



# Value of Asset Lifecycle Management Integration

MAXIMILIAN OVETT

TRIMBLE



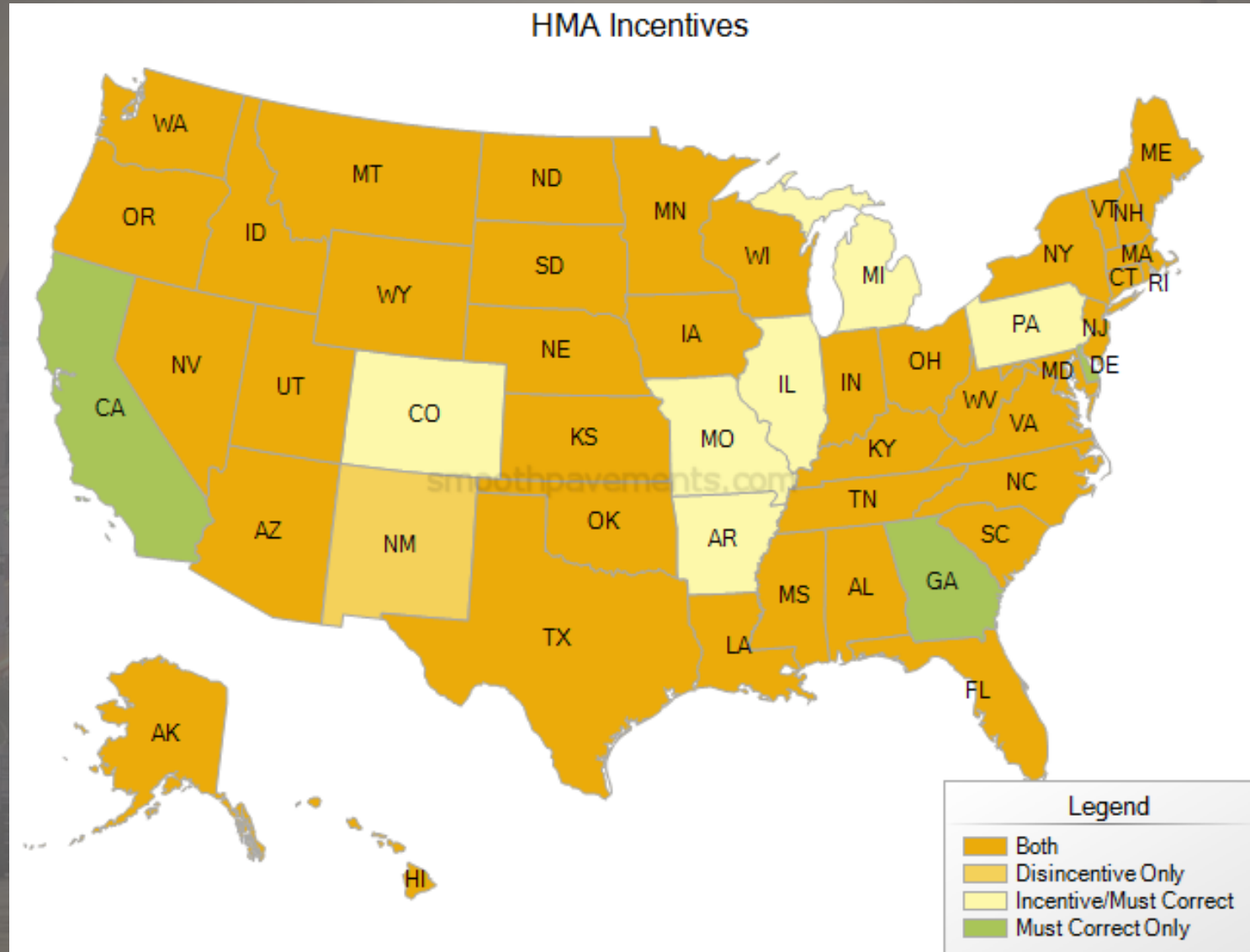
**RPUG**  
Road Profile Users' Group

# The Questions...



- ARE SMOOTHER PAVEMENTS REALLY EXTENDING THE LIFE OF THE PAVEMENT AND, IF SO, BY HOW MUCH?
- ARE ROUGH PAVEMENTS DECREASING THE LIFE OF PAVEMENT AND IF SO, BY HOW MUCH?
- IS IT FINANCIALLY WORTH IT TO INCENTIVISE SMOOTH PAVEMENTS?
- IS THE AGENCY PENALIZING THE CONTRACTOR ADEQUATELY OR EXCESSIVELY?

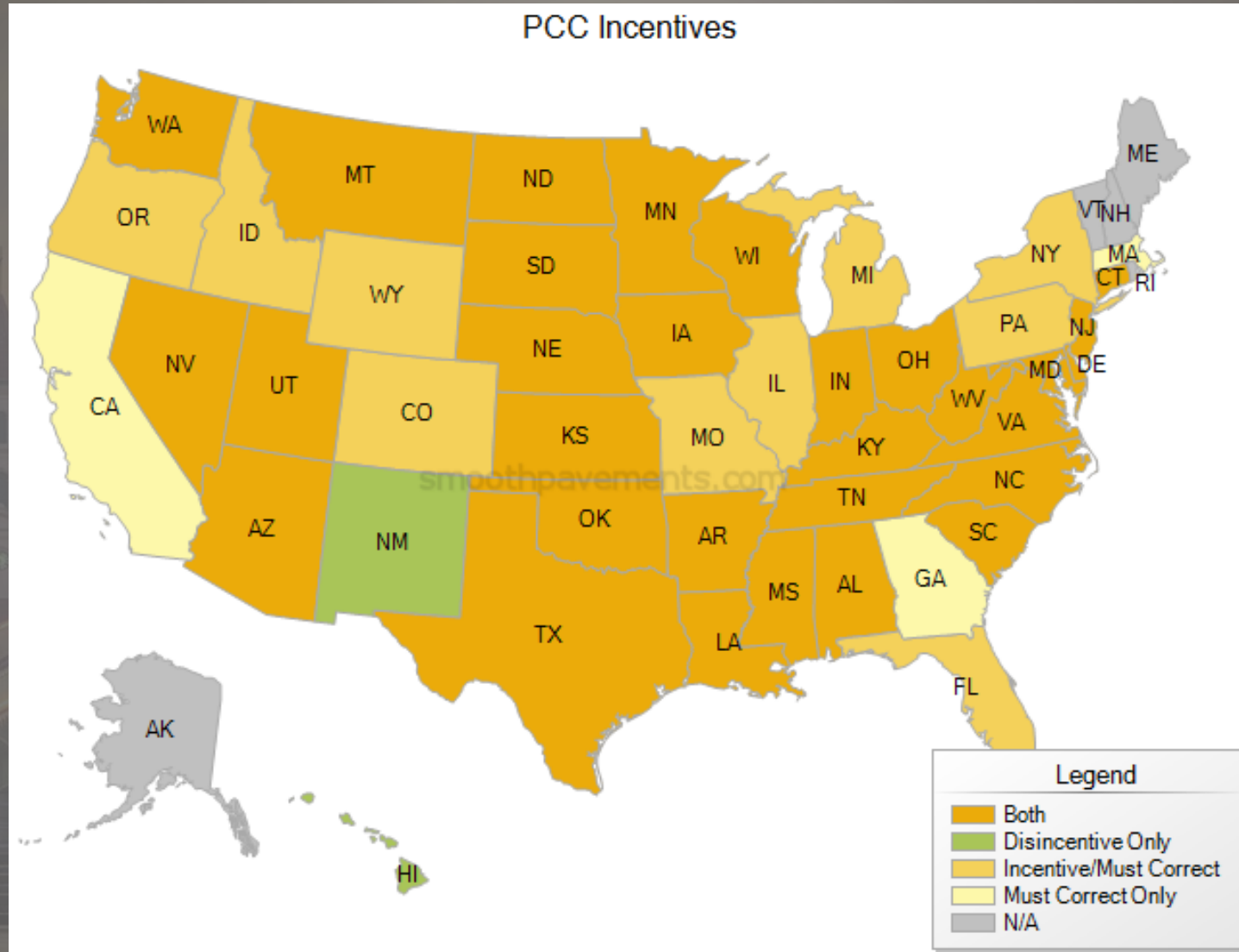
# HMA Incentives (Positive Pay Adjustments)



REFERENCE:

[HTTPS://WWW.SMOOTHPAVEMENTS.COM/CONTENT.ASPX?ID=1](https://www.smoothpavements.com/content.aspx?id=1)

# PCC Incentives



REFERENCE:

[HTTPS://WWW.SMOOTHPAVEMENTS.COM/CONTENT.ASPX?ID=1](https://www.smoothpavements.com/content.aspx?id=1)



# Smoothness & It's Lifespan

- SMOOTH PAVEMENTS ARE IMPORTANT TO THE END USER (AKA THE TAXPAYER)
- SMOOTHER ROADS LAST LONGER
- SMOOTHER ROADS STAY SMOOTHER LONGER
- SMOOTHER ROADS ARE SAFER
- INCENTIVES AND DECENTIVES CAN BE ATTACHED TO SMOOTHNESS

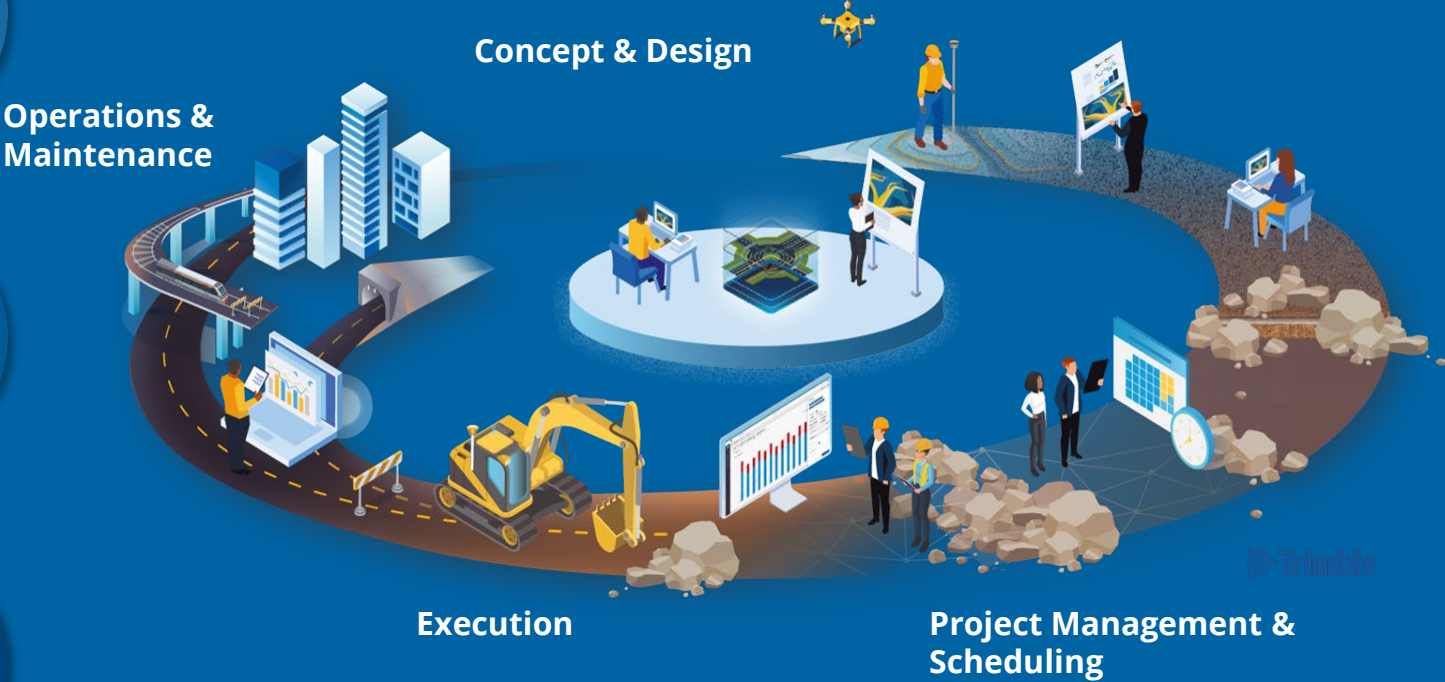
REFERENCE: [HTTPS://WWW.SMOOTHPAVEMENTS.COM/CONTENT.ASPX?ID=1](https://www.smoothpavements.com/content.aspx?id=1)

# Connected Construction & Asset Lifecycle

**CENTRALIZE DATA BETWEEN STAKEHOLDERS, ACROSS PHASES**  
*COMMON DATA ENVIRONMENT*

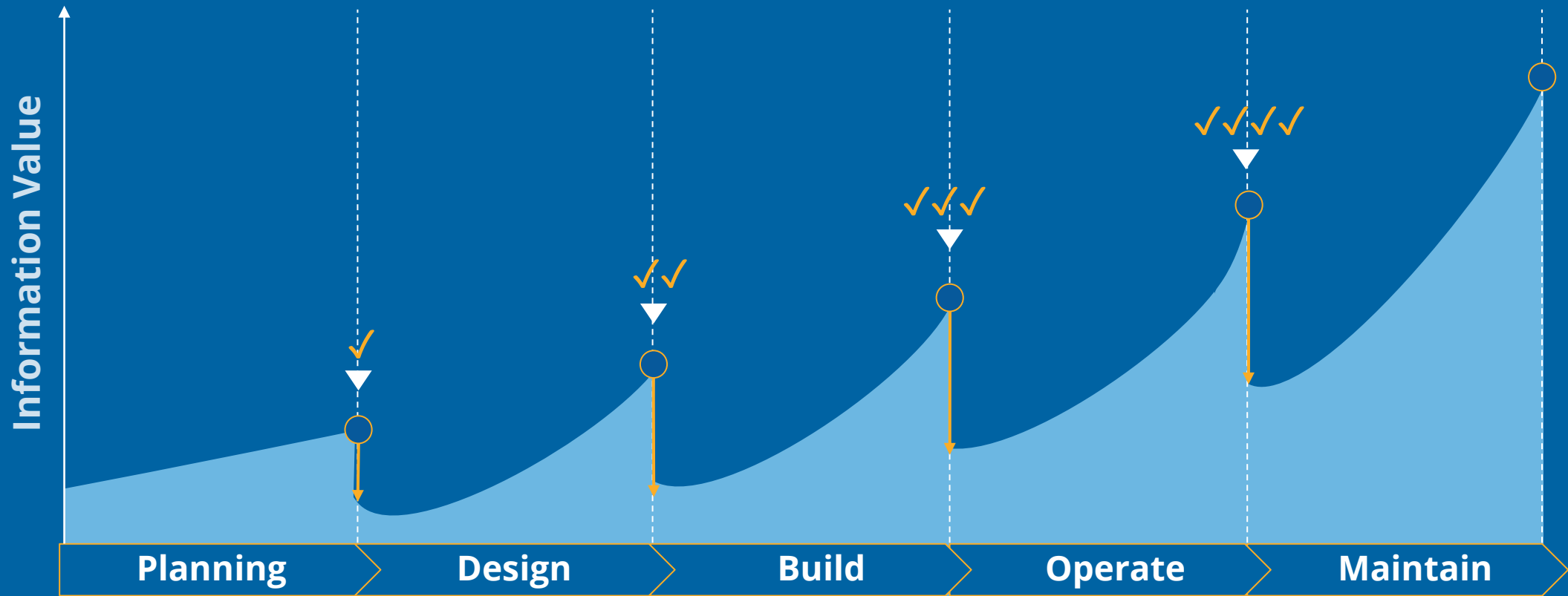
**BRIDGE THE GAP BETWEEN DESIGN AND CONSTRUCTION**  
*CONNECTING THE OFFICE AND THE FIELD*

**CAPTURE DIGITAL ASSETS FOR FUTURE USE**  
*DIGITAL TWINS AND DIGITAL DELIVERABLES*



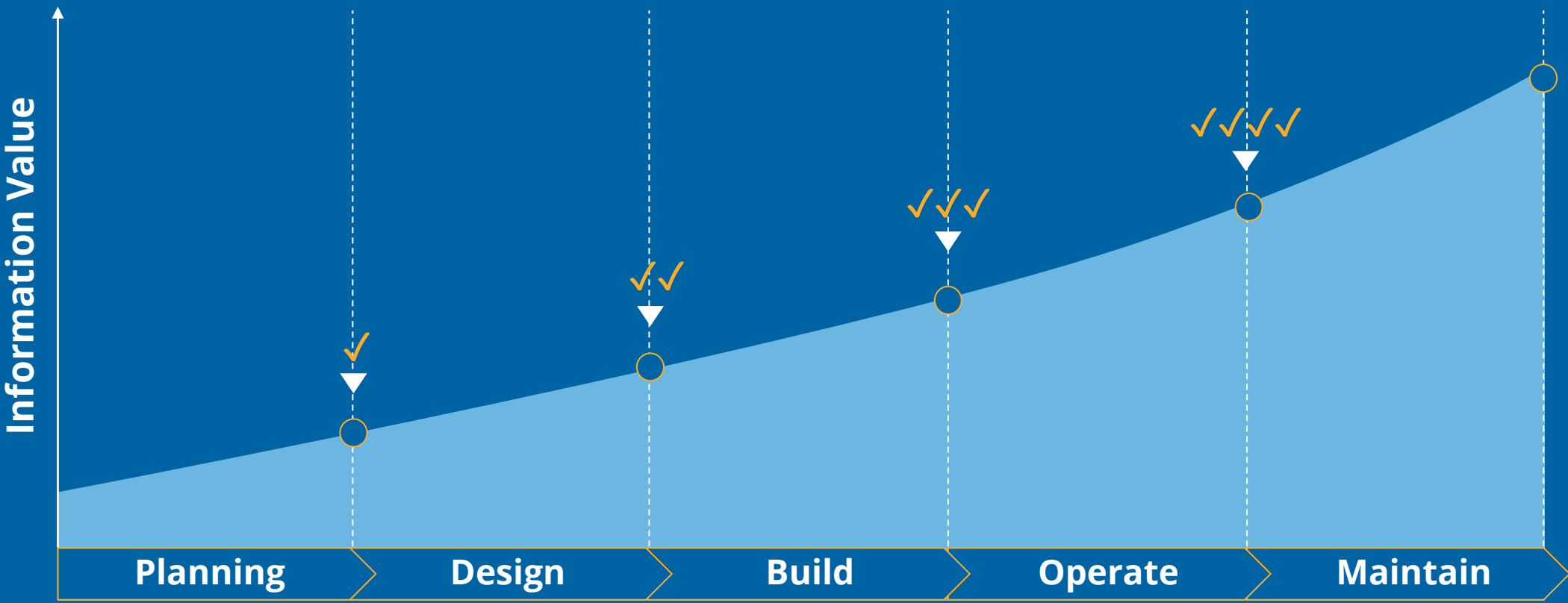
# Disconnections Cause Productivity Setbacks

Actual State: Information Loss Across The Lifecycle



# Value of Asset Data Grows Over Time

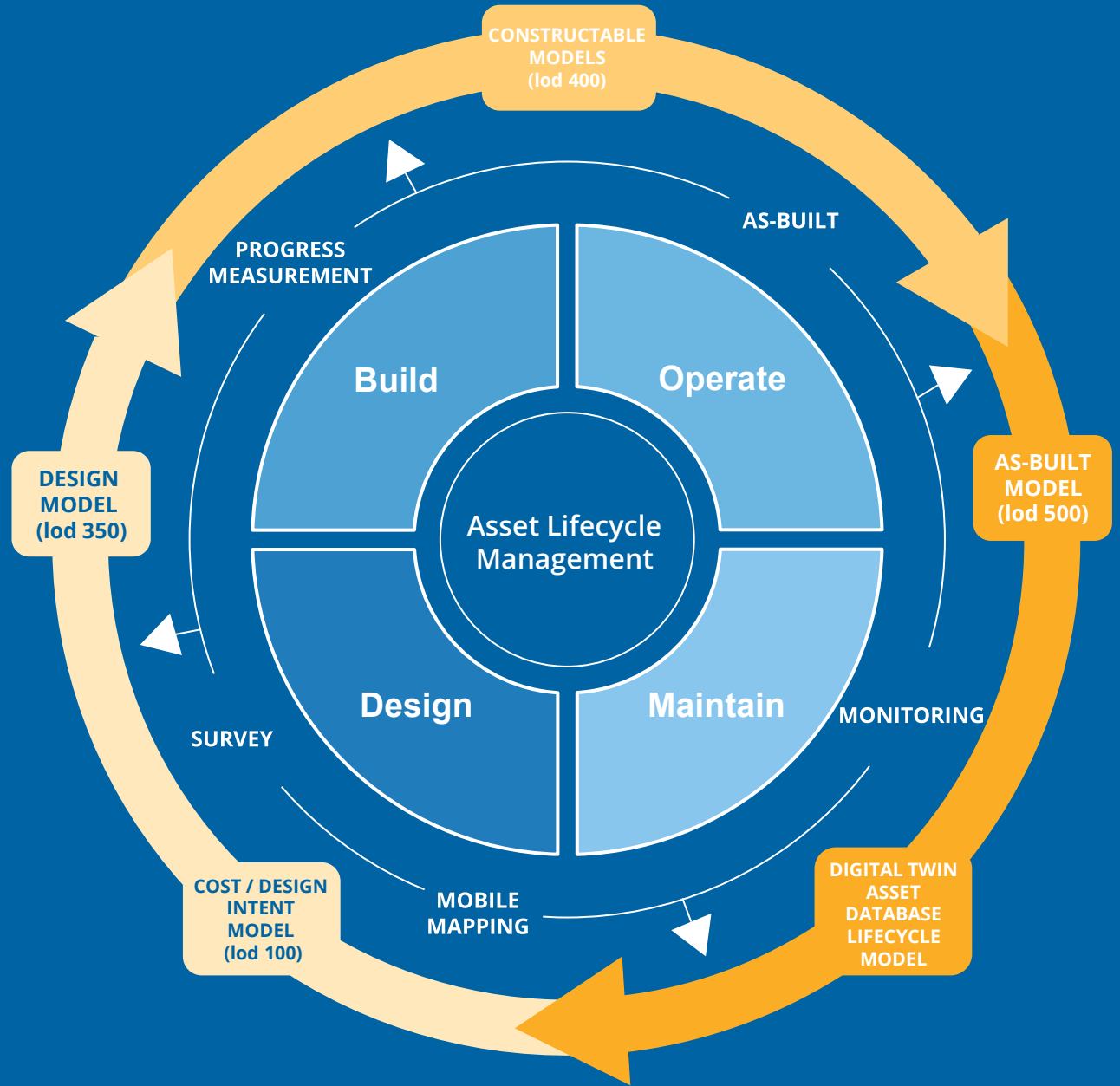
Ideal State: Every Department Connected Across The Lifecycle





# An Asset Owner's Digital Platform

- Connects **systems of record** from design through operations by being **open and interoperable**
- From the start, every asset gets a **digital id**
- **Digital delivery** process is used throughout each phase
- This builds & maintains **digital twin**
- Physical world reality is captured and informs a **common data environment**



**LEGEND**

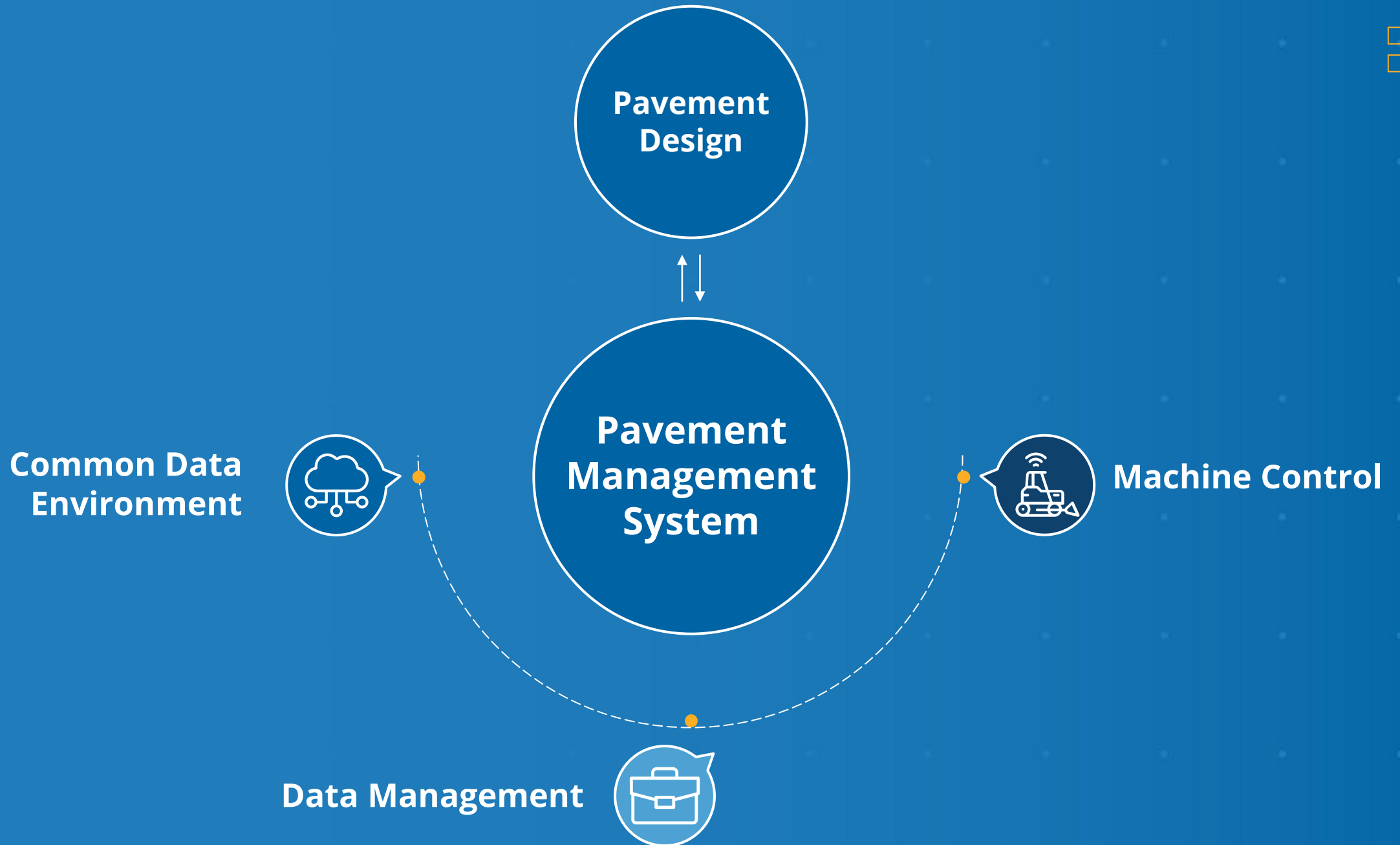
- Common Data Environment
- Reality Capture
- Workflows





**Vision for Full Pavement  
Lifecycle Management**





# Data from Construction & Materials System



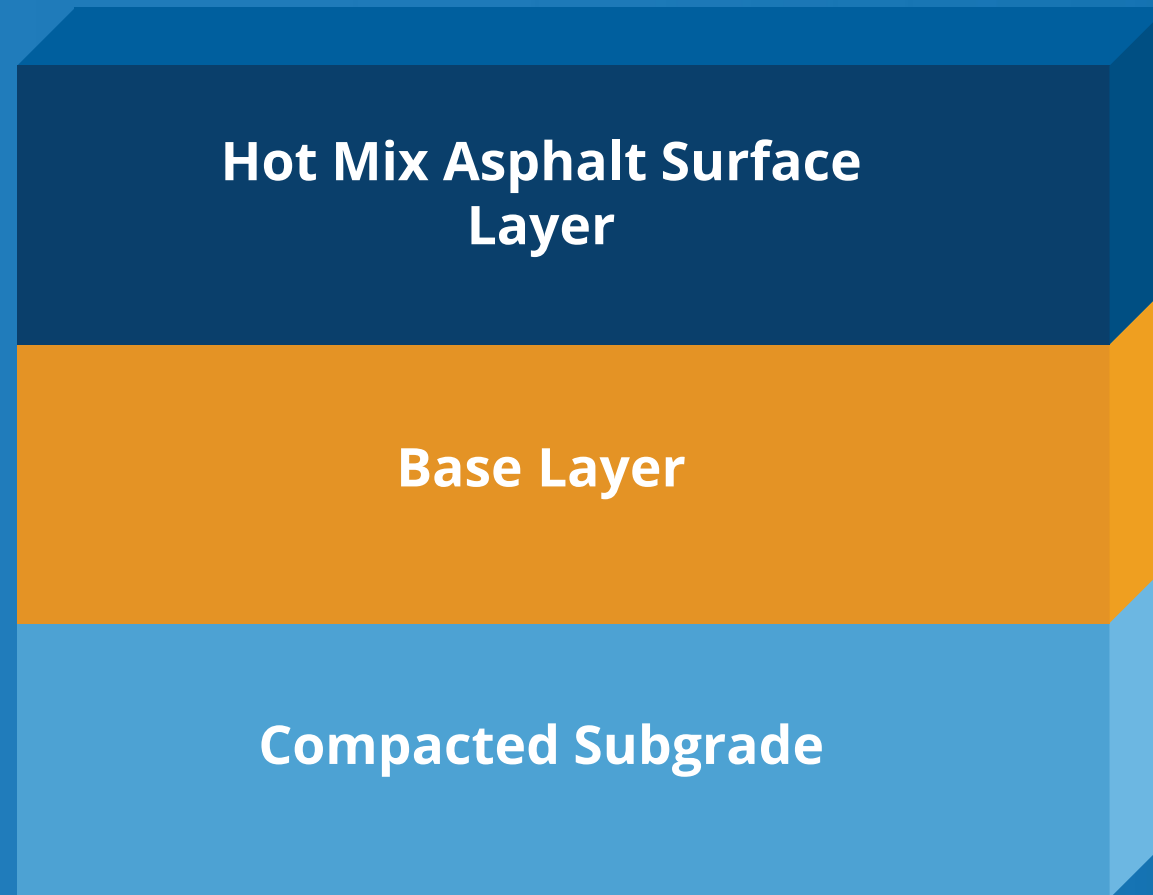
Project Construction  
Management & Material  
Testing System

Common Data  
Environment



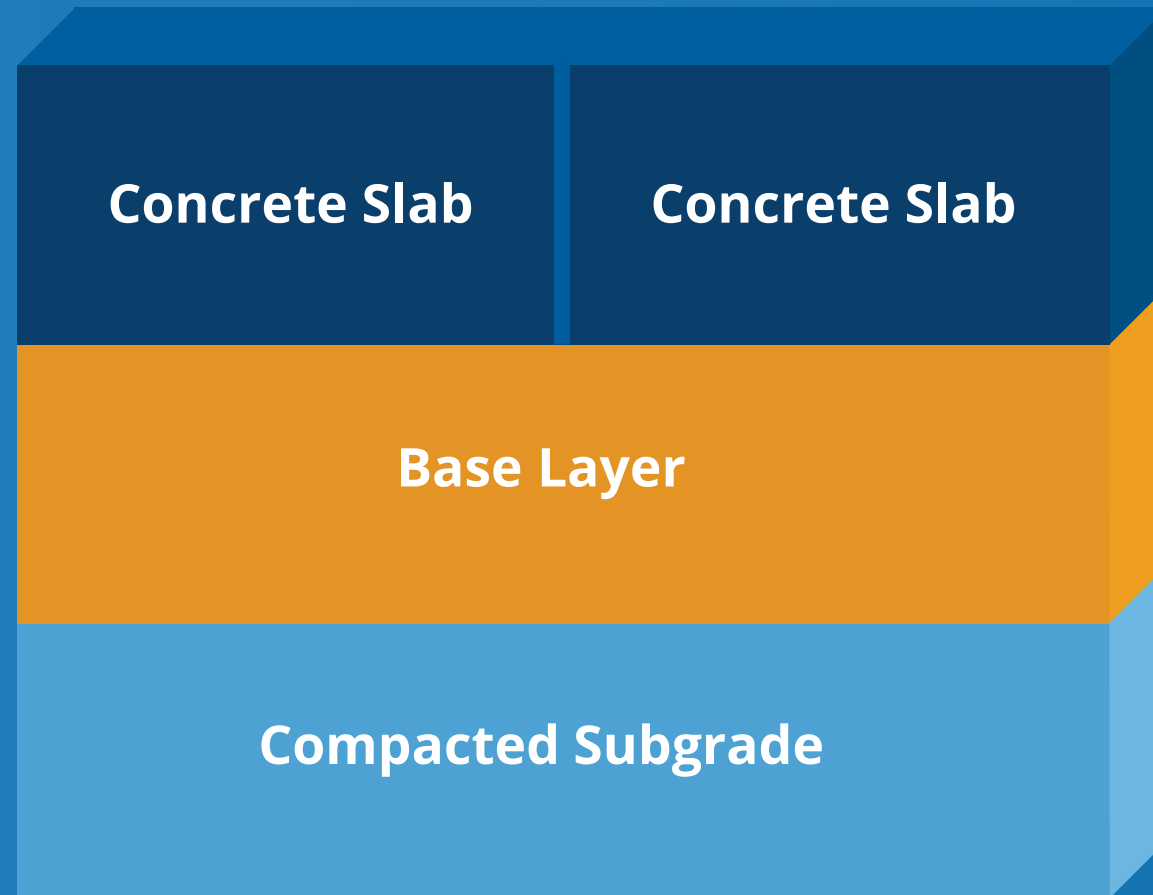
# Flexible Pavement

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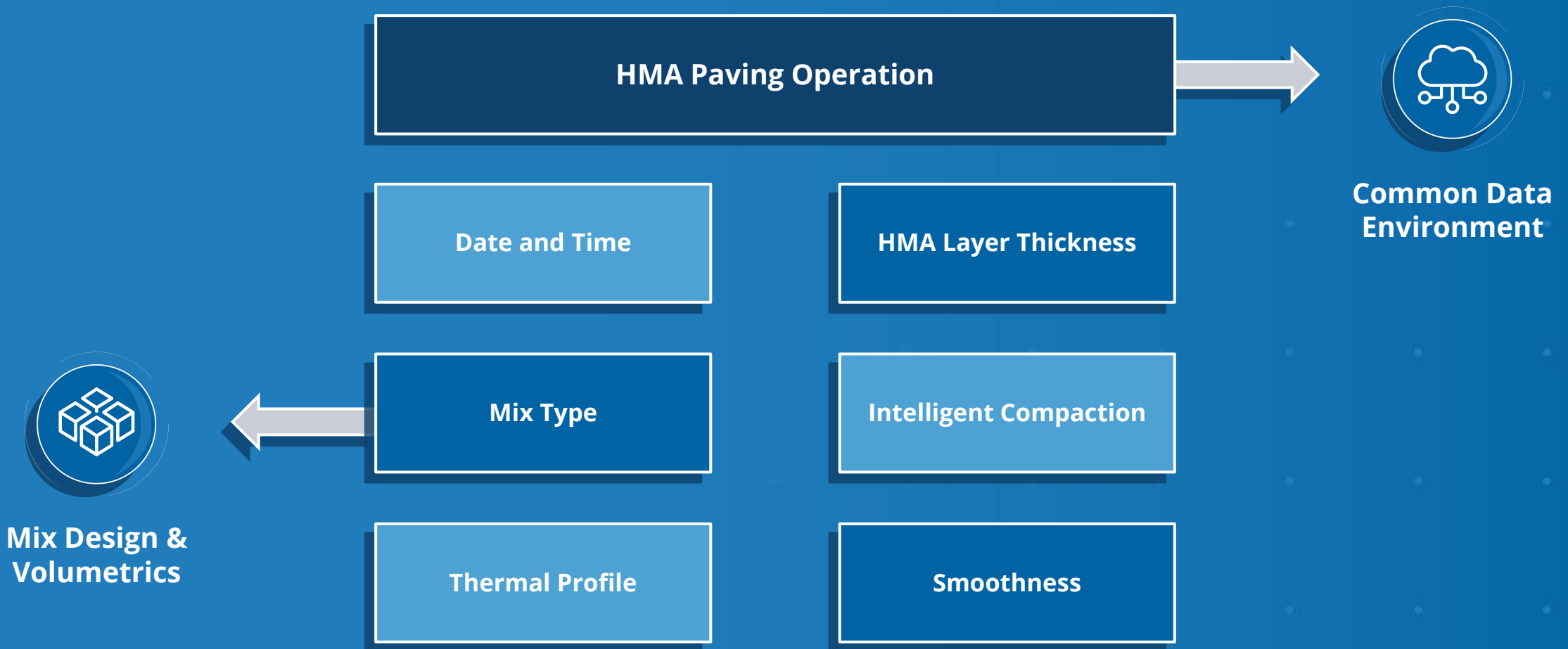


# Rigid Pavement

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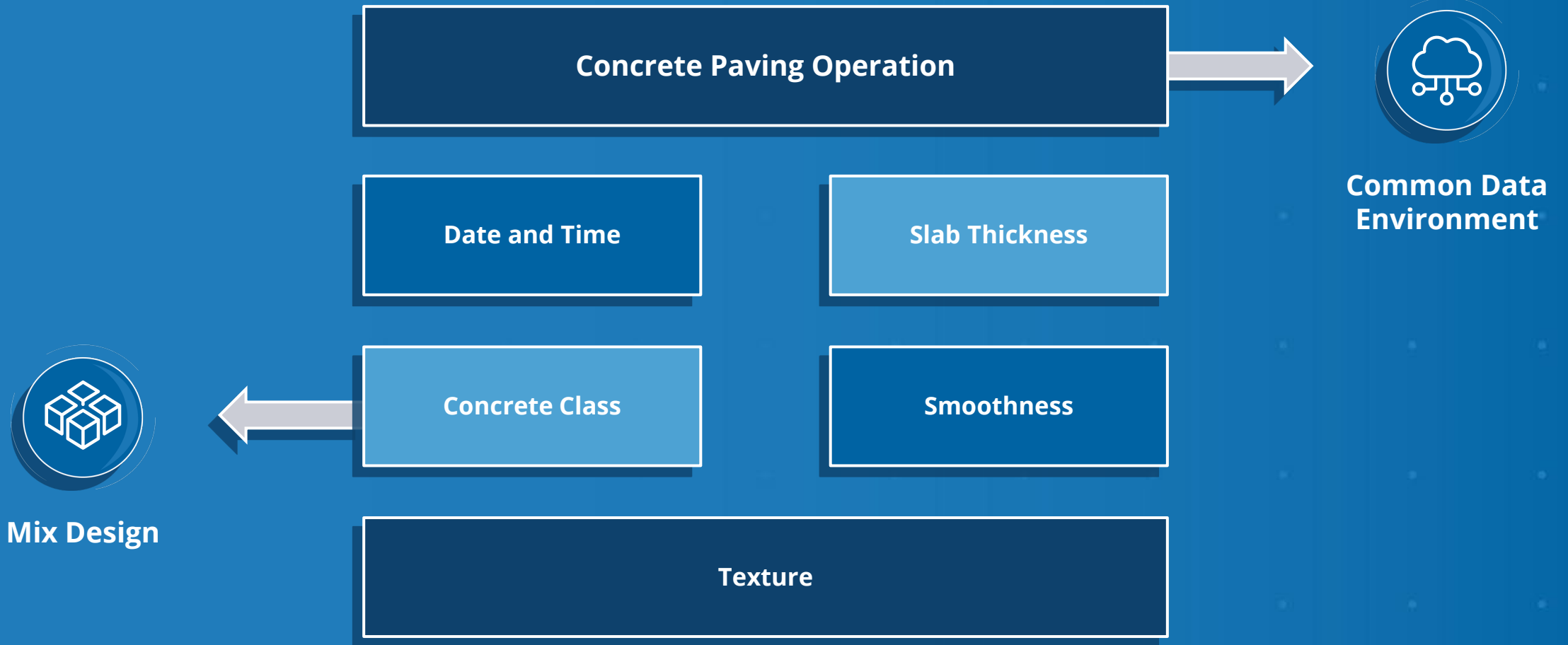
# Data for HMA from Equipment



Mix Design & Volumetrics

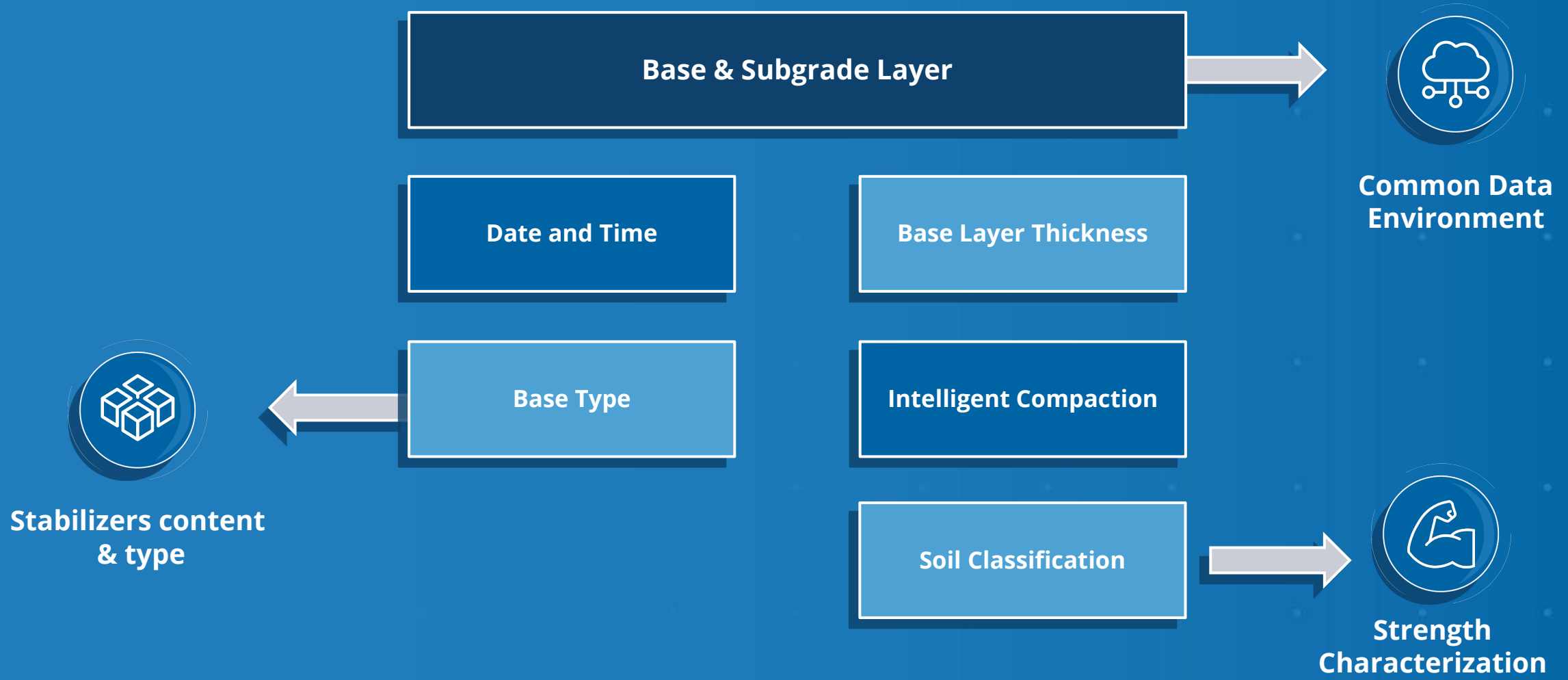


# Data for Concrete from Equipment





# Data for Base & Subgrade Layer



# Benefits of Full Lifecycle Management (ALM)

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- Improve data availability and access
- Eliminate data redundancy
- Improve Decision making
- Improve efficiency
- Save time & money
- Analyze the road network in both fine detail (.1mile) and macro



# Benefits of Fully Integrate ALM- Materials Research

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- Access to detailed Materials test results providing full coverage of Road Network
- Ability to compare performance of different materials
- Ability to compare performance of Contractors & material suppliers
- Ability to evaluate changes in Standards and Specifications



# Benefits of Fully Integrate ALM- Analytics

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- Ability to develop more accurate deteriorations models for analysis
- Quantify the benefit of the different rehabilitation strategies
- Quantify the benefits of preservations treatments
- Modify Pavement Asset decision trees based on performance and field results
- Ability to include other data sources in the analysis of pavement assets (weather, etc)
  - <https://www.artba.org/news/using-data-to-improve-the-design-and-management-of-transportation-infrastructure/>



# Questions

