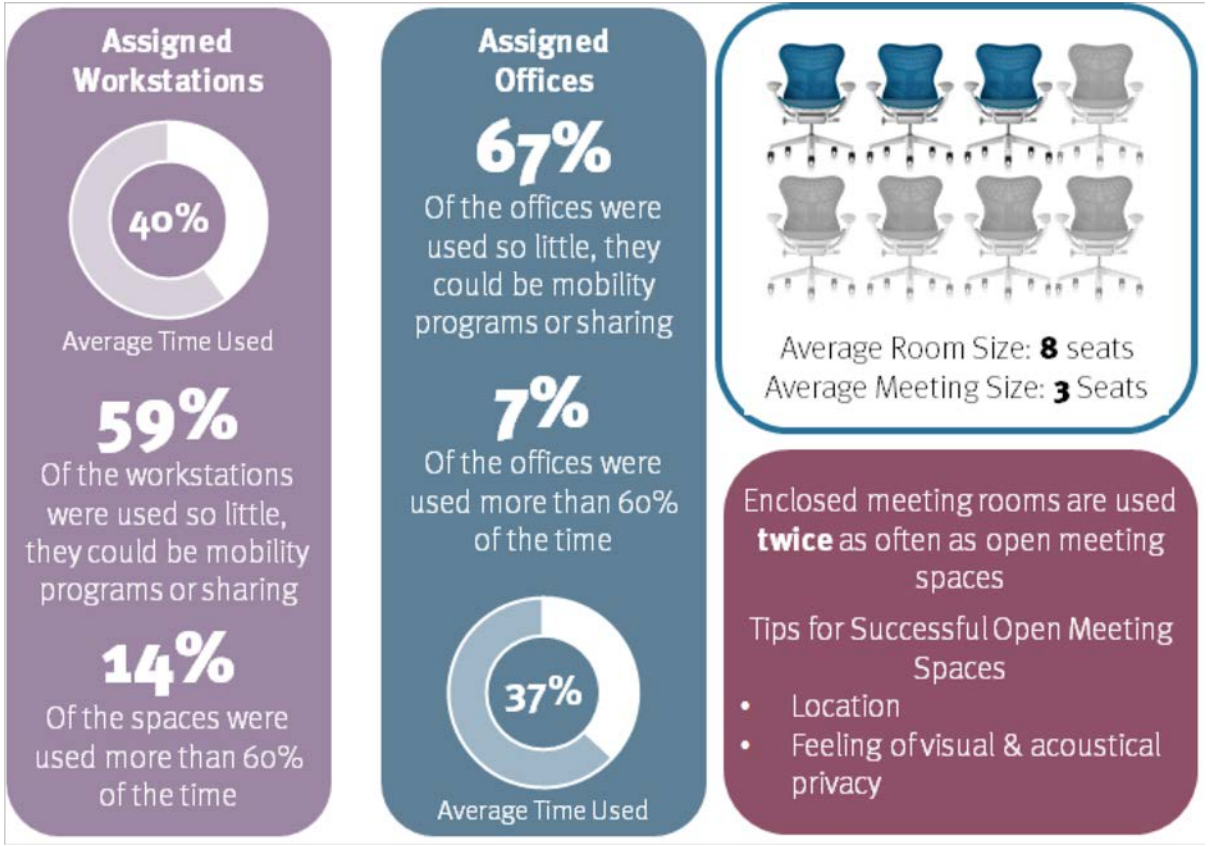
Trends

What does the data mean?

U.S. Space Utilization Study Trends

Based on Core Hours (5 Busiest Hours Daily)

- Opportunity for sharing workstations + private offices
- Opportunity for increase in unassigned workstations + private offices
- Opportunity for smaller enclosed meeting areas
- Opportunity for more purposeful open meeting spaces



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How do we get to a more informed AEC industry?

Having more ownership of the tools we need to understand our designs

Learning how to ask the right questions of our buildings

Engaging directly with information about our buildings

Not being afraid to learn that our assumptions were not quite right

Incorporating what we learn into our design process

What do students want in a study space?

Space type: Computer lab, Study room, Outdoor

Reservable

Resources: Outlets, Computers, Whiteboards, Display

Noise level: Silent, Low hum

Natural light

1.	/seattle/study/?building0=Odegaard+Undergraduate+Library+(OUGL)
2.	/seattle/study/?type0=computer_lab
3.	/seattle/study/?type0=study_room
4.	/seattle/study/?resources0=has_outlets&noise0=silent&noise1=quiet
5.	/seattle/study/?resources0=has_whiteboards&type0=study_room
6.	/seattle/study/?noise0=silent
7.	/seattle/study/?resources0=has_whiteboards&resources1=has_outlets&type0=study_room&type1=conference
8.	/seattle/study/?type0=study_room&noise0=silent&capacity0=2
9.	/seattle/study/?resources0=has_outlets
10.	/seattle/study/?resources0=has_outlets&noise0=silent&lighting0=has_natural_light

Creating your own POE

Questions to Consider

What is it you want to understand?

What data would contribute to your understanding?

What methods could you use to systematically gather this data?

How will you analyze the data?

What are the implications of your findings?

Questions for Discussion

What data are you collecting currently?

What data would you like to collect? What would you want to understand better?

How would you go about implementing a data collection protocol?

Session CN041

Examine applied technologies in action to measure education space performance

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