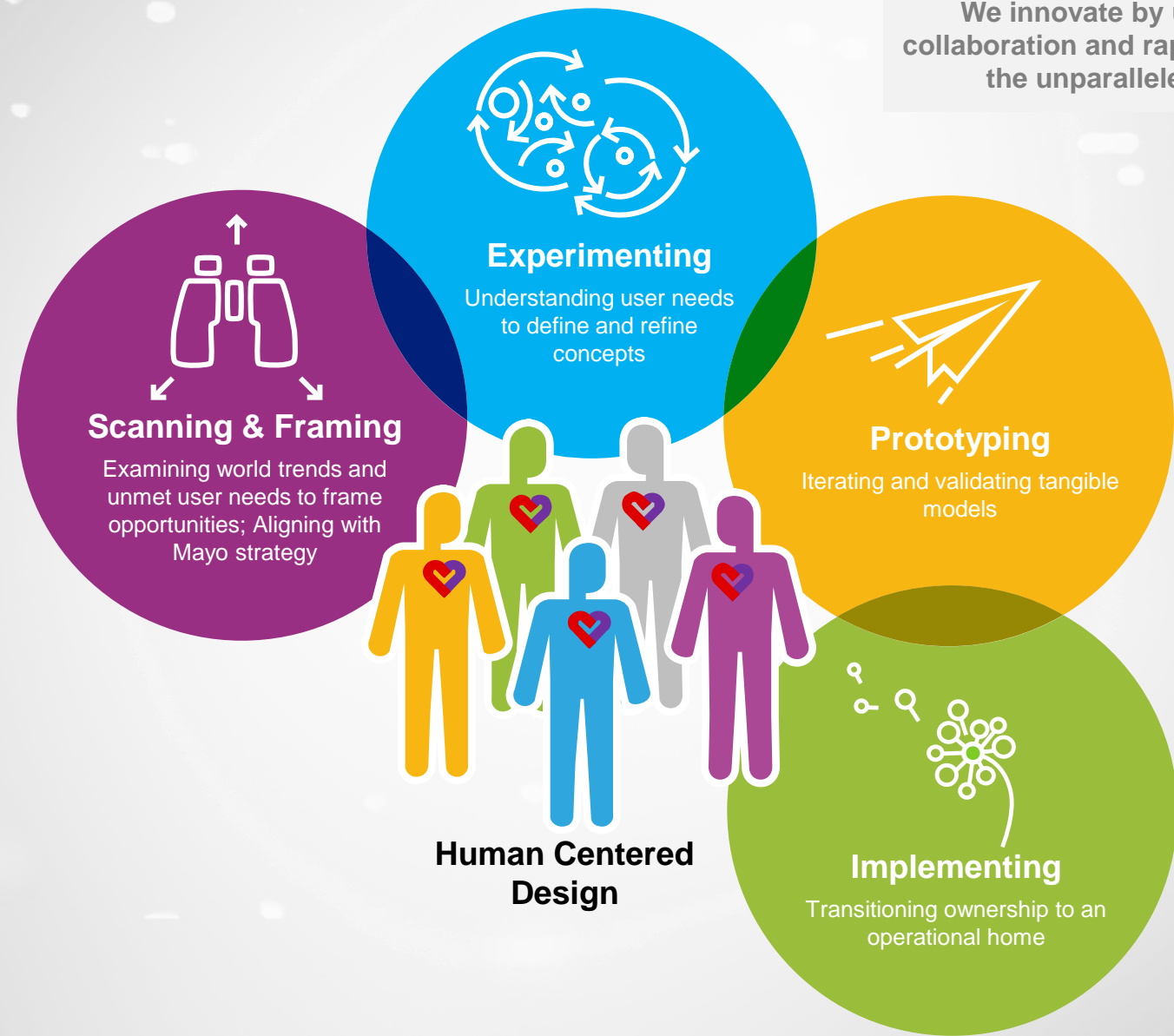


We innovate by using design thinking, deep collaboration and rapid experimentation to co-create the unparalleled health care experience.



# Case 1

# SUSTAINING INNOVATION

evolutionary, incremental, linear, or non-disruptive innovation...improves something that already exists

Request Appointment

Media Pass



News Network

For Journalists

Mayo Clinic Radio

Español



By Elizabeth Zimmermann

# 'OB Nest': A Novel Approach to Prenatal Care

May 16, 2016



FEATU



By Jen O'H

**PRENATAL PROGRAM HELPS MOMS SAVE TIME**

Donate

# OB Nest

- Pregnancy is not an illness - it is the ultimate expression of wellness.
- Created/tested 14 experiments and invited expectant mothers to participate -- in-home monitoring, open access, patient-driven appointments, a custom-tailored experience, online communities, appointments from a distance.
- Worked with Kern Center for the Science of Health Care Delivery to evaluate effectiveness.



## ▪ Results:

- Improved mother (and extended family) satisfaction, freed up obstetricians' time for women with higher-risk pregnancies
- Now a standard care option at Mayo Clinic
- Maintained the standards recommended by the American College of OB GYN

# Case 2

# DISRUPTIVE INNOVATION

radical, revolutionary, transformational....disrupt systems, create new markets, deliver new opportunities



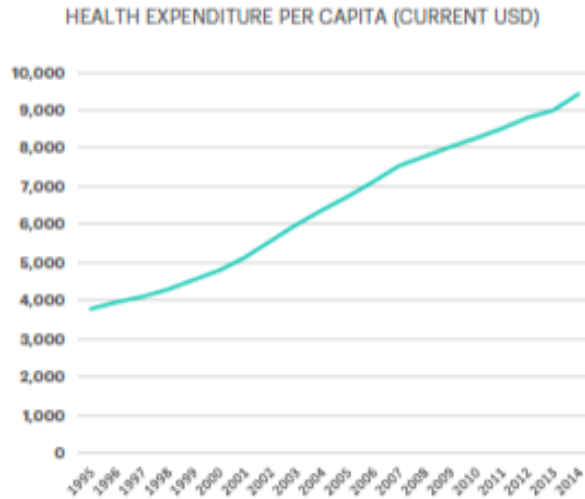
The Well Living Lab connects building science and health science to discover ways to improve human health in the indoor environment



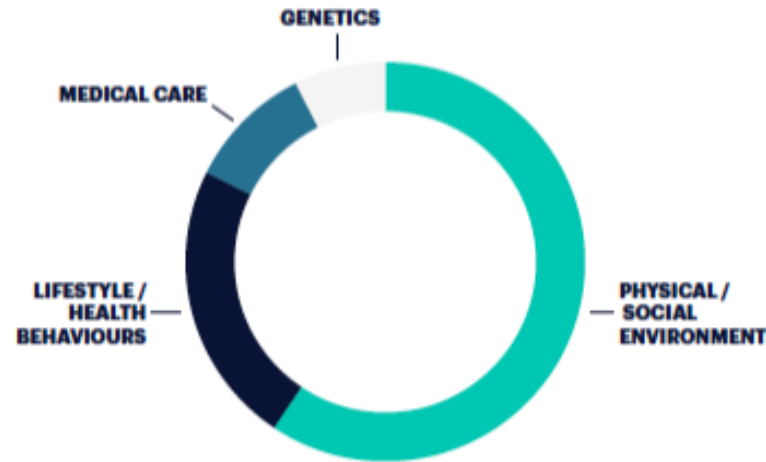
Delos is a wellness real estate and technology company that is helping improve health of people around the world by creating spaces designed to nurture and promote enhanced physical, mental, and social well-being.

# WE BEGAN BY EXAMINING THE HUMAN CONDITION:

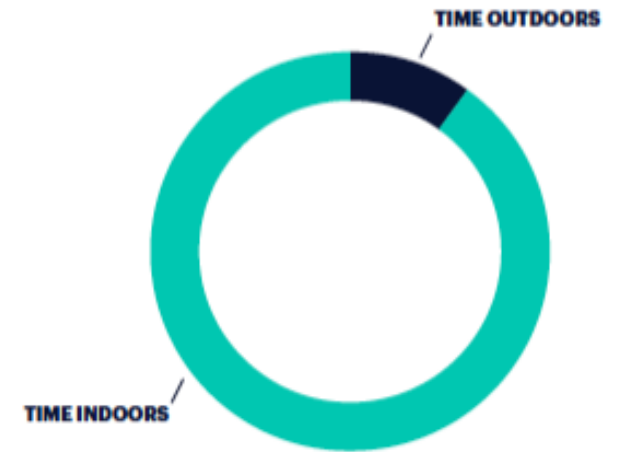
## Health Care Spending is Far Outpacing Economic Growth<sup>1</sup>



## Our environment has the greatest impact on our health and well-being<sup>2</sup>



## We spend approximately 90% of our time indoors<sup>3</sup>



1. World Health Organization Global Health Expenditure Database. (n.d.). [Http://apps.who.int/nha/database](http://apps.who.int/nha/database)
2. Centers for Disease Control and Protection. Frequently Asked Questions. 2014.
3. Report on the Environment Database, US Environmental Protection Agency

**DELOS EXPANDS ITS RESEARCH PLATFORM TO CREATE**

# **THE INTERNATIONAL WELL BUILDING INSTITUTE (IWBI)**



**The International WELL Building Institute (IWBI):** A public benefit corporation whose mission is to improve human health and well-being in buildings and communities across the world through its WELL Building Standard (WELL)



**The WELL Building Standard:**  
The premier standard for buildings, interior spaces and communities seeking to implement, validate and measure features that support and advance human health and wellness

# DARWIN

HOME WELLNESS INTELLIGENCE

The world's first Wellness Intelligence Network to help improve humans' health, well-being and performance in spaces where they live, work, play and sleep.

# + WELL LIVING LAB STRATEGIC PLAN



## MISSION

**Transforming human health and well-being in the indoor environment**

## VALUES

**Collaboration, Integrity, Results, Innovation, Stewardship**

## STRATEGIC GOALS

- 1 Advance the science** – Conduct human-centered research in a simulated real-world environment to generate and publish evidence about indoor environments and human health, well-being and performance.
- 2 Deliver operational excellence** – Maintain a best-in-class lab team and operation, optimizing the strengths of Delos, Mayo Clinic and partner organizations.
- 3 Catalyze innovation** – Collaborate across the health and building ecosystem to impact peoples' lives where they live, work and play.
- 4 Share the voice** – Build a *Voice of the Well Living Lab* to strengthen the movement across the world.

WELL  
LIVING  
LAB

TEMPERATURE

ACOUSTICS

HUMIDITY

FILTRATION

VENTILATION / CO2

LIGHT

HUMAN PROXIMITY

CONNECTION TO NATURE

PHYSICAL ACTIVITY AT WORK

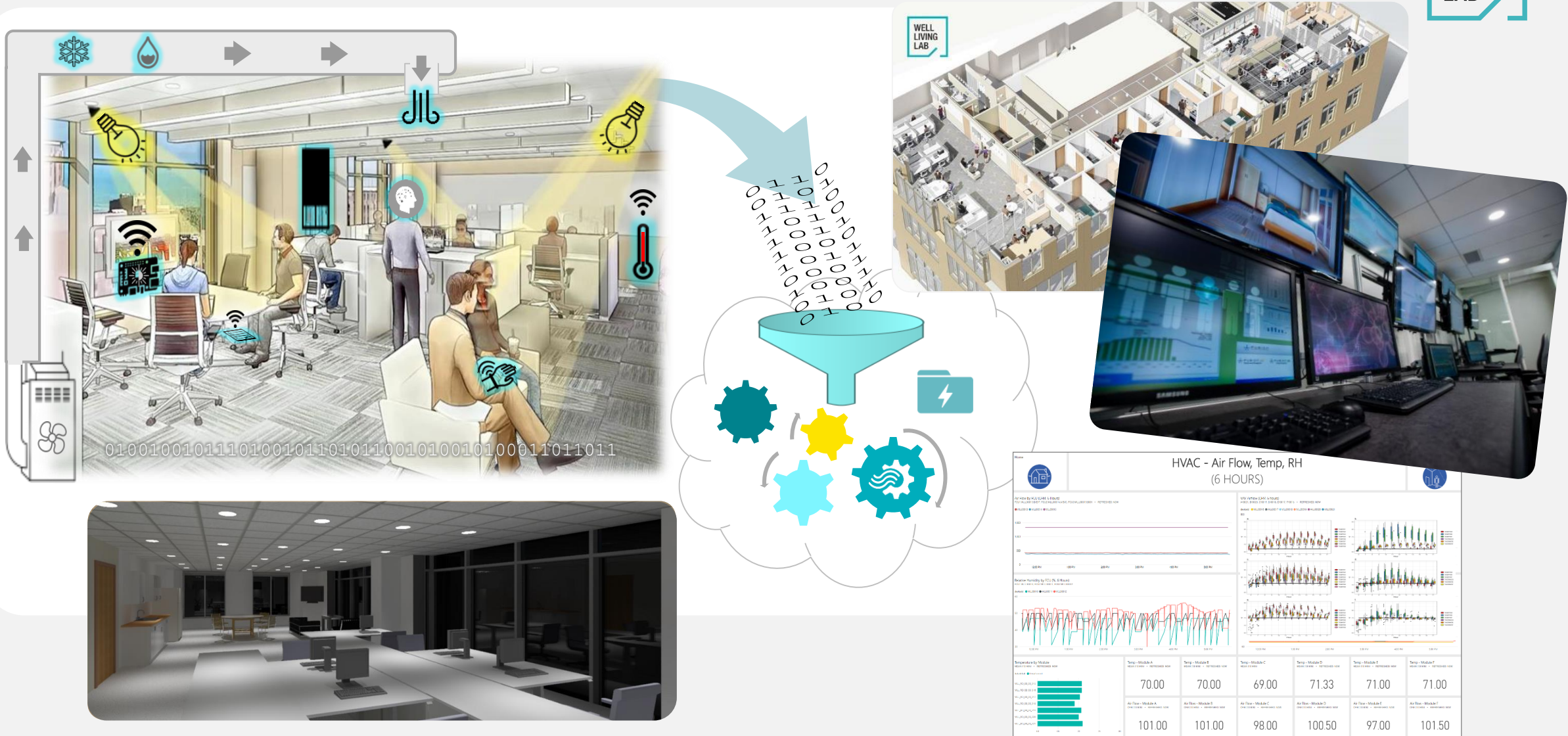
A GOOD NIGHT'S SLEEP

NUTRITION AT WORK



Optimization for  
Health and  
Performance

# + Dynamic environment inside the lab





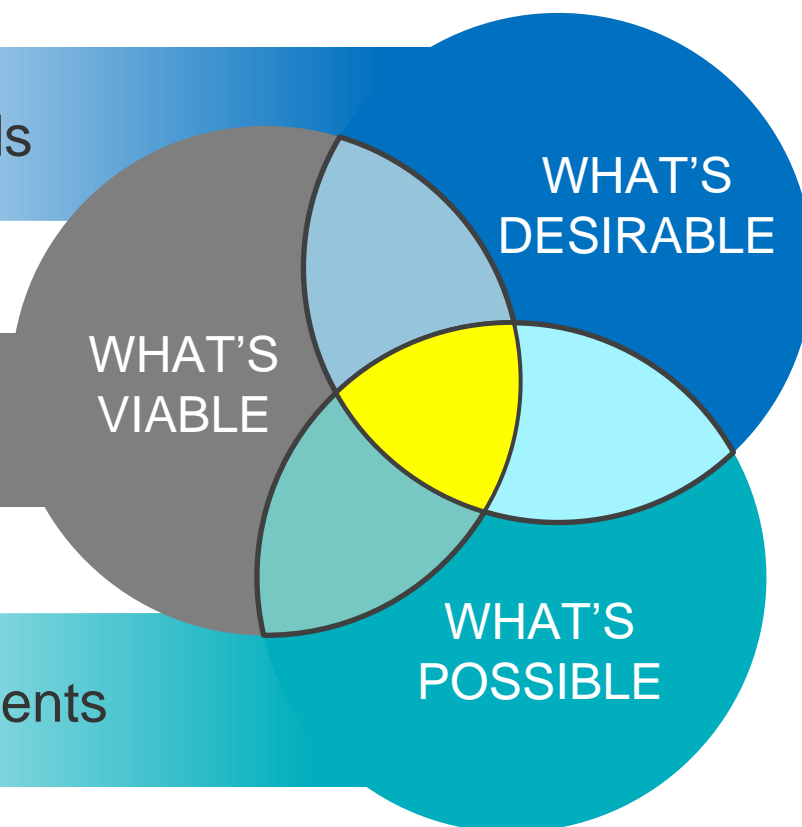
# Themes selected with a Desirable/Viable/Possible framework



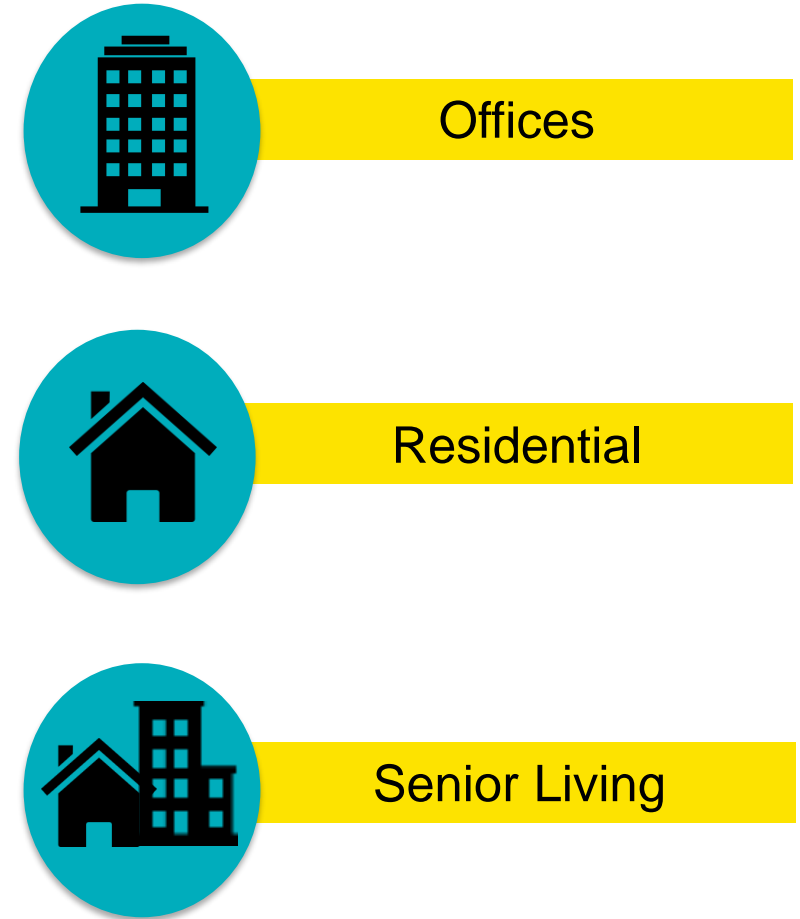
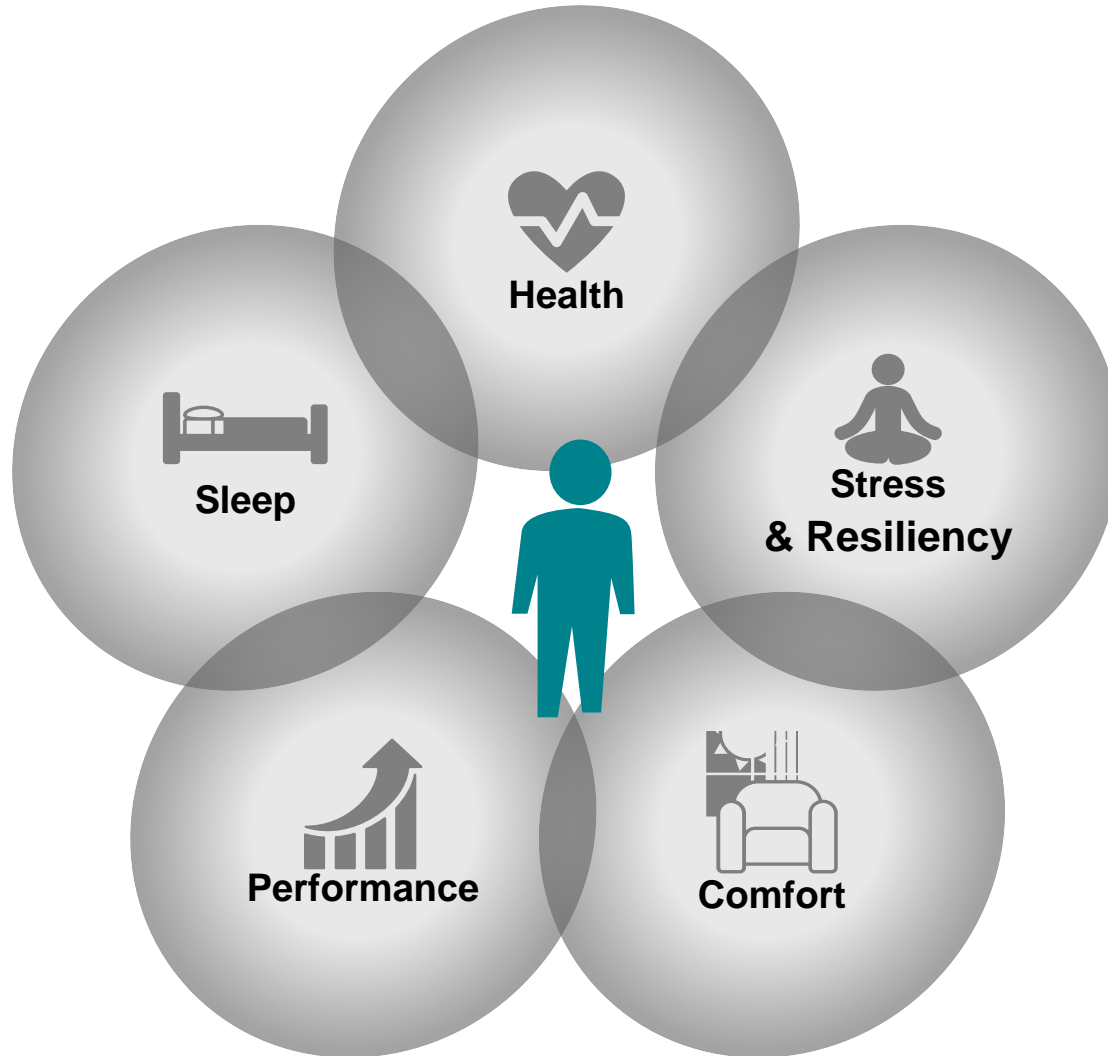
Anchored around scientific exploration and human needs

Informed by assets and capabilities of Delos and Mayo Clinic and partner organizations

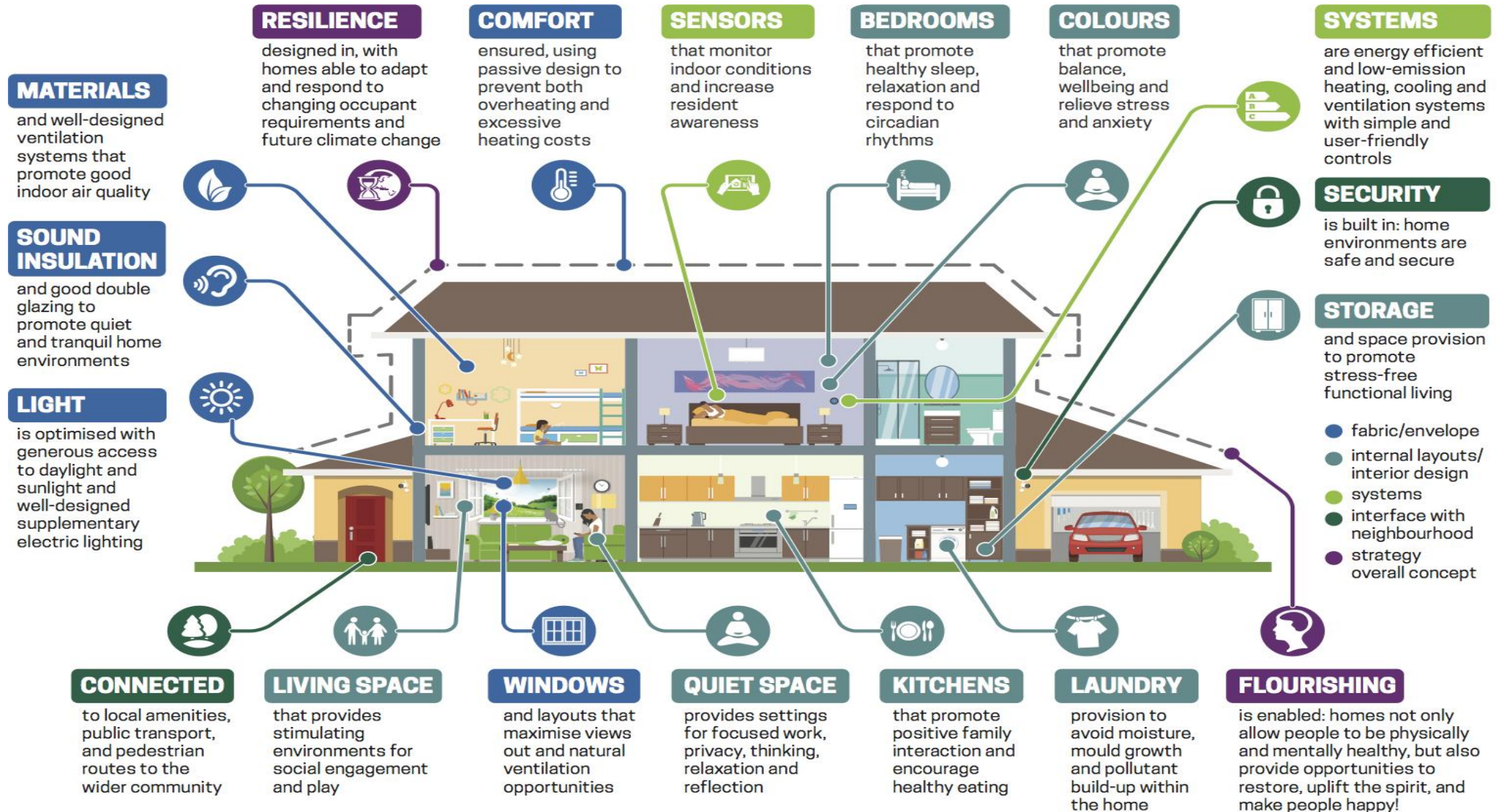
Bolstered by best practices and technological developments



# + Three Year Research Plan



# What is a Healthy Home?



# + Research Framework



## DISCOVERY

Conduct human-centered research in a simulated real world environment to generate evidence about indoor environments and the health of occupants

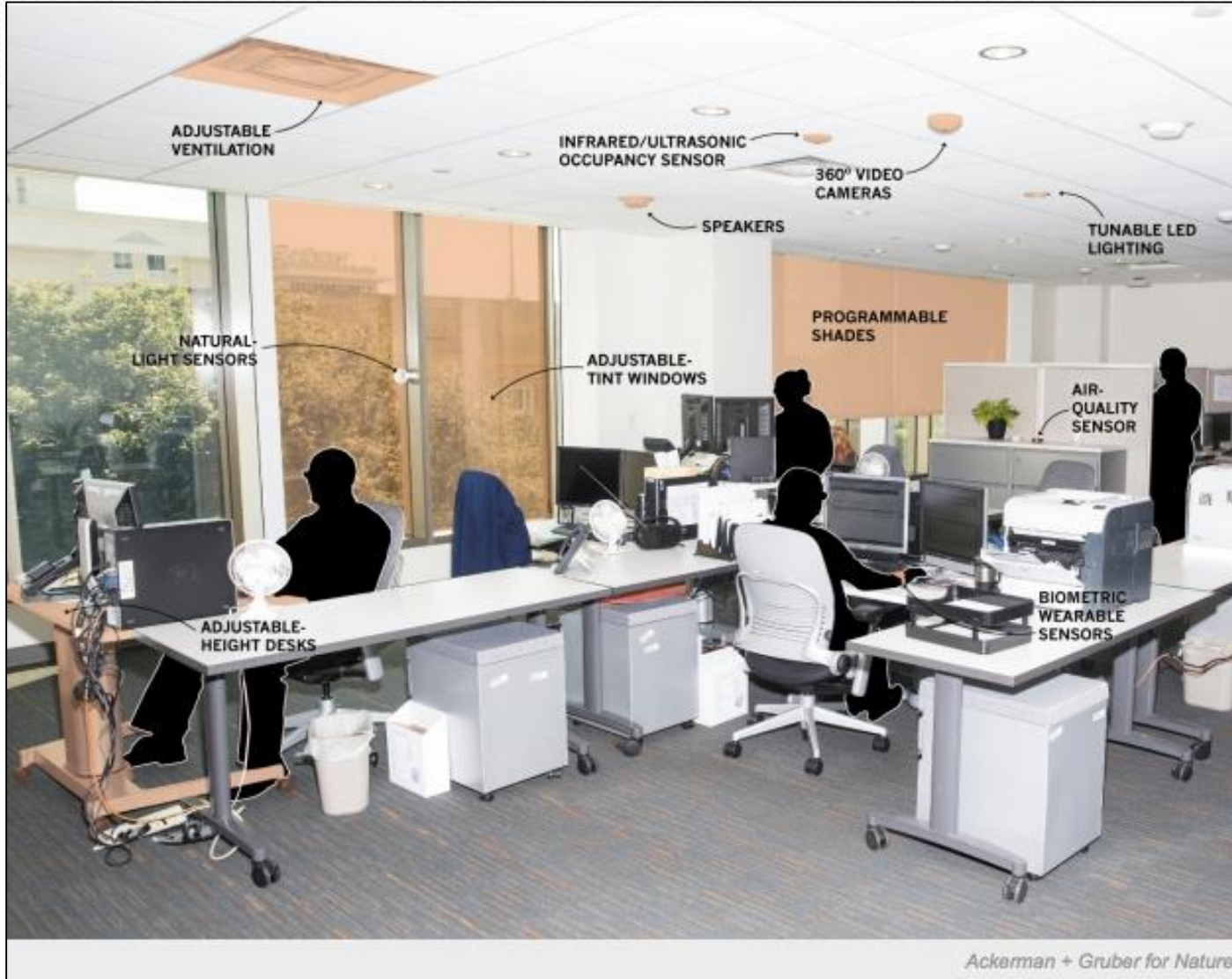
## TRANSLATION

Validate and translate research insights to create healthier indoor environments and improve human health and well-being

## APPLICATION

Generate demonstrable, positive contribution to society





# THE OFFICE EXPERIMENT

## CAN SCIENCE BUILD THE PERFECT WORKSPACE?

BY EMILY ANTHES



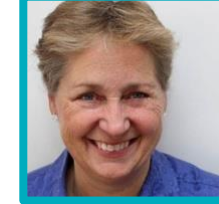
# + Well Living Lab Scientific Advisory Board (SAB)



**Nicholas LaRusso, MD**  
Professor of Medicine,  
Consultant, Mayo Clinic  
CHAIR of Well Living Lab, SAB



**Bruce Johnson, Ph.D.**  
Professor of Medicine and  
Physiology and a Consultant in  
the Department of Cardiovascular  
Diseases, Mayo Clinic



**Vivian Loftness**  
FAIA, LEED AP, University Professor,  
Paul Mellon Professor, Andrew  
Mellon Professor



**Gail Brager, PhD**  
Associate Director, Center for the Built  
Environment,  
University of California, Berkeley



**Kevin Kampschroer**  
Federal Director, Office of Federal  
High-Performance Green Buildings,  
in the US General Services  
Administration



**Veronique Roger, M.D.**  
Medical Director of the Center for the  
Science of Health Care Delivery,  
Professor of Medicine, Consultant,  
Mayo Clinic



**Jonathan Fielding, MD, MPH**  
Professor of Health Policy and  
Management, and Pediatrics, Fielding  
School of Public Health + the Geffen  
School of Medicine, University of California,  
Los Angeles



**Folkert Kuipers, M.D., Ph.D.**  
Professor of Pediatrics, Head of  
the Laboratory of Pediatrics,  
University Medical Center  
Groningen (Umcg), Groningen,  
the Netherlands



**Amit Sood, M.D.**  
Author & Director of Research in the  
Complementary and Integrative  
Medicine Program, Mayo Clinic



**Kevin Hall, PhD**  
Senior Investigator,  
National Institute of Diabetes,  
Digestive & Kidney Diseases  
(NIDDK)



**Steven Lockley, Ph.D.**  
Neuroscientist, Division of Sleep and  
Circadian Disorders at Brigham and  
Women's Hospital



**Paul Tang, M.D.**  
Vice President, Chief Health  
Transformation Officer, IBM Watson  
Health, Consulting Associate Professor of  
Medicine (Biomedical Informatics) at  
Stanford University

# WELL LIVING LAB – ALLIANCE MEMBERS



## Founding

ARUP  
CBRE

HKS



Milliken



Panasonic

essentia

IFF



hbreavis



远洋地产

Hines

view

Dynamic Glass

## Sustaining

*noaber* foundation

## Supporting



WELSPUN  
COMFORTING THE PLANET™

MISSION: To be a leader in globally recognizing, honoring and fostering innovation and innovators to create a positive impact in the world.

WELL LIVING LAB

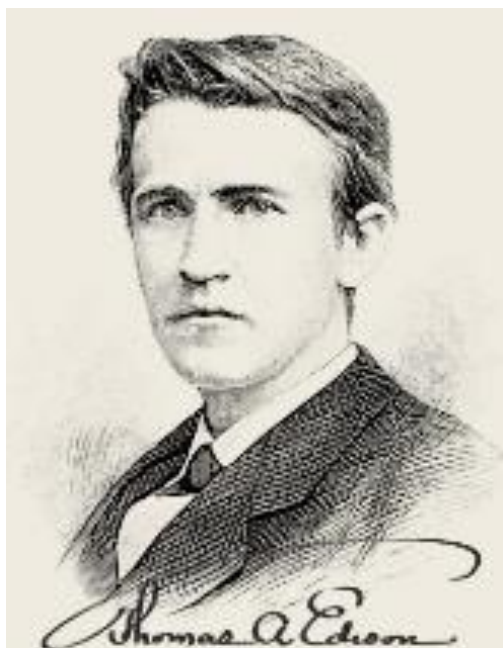


Image from Popular Science Monthly Volume 13, 1878





25,000 square feet of sensor rich, reconfigurable space where researchers can monitor and test products and systems with human subjects in simulated, real-world environments.

## Beijing, China Sino-ocean Yinchuang Healthy Industrial Park, Shunyi District



## Well Living Lab China

First scientific research center in Asia to integrate building science, behavioral science, and health science to help quantify and ultimately improve the impact that indoor environments have on human health, wellness, comfort, and performance.

Aims to spur innovations that will help address indoor environmental challenges related to the local climate, environment and culture in China.



First 360 degree rotatable lab in China - can test the building thermal performance, indoor environment and human health outcomes under different orientations and experiment conditions.



**“The aim of medicine  
is to prevent disease  
and prolong life;  
the ideal of medicine  
is to eliminate the  
need for a physician.”**

**–Dr. William W. Mayo**



- Our ability to think creatively comes one-third from genetics;  
**two-thirds through learning**
- Innovators **question, observe, experiment** and **network** more than typical executives
  - They actively desire to **change the status quo**
  - They display **courage** and regularly **take risks** to make that change happen

**The Innovator's DNA: Harvard Business Review**

# ~~Lessons Learned~~ Learning about Innovation

1. Build a **Discipline of Innovation**
2. Recruit a **Diverse Team** with an **Innovation Phenotype & Thinking Differently** mindset
3. Unleash **Creative Confidence & Design Thinking**
4. Provide a **culture of experimentation & learning**
5. **Co-Create** with your **Customers & Stakeholders**
6. **Dynamic networking & Non-traditional Partnerships**
7. **Conviction by leadership** that innovation is critical to future success

"Left open for further thought and research"  
William Worrall Mayo, MD

That the man had been sick about 2 weeks  
the complaint of great pain with numbness of the  
right limb and had been unable to walk upon  
it. Supposition being made that the lesion  
was located in the lumbar region as there was no  
pain in the leg, and there was no  
indication of any other organ and  
there had been no difficulty about the  
urine until this sudden attack.  
Left open for further thought and research

Thursday Jan 11 - 1866  
Called to see Nels Olson of Rock Dell 12 miles  
The morning gloomy and unpleasant. There  
had fallen during the night rain and sleigh  
this mixture of rain and hail continued all  
day. The sleighing was  
unpleasant. The cause of my visit to this  
patient freezing of some of his members.  
This young-man Nels Olson visited Rochester  
on Christmas week and before leaving town  
left at night the weather was  
zero. The next morning  
the eastern part of  
called the old grave  
ground was some  
faded in which to  
the town grave  
of land, and a  
selects upon the  
the location of the  
bodies which  
were removed to  
the removal of  
the graves were  
these Nels to  
were unable to  
was drunk and of  
nothing of the  
morning. Mr  
town to his  
in this condition

found Nels Olson still asleep. On being roused up  
he was able to stand and the right hand and  
foot were stiff. The fingers were frozen and were  
stiff and painful. On moving the fingers the  
in all night. The morning was gloomy and  
found Nels a good looking man with a good  
upon the head. He was having some what  
an intelligent conversation with some of the  
patients I needed. The other sister with  
house were his mother and the grandmothers  
some 5 other children and the house was a log one  
and grandmother. The house was a log one  
about 16 feet square with a loft upstairs to which  
place they all came with the exception of the  
father and sister who were my patient's company.  
It was about 12 o'clock when I got to the house  
examined the hand and foot of the right side  
the bones and sticking out beyond the flesh  
I suspected the loss of  
to remove no more

Left open for further thought and research

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