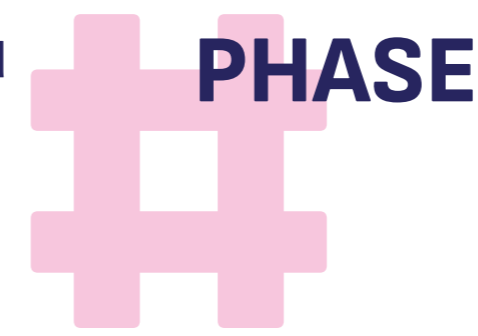


END-TO-END HOUSING PRODUCTION

The Lifecycle of a Home

Legend



QUESTION
the home asks in this phase

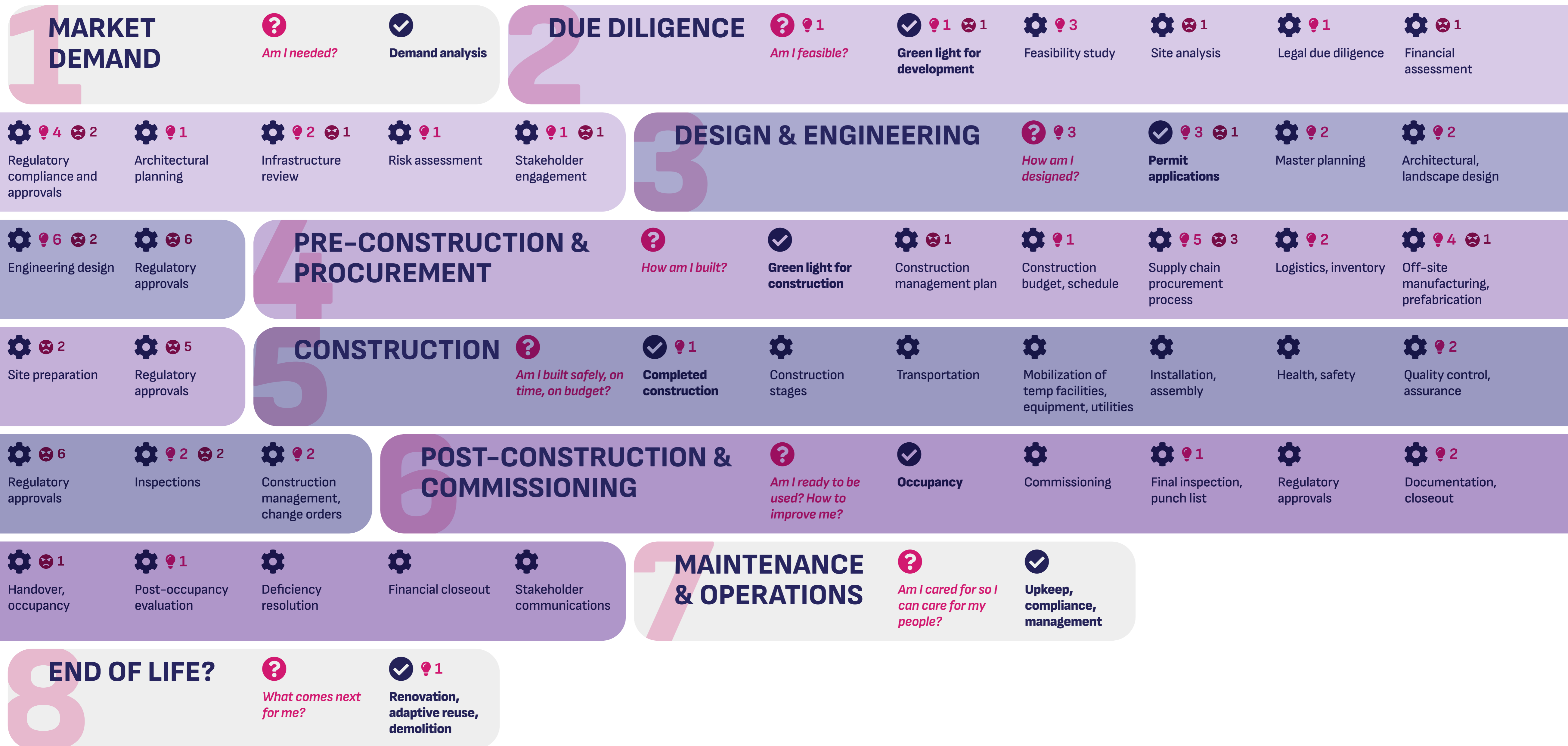


OUTCOME
the home needs to go to next phase



ACTIVITY
to support the outcome


opportunities pain points



Phase 2 DUE DILIGENCE

Legend

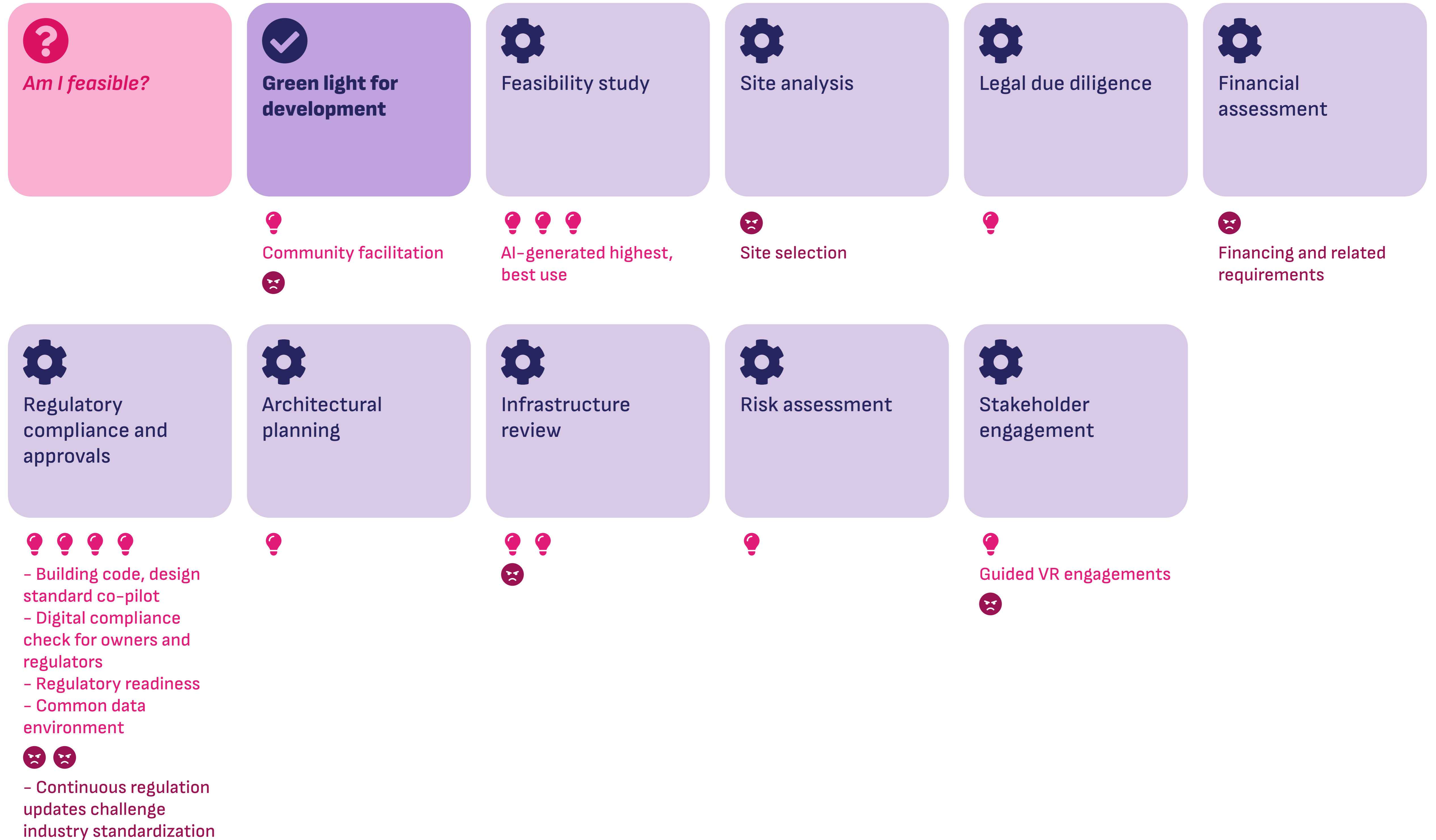
 **QUESTION**
the home asks in
this phase

 **OUTCOME**
the home needs to
go to next phase

 **ACTIVITY**
to support the
outcome


 **OPPORTUNITY**
to explore

 **PAIN POINT**
to remedy



Phase 3 DESIGN & ENGINEERING

Legend

 **QUESTION**
the home asks in
this phase

 **OUTCOME**
the home needs to
go to next phase

 **ACTIVITY**
to support the
outcome


 **OPPORTUNITY**
to explore

 **PAIN POINT**
to remedy


How am I designed?



- AI-assisted with human intervention
- Parametric units with standardized elements
- BIM all the way


Permit applications



BIM for permitting




Approval process needs reconfiguring


Master planning




Architectural,
landscape design




Engineering design



- BIM-led
- Optimize and standardize production design
- AI-assisted design



Pre-construction constructability would inform design and engineering to be efficient


Regulatory approvals



- Needs digitization
- Liability risk with prefab and preapproval

Phase 4 PRE-CONSTRUCTION & PROCUREMENT

Legend

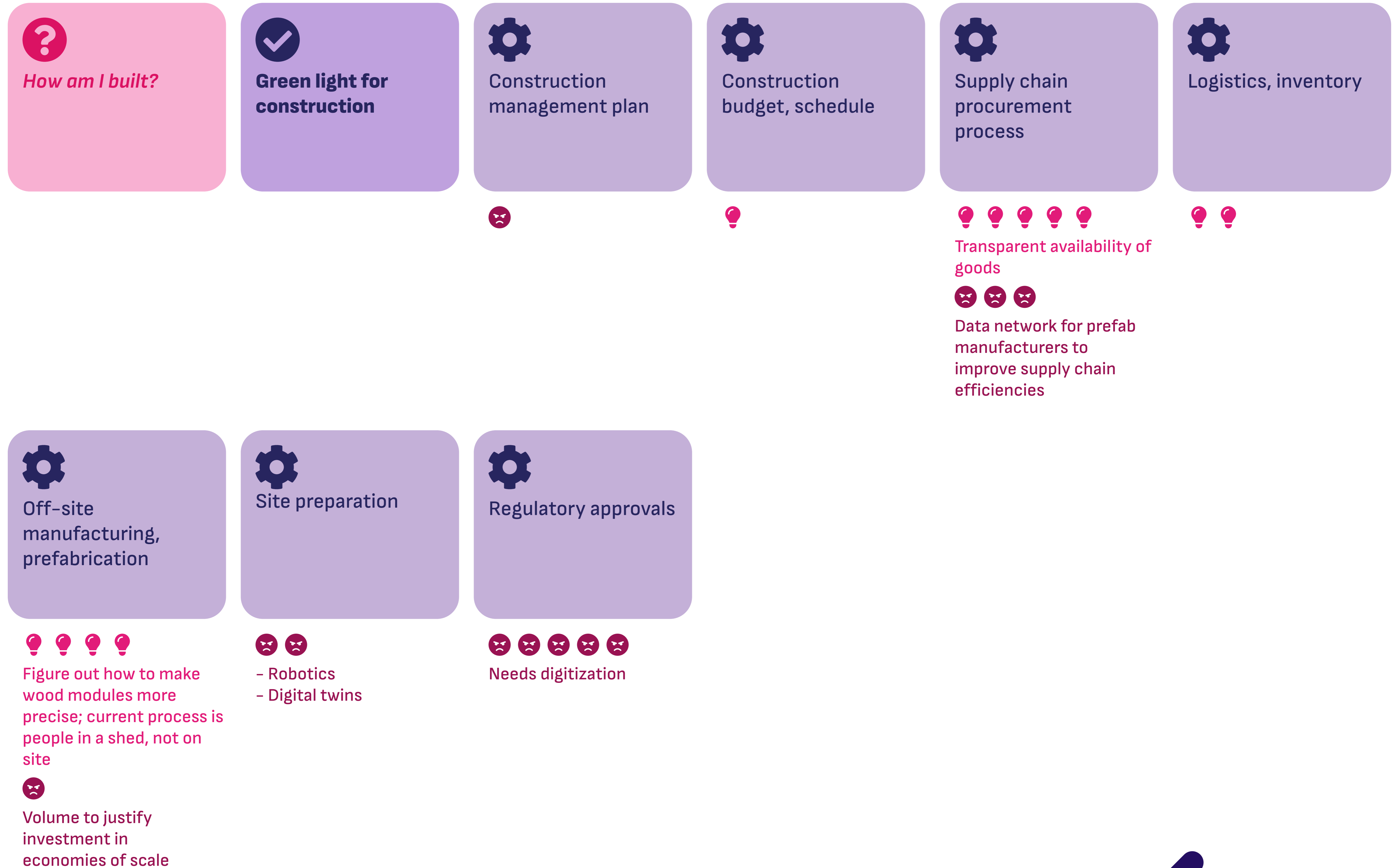
 **QUESTION**
the home asks in this phase

 **OUTCOME**
the home needs to go to next phase

 **ACTIVITY**
to support the outcome

 **OPPORTUNITY**
to explore


 **PAIN POINT**
to remedy



Phase 5 CONSTRUCTION

Legend

 **QUESTION**
the home asks in
this phase

 **OUTCOME**
the home needs to
go to next phase

 **ACTIVITY**
to support the
outcome

 **OPPORTUNITY**
to explore

 **PAIN POINT**
to remedy



*Am I built safely, on
time, on budget?*



**Completed
construction**



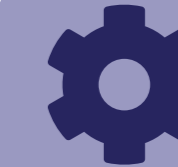
Construction stages



Transportation



Mobilization of
temp facilities,
equipment, utilities



Installation,
assembly



Think of assembly of
parts, not construction



Health, safety



Quality control,
assurance



Regulatory approvals



Inspections



Construction
management,
change orders



Augmented reality for
QC/QA in fabrication



- Needs digitization
- Accelerating permits



Augmented reality for
inspections and
compliance to BIM
model



Air testing for 25
different 4plexes built
the same is expensive
and redundant



Phase 6 POST-CONSTRUCTION & COMMISSIONING

Legend

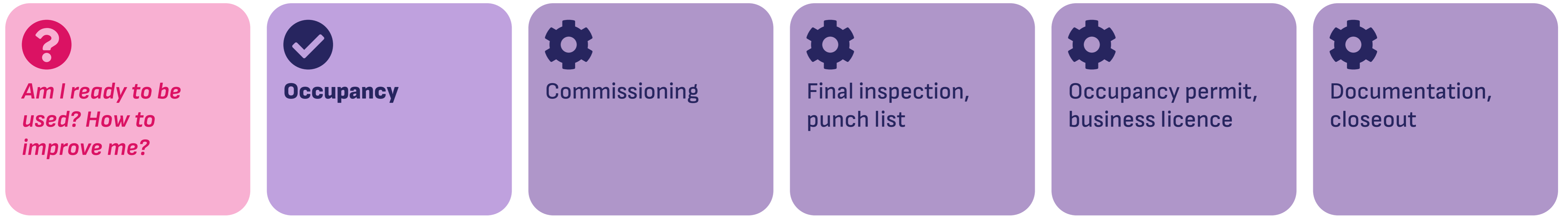
 **QUESTION**
the home asks in
this phase

 **OUTCOME**
the home needs to
go to next phase

 **ACTIVITY**
to support the
outcome

 **OPPORTUNITY**
to explore

 **PAIN POINT**
to remedy



 Lifecycle management

 Barcode and sensing
tech for POE