BIM Harambee .Africa

26 July 2024: Session 1

Our legacy *is* building

Understanding the Big Picture

Speaker: Dr. Calayde Davey
Department of Architecture, University of Pretoria

Image Credit: Davey, adapted from Sam Rohn (22 February, 2016)

How many buildings are there in the world today?

100 Billion Buildings in the World

of all types and sizes in the world.

This number includes **everything** —
from **huts to high-rises.**

The vast majority of buildings are located in Asia and

Africa

One Nine Elms Construction (Sep 24, 2022)

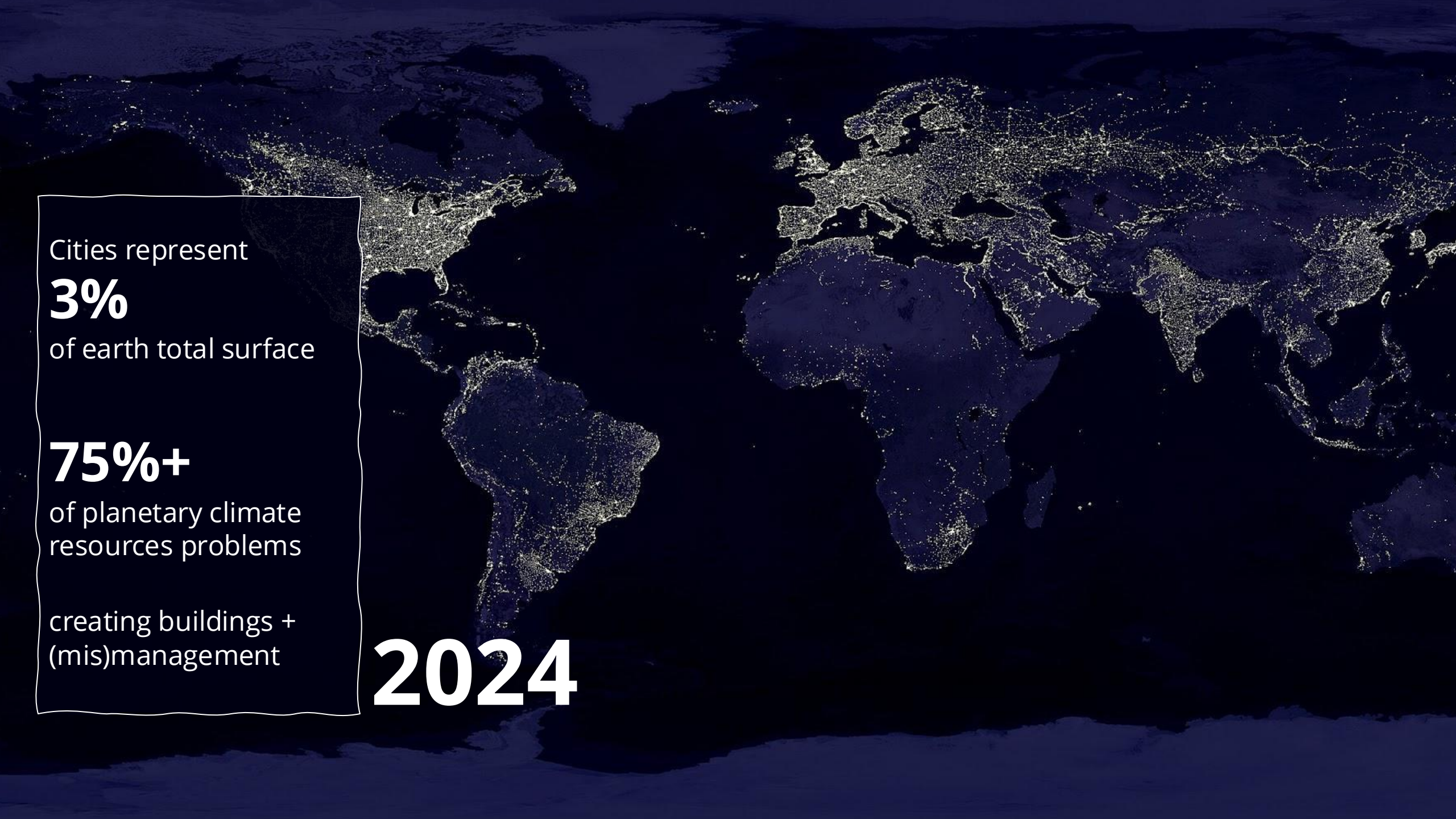
In 18 months, the global building stock will exceed

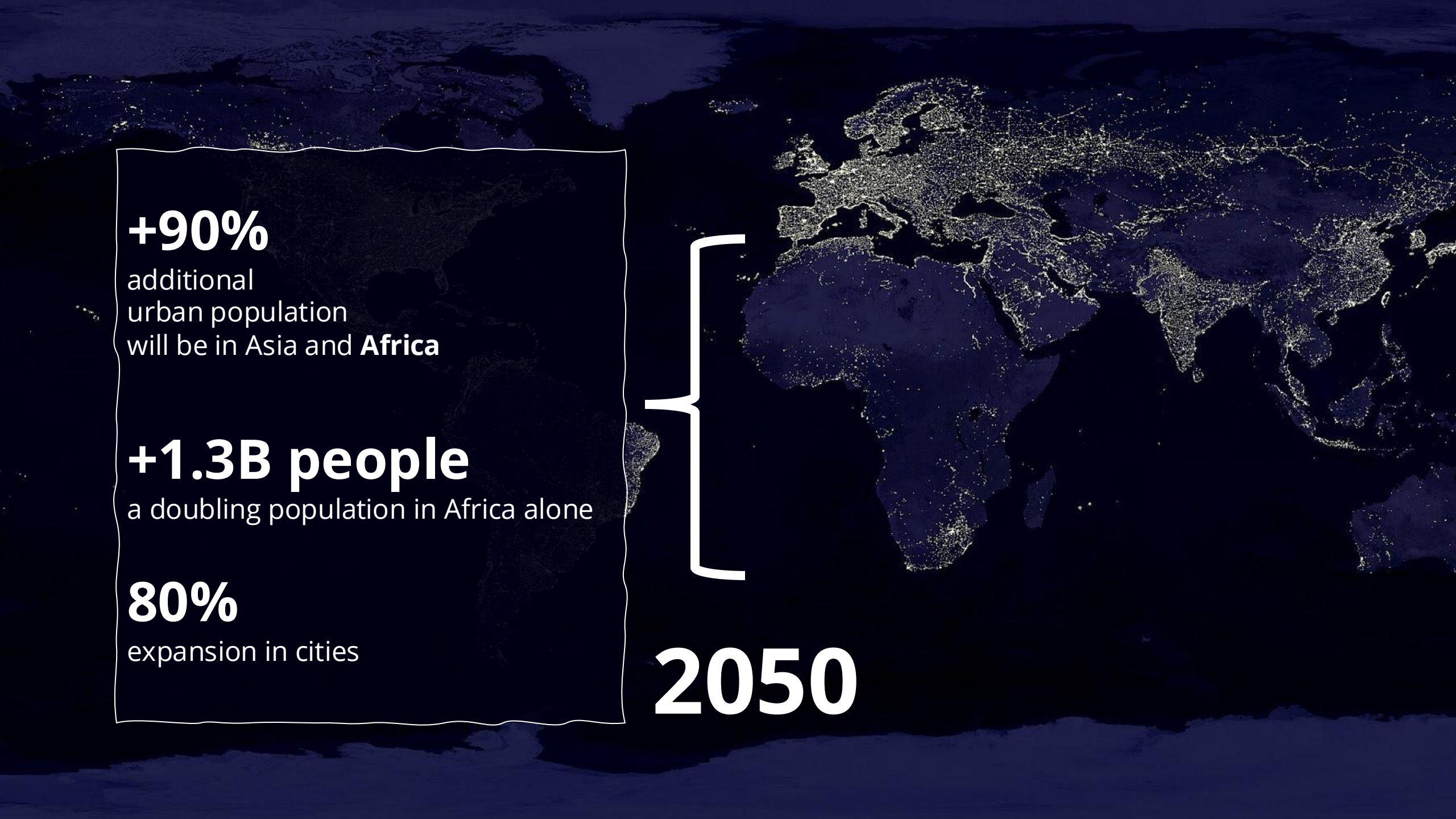
183 Billion

Square Meters by 2026

Navigant Research (26 April, 2018)

Image Credit: Davey, adapted from Sam Rohn (22 February, 2016)


Cities represent
3%
of earth total surface
75%+
of planetary climate resources problems
creating buildings + (mis)management
2024



+90%
additional
urban population
will be in Asia and **Africa**

+1.3B people
a doubling population in Africa alone

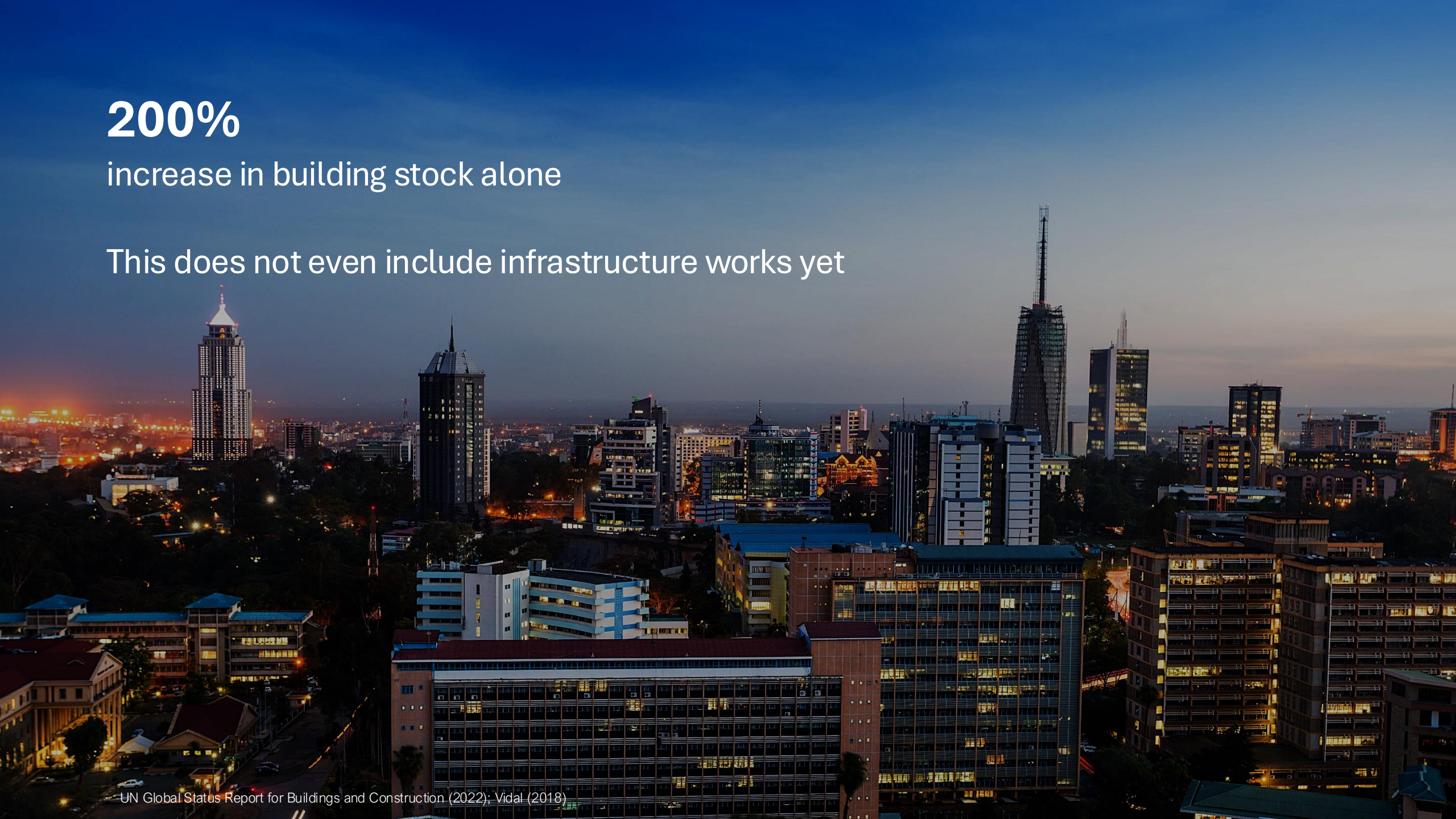
80%
expansion in cities

2050

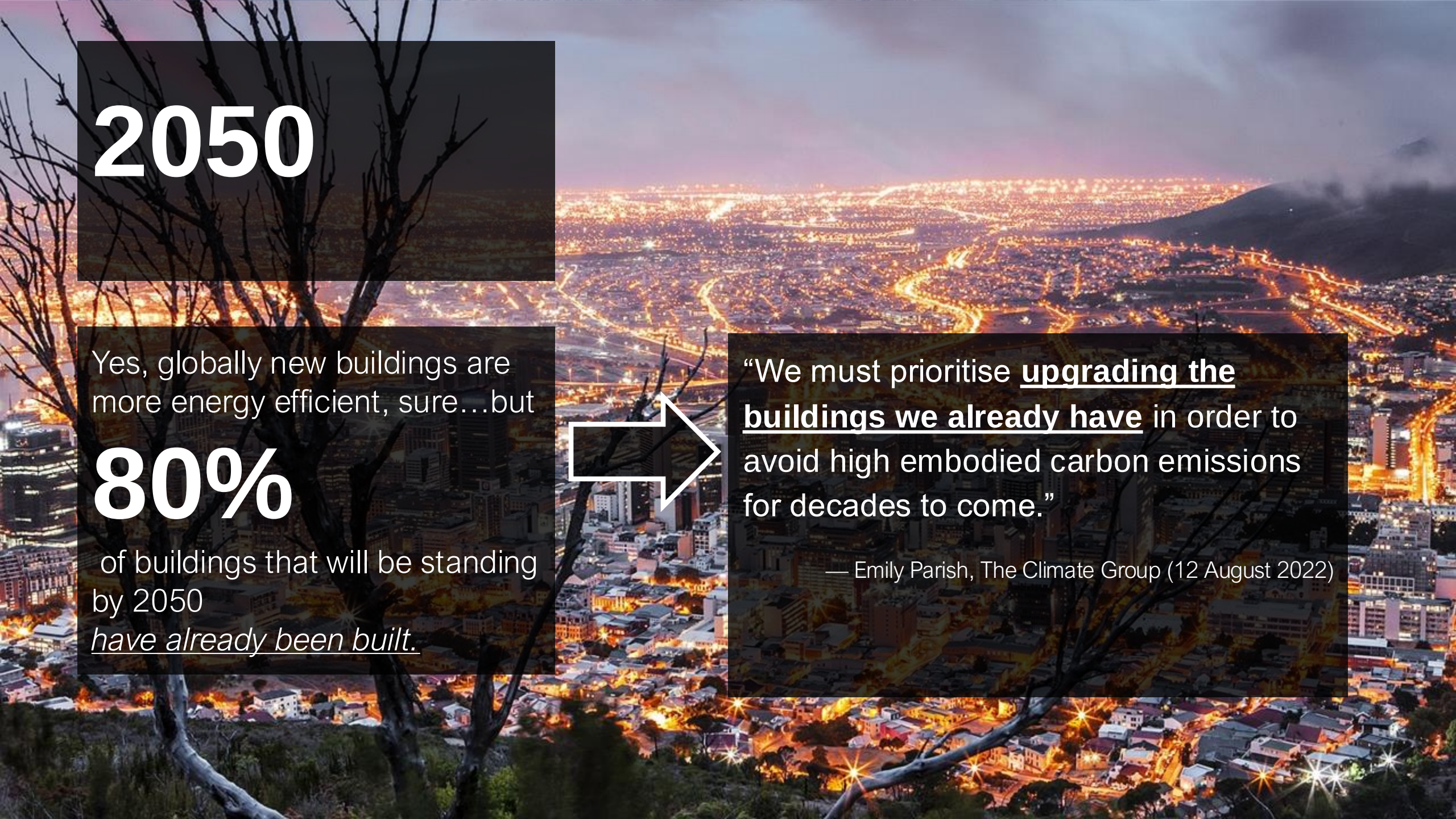
200%

increase in building stock alone

This does not even include infrastructure works yet



UN Global Status Report for Buildings and Construction (2022); Vidal (2018)


2050
Yes, globally new buildings are more energy efficient, sure…but
80%
of buildings that will be standing by 2050
have already been built.
"We must prioritise upgrading the buildings we already have in order to avoid high embodied carbon emissions for decades to come."
— Emily Parish, The Climate Group (12 August 2022)

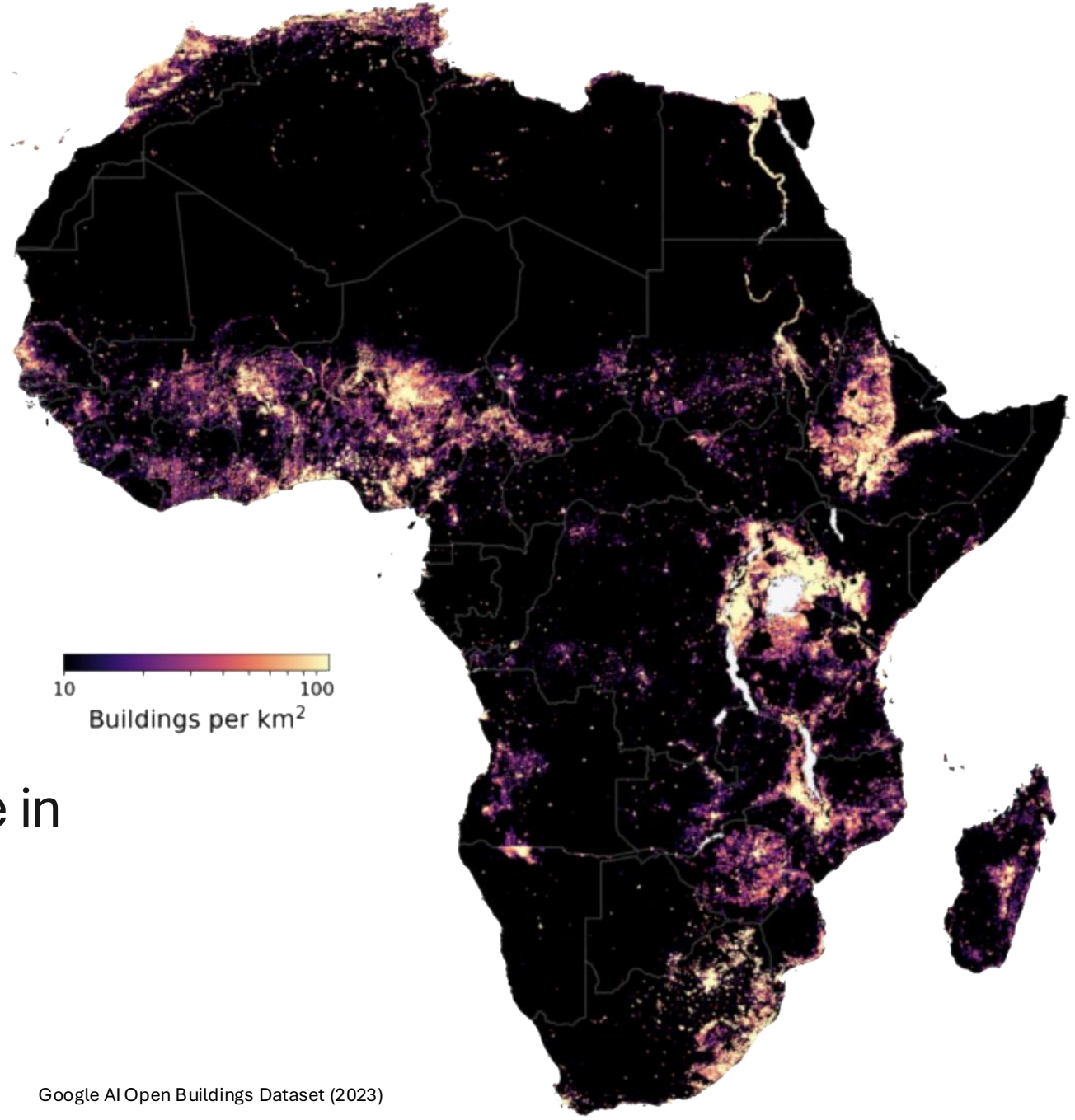
In Africa,

the situation is reversed

In Africa,

100s

Smaller African cities double in size every 20 years



Google AI Open Buildings Dataset (2023)

In Africa,

the situation is reversed

80%

of African building stocks are *yet to be built*

UN Global Status Report for Buildings and Construction (2022); Vidal (2018)

Lifecycle Math

Commercial Building Design (ave max)
3 yrs (dev & design) + 3 yrs (construction)

6%

designing & making of a building
(physical + informational work)

High-performing regions
9 months - 24 months = 4%

Merely 6% of a buildings life is in its design and construction

94%

of its life lies is in the use of building.
(physical + informational work)

Maintenance, operations, utilities, deconstruction, upgrades, etc…

Where does our effort go to?
How do we spend our time when we work in the built environment?

- The average employee spends 2.5 hours a day **looking** for information
- Adds up to **8.8 hours per week = >** than 1 full workday per person
- McKinsey found that employees spend up to **1.8 hours per day**

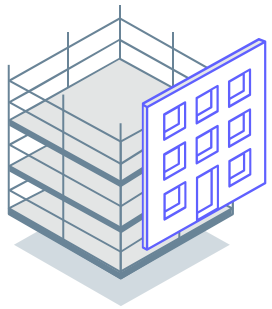
- Jani Viljoen, BakerBaynes, Big 5 Construction, South Africa, June 2024

What the heck?

25% !!!!

Of all our productive time is simply wasted, looking for stuff.

Impact of poor Information Management in Construction



$280B/yr

Industry annual **rework costs** caused by poor project data and communication

35%

of **time** spent on non-productive activities by GCs

96%

Of all **data goes unused** in engineering and construction

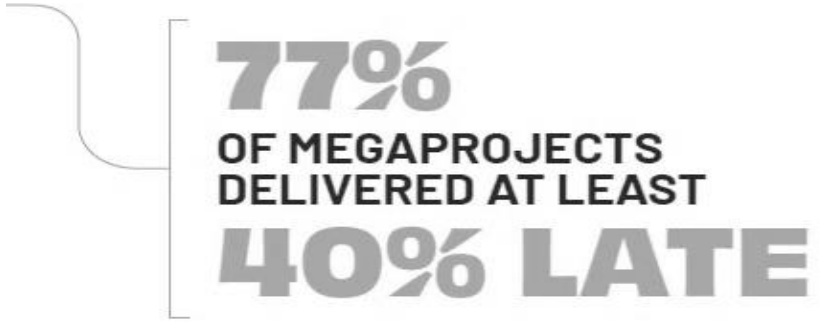
- Source: FMI, Jani Viljoen, BakerBaynes, Big 5 Construction, South Africa, June 2024

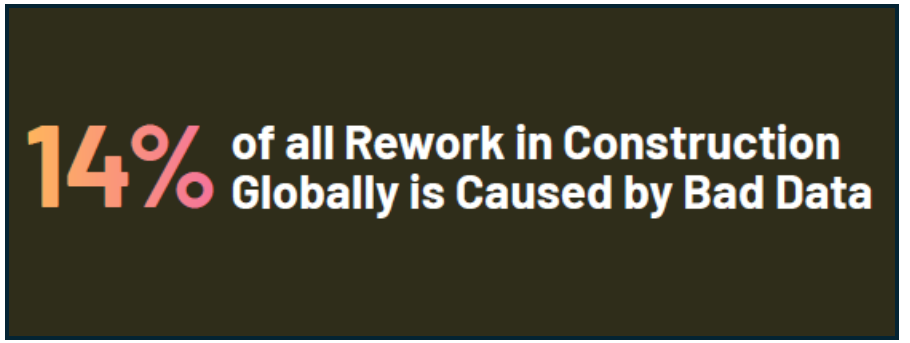
The Cost of Constructions Data Dilemma

Material waste and schedule overruns are common concerns in construction and those challenges are only increasing in scale over time.

A recent study from Transparency Market Research projected that global construction waste will reach 2.2 billion tons by 2051.

And with mega-projects becoming increasingly common undertakings, McKinsey found that 77% of them are delivered at least 40% late.





Jani Viljoen, BakerBaynes, Big 5 Construction,
South Africa, June 2024

Where does our effort go to?
How do we *want to* spend our time when we work in the built environment?

Harambee.

Together.

We are building the digital commons
for thriving buildings, cities, communities, and
environments in Africa.

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BIMCommunityAfrica

Before we Tech, we must Culture.

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1

Leave your badge at the door.

2

Do something good for someone else.

3

Take care of the future.

BIM Culture & Purpose

Before we BIM, ask Why?

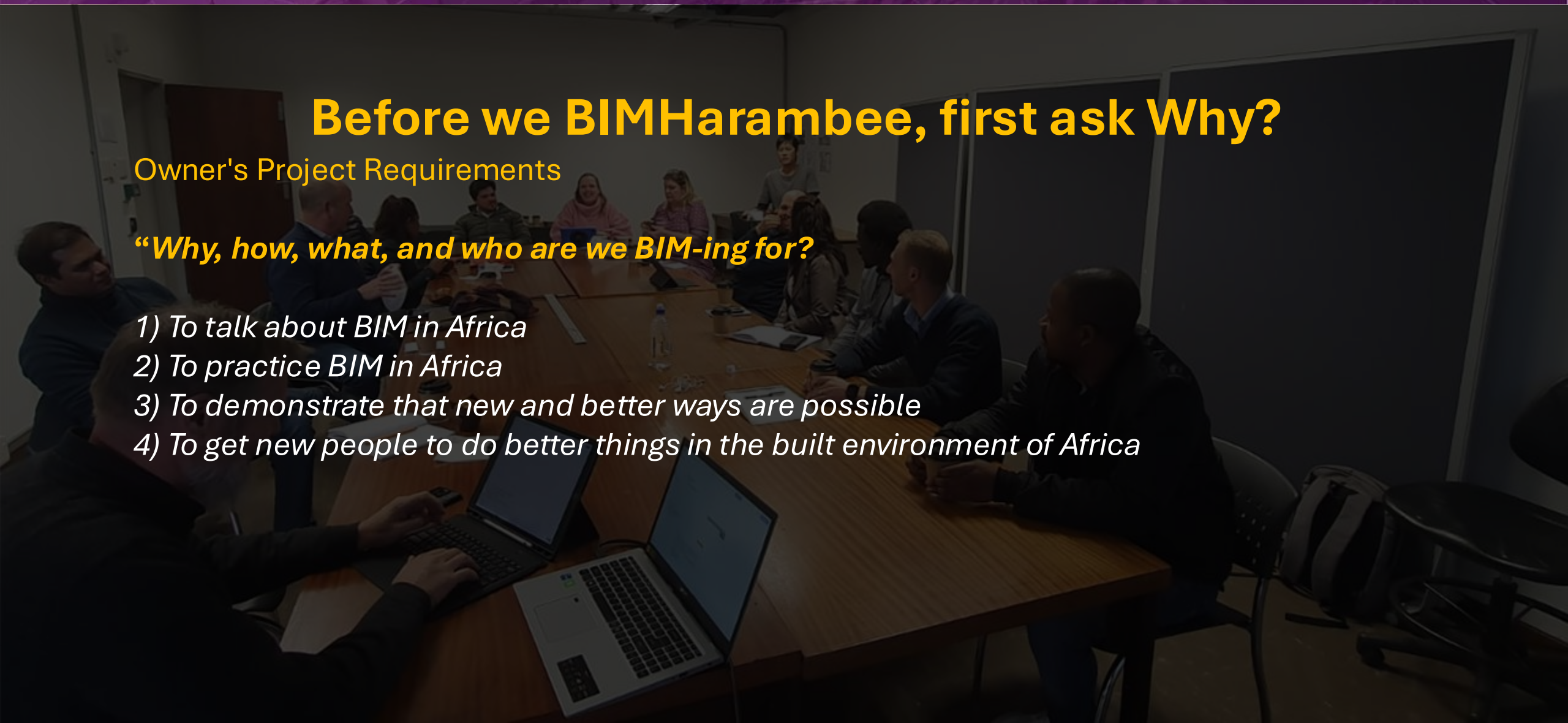
Owner's Project Requirements

"*Why do we want to work together?*"

"*How do we want to work together?*"

"What and who are we building for?"

BIM Culture & Purpose



Before we BIMHarambee, first ask Why?

Owner's Project Requirements

"Why, how, what, and who are we BIM-ing for?

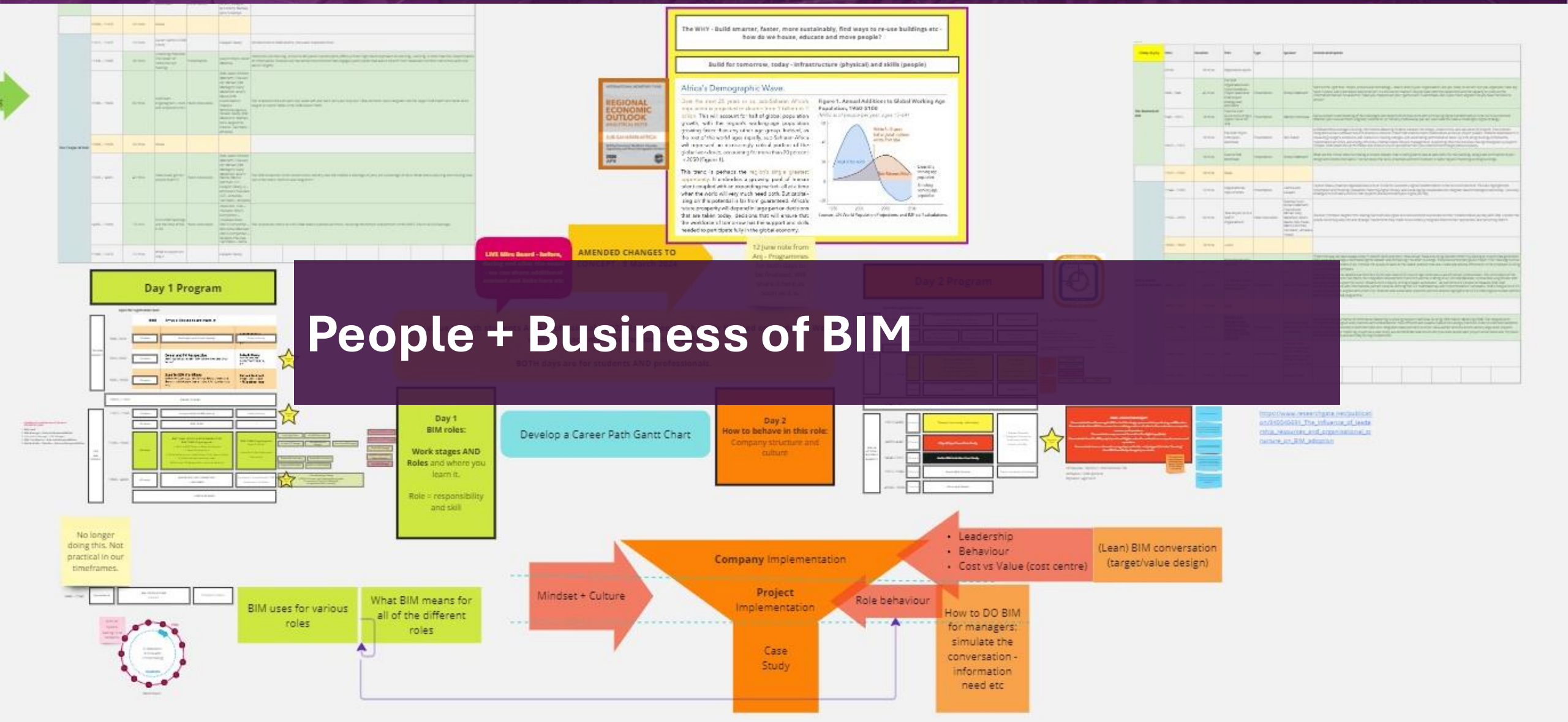
1) To talk about BIM in Africa
2) To practice BIM in Africa
3) To demonstrate that new and better ways are possible
4) To get new people to do better things in the built environment of Africa

BIM Culture & Purpose

- BIM is not about perfect products, but about intelligent processes
- BIM => *Better Information Management*
- Lead and serve others through behavioural change within our work

To expose a new generation of African built environment practitioners to process-driven and collaborative ways of working together

Before we BIMHarambee 2024, how do we produce value?
Before we BIMHarambee 2024, how do we serve others?



People + Business of BIM

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Our goal is not to show you
“perfect BIM” but support you in adopting

BIM Behaviors

Collective Project Culture through BIM Technologies