ARCHITECTURE AS

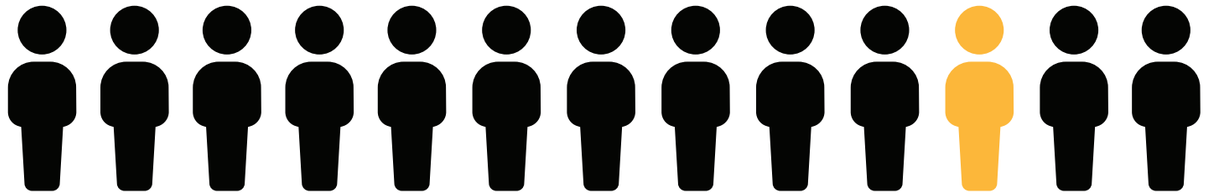
AN OPEN SCIENCE

FELLOWSHIP

ARIZONA INSTITUTE FOR RESILIENCE

DATA SCIENCE INSTITUTE

ROOTS FOR RESILIENCE FELLOWSHIP



ISSUES

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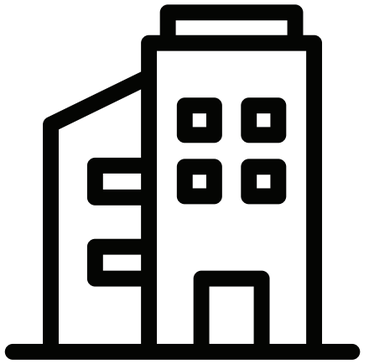
TIME

There is always more that can be done.

SCALE

Personal impact is limited compared to need for change.

PRECEDENT



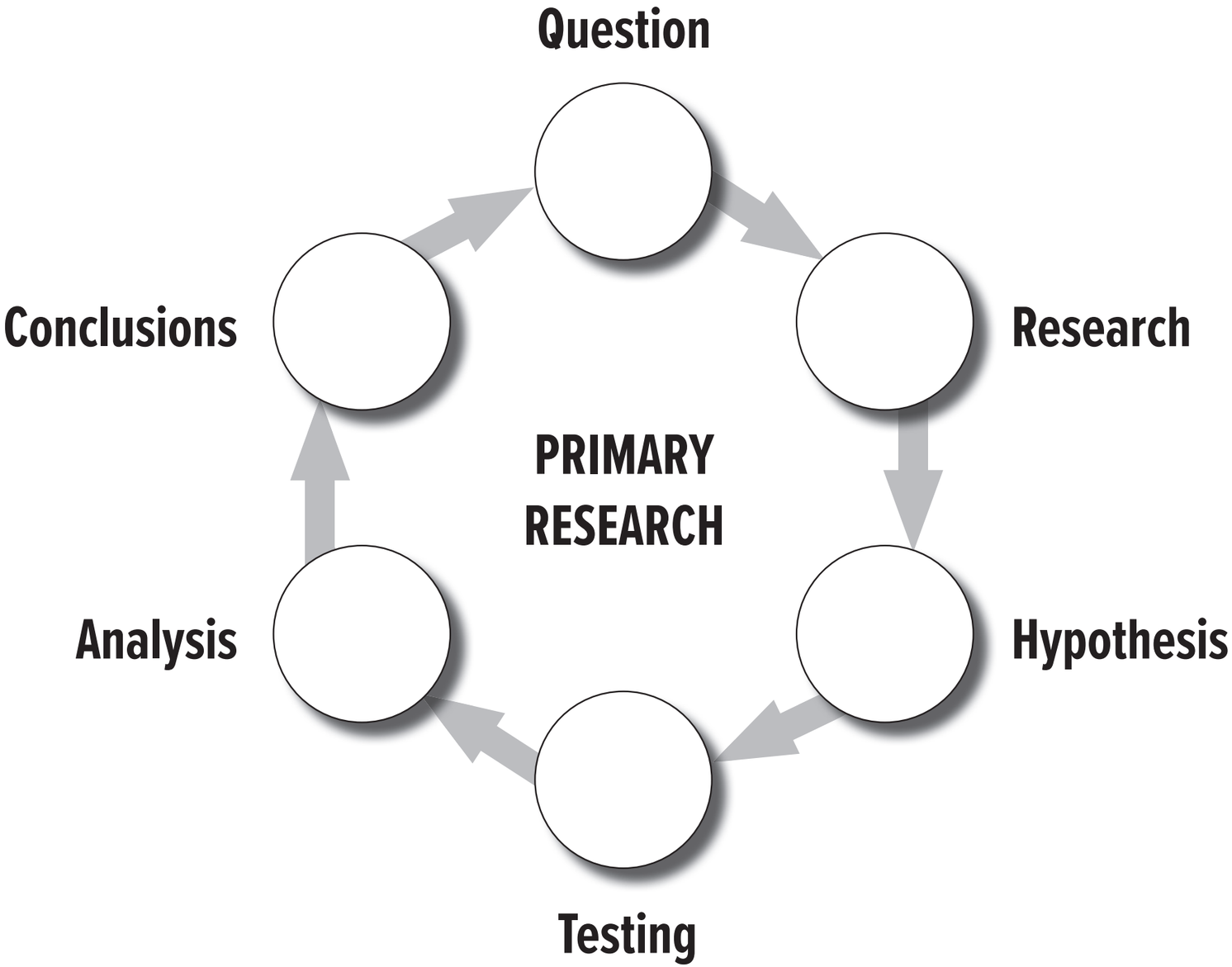
It can be difficult to build on the past success & failures of others.

OPEN SCIENCE

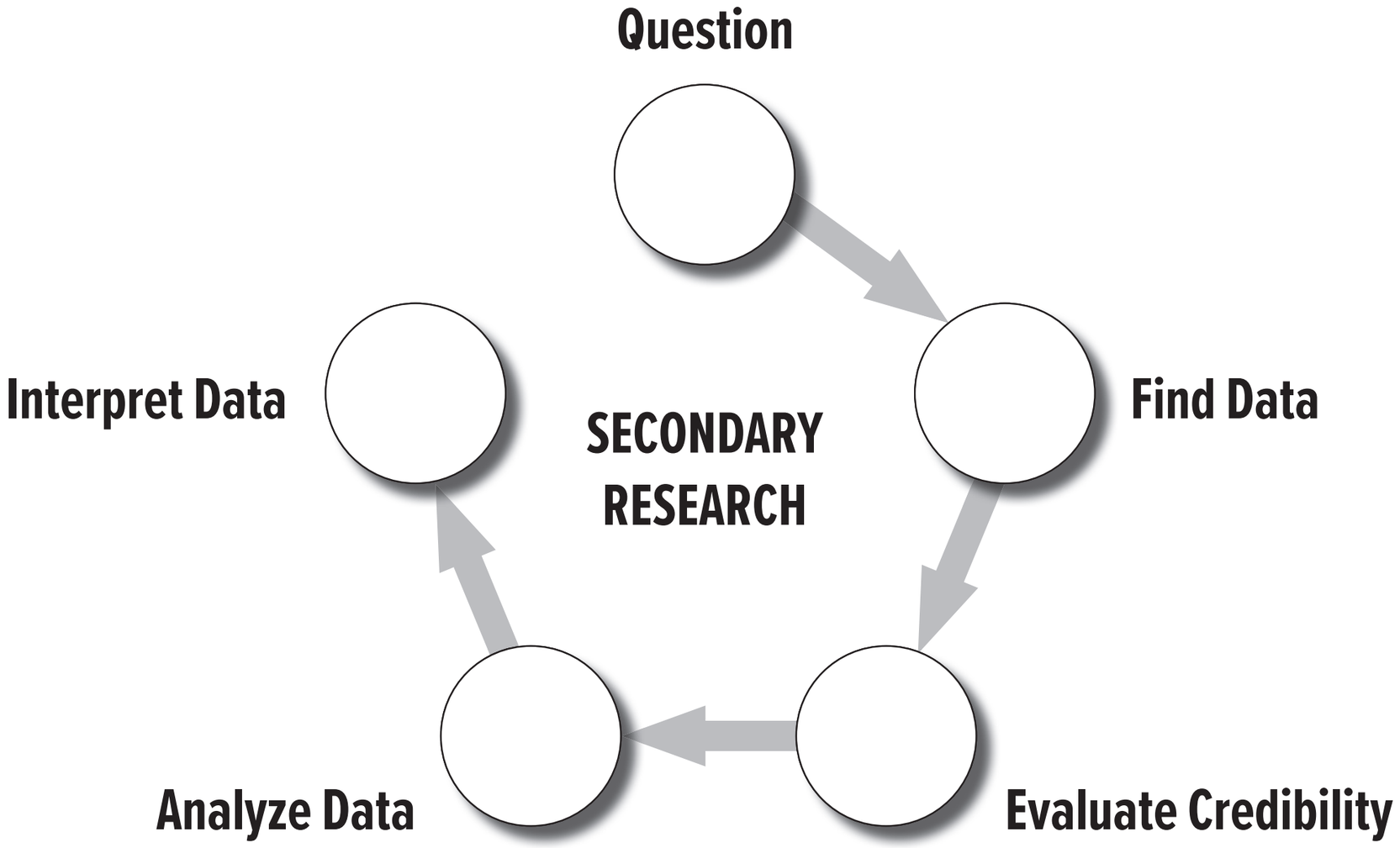
“Open Science is defined as an inclusive construct that combines various movements and practices aiming to make multilingual scientific knowledge openly available, accessible and reusable for everyone, to increase scientific collaborations and sharing of information for the benefits of science and society, and to open the processes of scientific knowledge creation, evaluation and communication to societal actors beyond the traditional scientific community.”

- UNESCO

ARCHITECTURE AS A SCIENCE

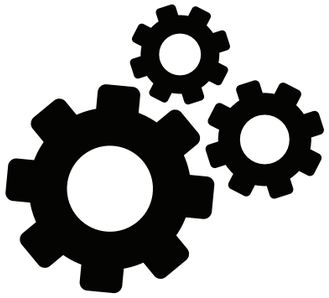


ARCHITECTURE AS A SCIENCE



PILLARS OF OPEN SCIENCE

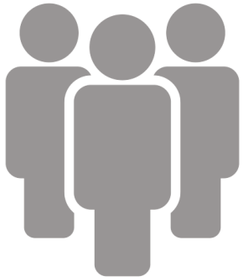
Open Access Publication



Open Methodology

Open Data

Open Educ. Resources



Open Peer Review

Open Source Software

OPEN ACCESS PUBLICATION

Research is fully available to everyone at no cost.

OPEN PUBLICATION TYPES

JOURNALS

Author pays $$$$ to make article freely available to anyone through a Creative Commons license.

How much? Thousands.

PRE-PRINT / AAM

Preprint: journal article before peer review.

Author's Accepted Manuscript: includes peer review, but not formally formatted. Often on 1-2 year hold.

PERSONAL

No peer review - just make it available online!

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IS THIS JOURNAL OPEN ACCESS?

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MIT			✓	No restrictions other than requiring preservation of copyright and license notices
BSD 3-Clause			✓	Similar to MIT w/ prohibition on using name of project or contributors for endorsement.
Apache 2.0			✓	Grants patent rights
GNU GPLv3			✓	Grants patent rights
GNU LGPLv3			✓	Linked software does not have to also be licensed under LGPL

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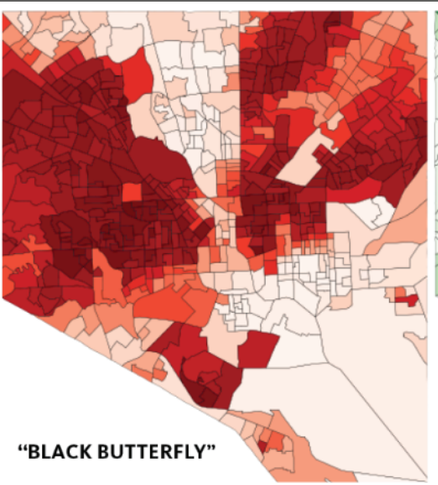
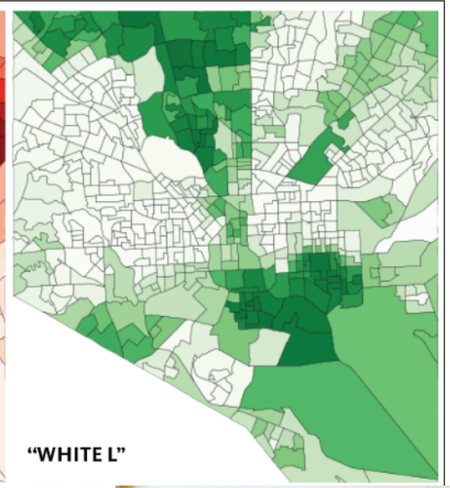


“BLACK BUTTERFLY”



“WHITE L”

Aligning Practice With Climate Justice

Our research explores how climate change disproportionately affects under-invested communities nationwide, with a current focus on Baltimore. We aim to inspire equitable design practices through a framework that prioritizes climate justice.

October 14, 2024

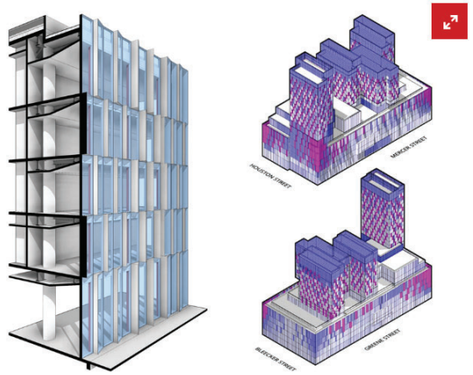
Modeling and Simulatio

Scale models, computer simulatio computation

A detailed digital model of the University of Washington's existing trees and vegetation helped us quantify their performative and environmental value and make the case for preservation.

Tools and Applications

BIM, environmental performance, modeling, and visualization



For New York University's 181 Mercer, we tested how varied angles in the pleated facade would perform in relation to the urban context, geometry, and the coated glass.

Global Climate Action Survey 2024

Gensler surveyed people around the world about their experiences with climate-related issues, such as extreme weather, and perceptions of whether their community is built to withstand the impacts of climate change.

September 18, 2024

Image source: Stefano Casati. *AI-Generated*

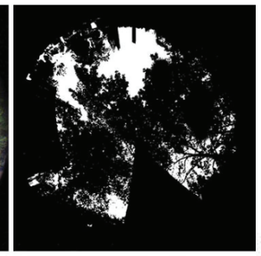
FEATURED CURIOSITY

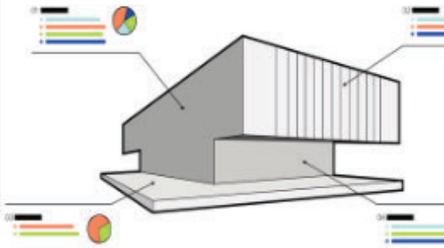
Architecture in the Age of AI

What does AI mean for architecture and design?

Take a look at the challenges & potential of AI in design. Welcome to the future of architecture...

LEARN MORE





Tally® LCA App for Autodesk® Revit®

Life Cycle Assessment Application

OPEN METHODOLOGY

Process to achieve results is described in enough detail to make it as easy as possible to repllicate the work and/or apply it elsewhere

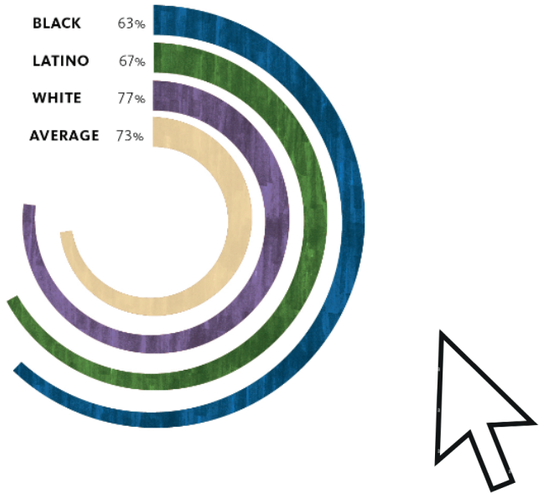
OPEN METHODOLOGY EXAMPLES

PERKINS & WILL

https://webcontent.perkinswill.com/research/journal/issue_27_vol1501/issue_27_pwrj_vol1501_1_impact_of_daylighting_in_patient_rooms.pdf

GENSLER

Black people express consistently lower satisfaction with their city experience.
The percentage of U.S. respondents per group who agree with the statement "I feel satisfied with my city as a place to live". *Source: Gensler City Pulse Survey 2023*

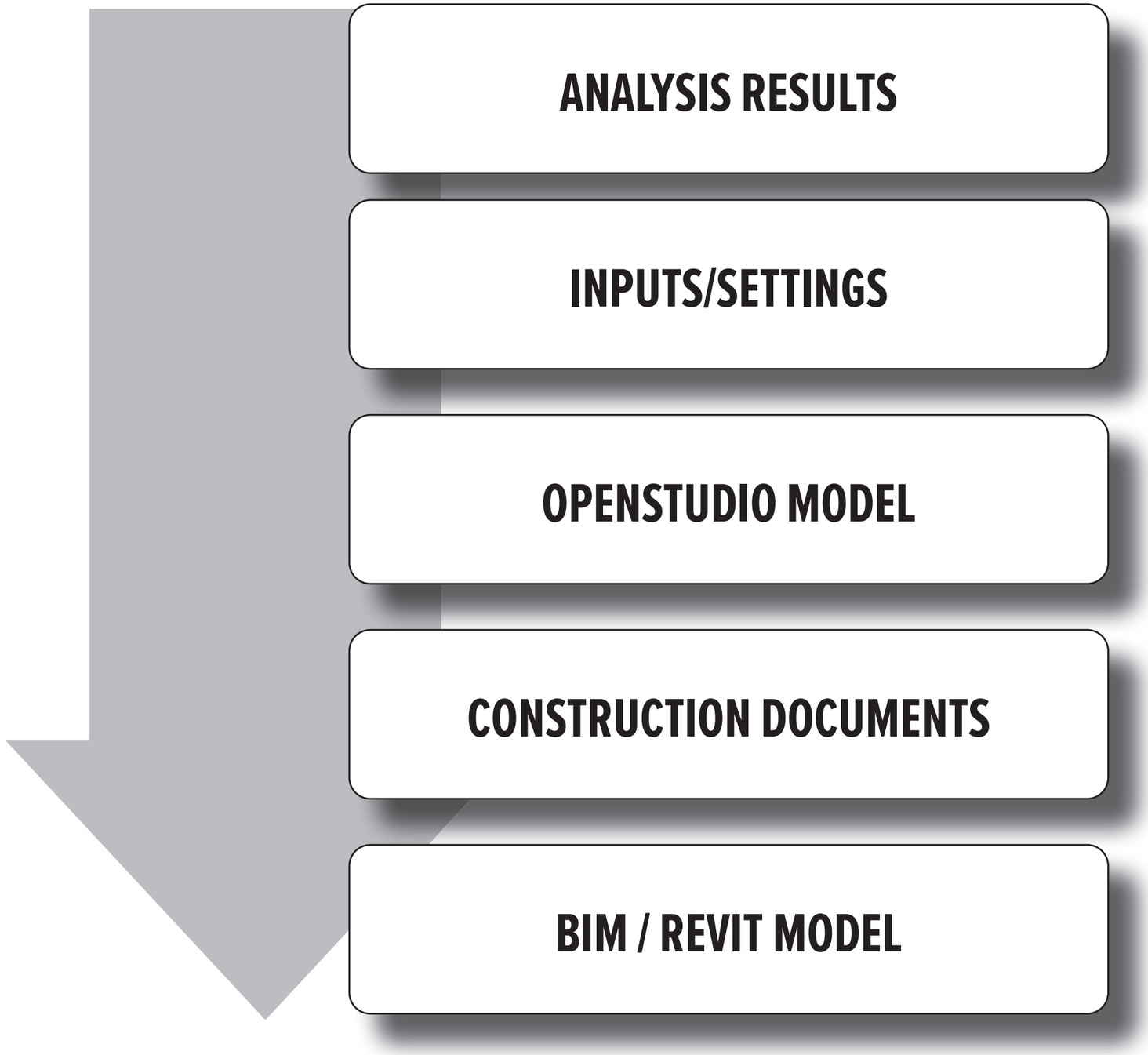


https://www.gensler.com/doc/designing-for-racial-justice-2024.pdf

OPEN DATA**

Data (used to produce evidence for claims) can be freely used, re-used and redistributed by anyone**

ARCHITECTURAL DATA?



**OTHER DATA CONSIDERATIONS

The CARE Principles for Indigenous Data Governance were drafted at the International Data Week and Research Data Alliance Plenary co-hosted event "Indigenous Data Sovereignty Principles for the Governance of Indigenous Data Workshop," 8 November 2018, Gaborone, Botswana. Source: Global Indigenous Data Alliance.

WORKSHOP

ARCHITECTURE AS OPEN SCIENCE WORKSHOP

TOPIC

- What is an evidence-based design decision you've made that someone else might want to make in the future?

OPEN ACCESS PUBLICATION

- Where do you want to publish? Consider time, cost, and ability.
- What license should you use?

OPEN METHODOLOGY

- If someone were looking to do what you did from scratch, do they have everything that they need?
- What can you add to make it easier for the next person?

OPEN DATA

- What did you use to produce the evidence used in your design process? Can you make that available?
- Who does the data belong to? Whose permission do you need to share it? Who will benefit from the data being available, and who might be hurt?

ISSUES

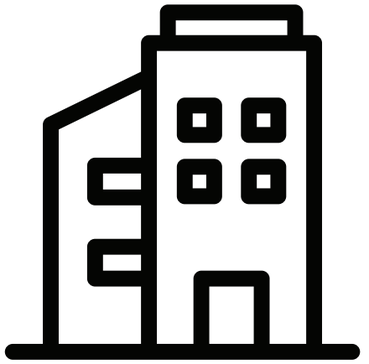
TIME

There is always more that can be done.

SCALE

Personal impact is limited compared to need for change.

PRECEDENT



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THANK YOU!

UA DATA SCIENCE INSTITUTE
ARIZONA INSTITUTE FOR RESILIENCE

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ARC 909 MASTERS OF ARCHITECTURE STUDENTS & PROF. ALTAF ENGINEER