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# **WHAT IS 'EVIDENCE' AND HOW DO WE KNOW?**

# OUTLINE

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1. Defining evidence for ‘evidence-based’ building projects
2. Issues and challenges in applying evidence
3. Making the journey to new knowledge
4. Measuring the occupant-space relationship
5. Meaning of results
6. Recommendations

# DEFINITIONS OF 'EVIDENCE' FOR DESIGN

- × 'Evidence' is the result of research that offers **knowledge** where there was none
  - + About costs and benefits
  - + About health and safety
  - + About building systems performance
  - + About materials and technology
  - + About user comfort and well-being
  - + Other
- × Knowledge about **people's behavior ....**

# SOURCES OF 'EVIDENCE'

- ✘ **PAST** = post-occupancy evaluation (POE) of building systems performance, functionality, user comfort/satisfaction.
- ✘ Research reports and recommendations
- ✘ Results made their way into design education
- ✘ **FUTURE** = systematic feedback on specific design decisions
- ✘ Effects of decisions ...
- ✘ Database maintenance and access
- ✘ Evidence-based design (EBD)

# SOURCES OF EVIDENCE NOW

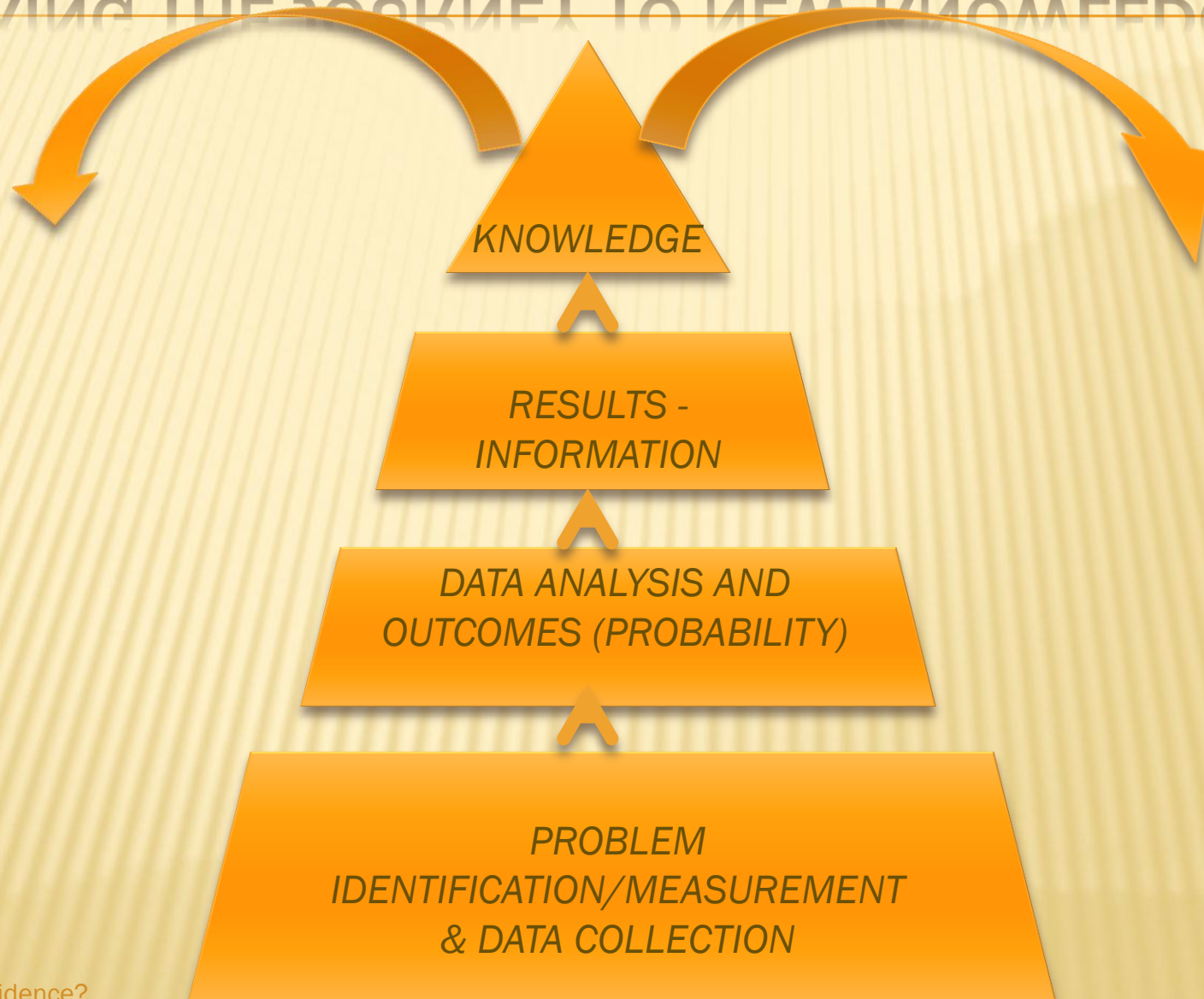
- ✘ **INDIRECT:** data from various sources
  - + Published literature
  - + Unpublished design briefs, programs, etc.
  - + Post-occupancy studies
  - + Summaries of research results and findings
- ✘ **DIRECT:** data gathered in the field in context of design project
  - + Targeted research project

# APPLYING RESEARCH TO DESIGN

## × POSSIBLE CHALLENGES

- + Generic versus targeted outcomes
- + Time needed to find read, interpret, apply from indirect sources
- + Time needed to define, execute, understand, apply from direct source
- + Competing resources
- + Generalizability of results

# MAKING THE JOURNEY TO NEW KNOWLEDGE



# APPLYING KNOWLEDGE

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- × SPECIFIC DESIGN DECISIONS
- × FACILITY STANDARDS AND GUIDELINES
- × HOSPITAL PLANNING AND MASTER PLANNING



- × HEALTH SERVICES POLICY AND FUNDING
- × WORK ENVIRONMENT AND STAFF EFFECTIVENESS
- × PATIENT EXPERIENCE

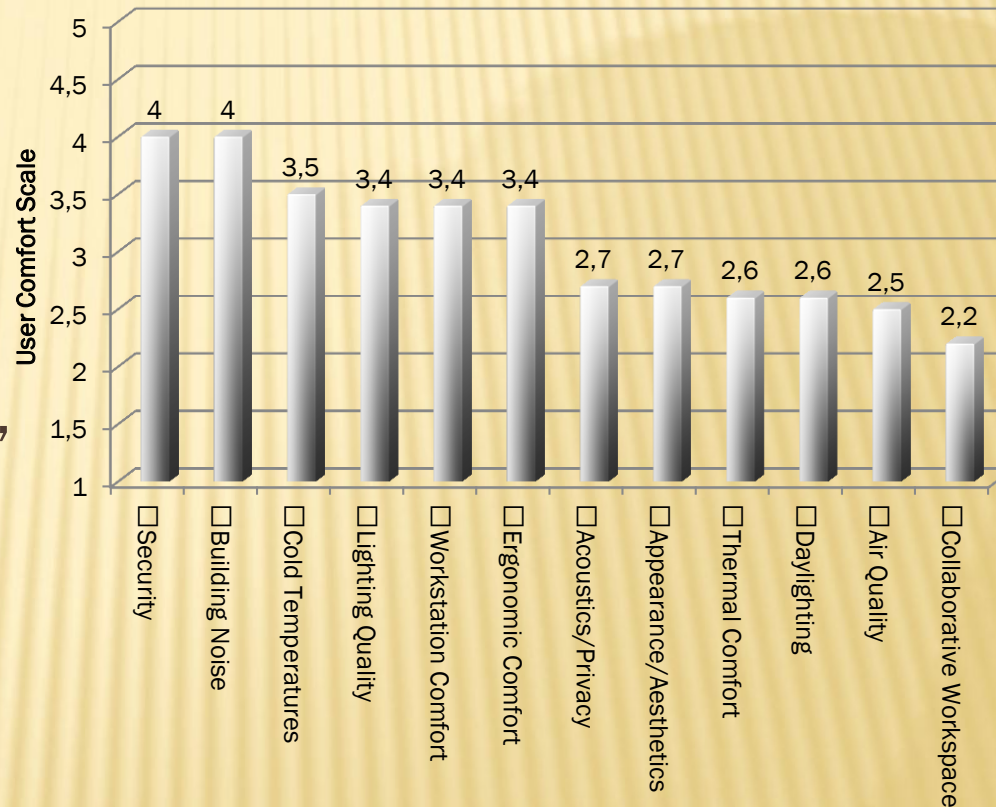
***...new knowledge threatens!***

# AN EXAMPLE .....

1. *Identifying the problem*
  2. *Identifying data needed to get answer*
  3. *Gathering good data*
  4. *Analyzing data – interpreting results*
  5. *Applying evidence to problem*
  6. *Making design decision*
  7. *Sharing new knowledge*
1. Increase staff hand-washing
  2. Frequency or time spent hand-washing where
  3. Observation, questioning, data coding
  4. How many locations, how long, how reliable
  5. Extrapolate factors that ‘cause’ increased hand-washing
  6. Factors that design can affect, e.g. washing opportunities, locations
  7. Journal articles, conference presentations, future program briefs

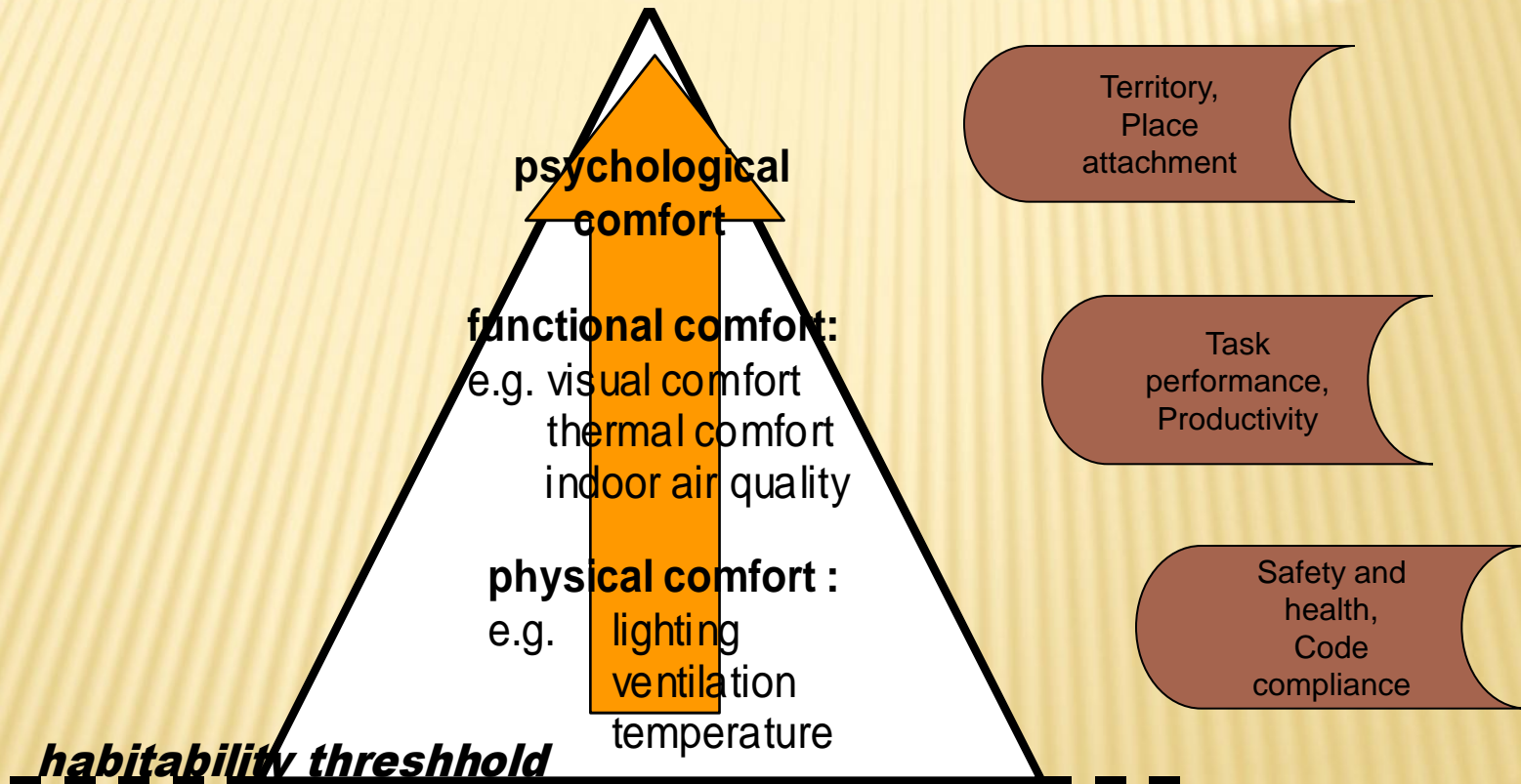
# USER SURVEYS

- ❑ Satisfaction? Comfort? Engagement? Performance?
- ❑ User feedback on workspace features
- ❑ Tested, reliable and valid (standardized) questionnaire
- ❑ Analysis: means, frequencies, percentages, cross-tabs
- ❑ Interpretation of results
- ❑ What to do – how to fix
- ❑ Design guidelines
- ❑ Dissemination of new knowledge



# OCCUPANT-SPACE RELATIONSHIP:

*improved work performance  
and well-being*



# APPLYING EVIDENCE TO DECISIONS

## ✗ RESEARCH = EVIDENCE

- + Long time to accumulate
- + Results presented in terms of probability
- + 'Proof' is narrow – knowledge is broad
- + Poor research gives wrong answers - **but**
- + Evidence helps solve problems and fix mistakes

## ✗ EVIDENCE = BUILT SPACE

- + Tight constrained time-frame
- + Results are occupied, operated and seen
- + Building project is focused, 'one-off' example
- + Design means trading off priorities - **but**
- + Design decisions are rooted in knowledge

# EFFECTIVE EVIDENCE – MEANINGFUL KNOWLEDGE – GOOD DESIGN

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- ✘ **Designers** need to identify what knowledge is needed in relevant context, what the problem is
- ✘ **Researchers** need to identify and define quick and effective ways of performing reliable field studies
- ✘ **Methods** of disseminating knowledge from research need to be quicker and more accessible
- ✘ **All stakeholders** – building industry professionals, clients, government and academics – need to buy into/believe in and commit to more research for better evidence



*Thank-you!*

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