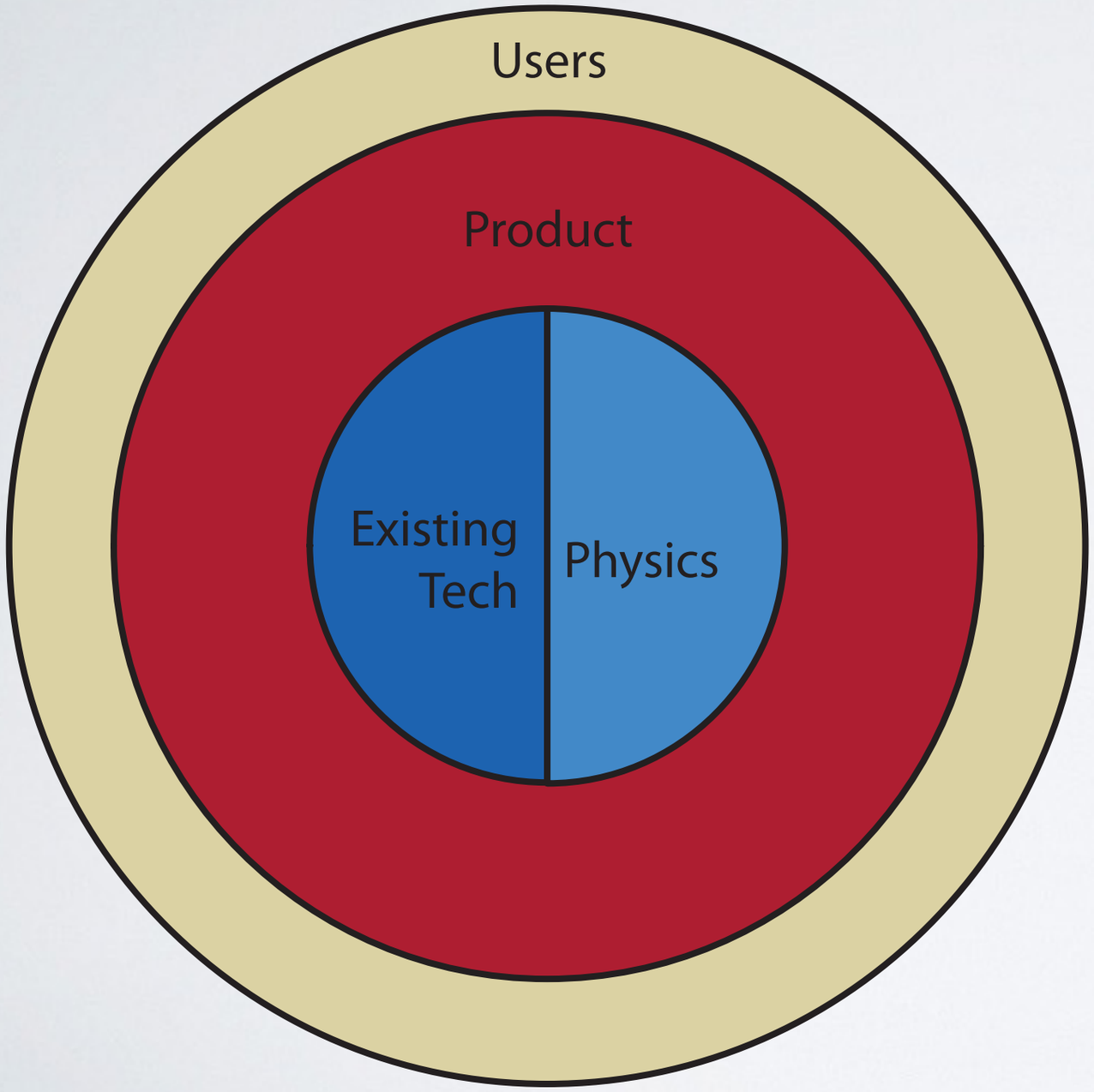
HARDWARE DEVELOPMENT PROCESS

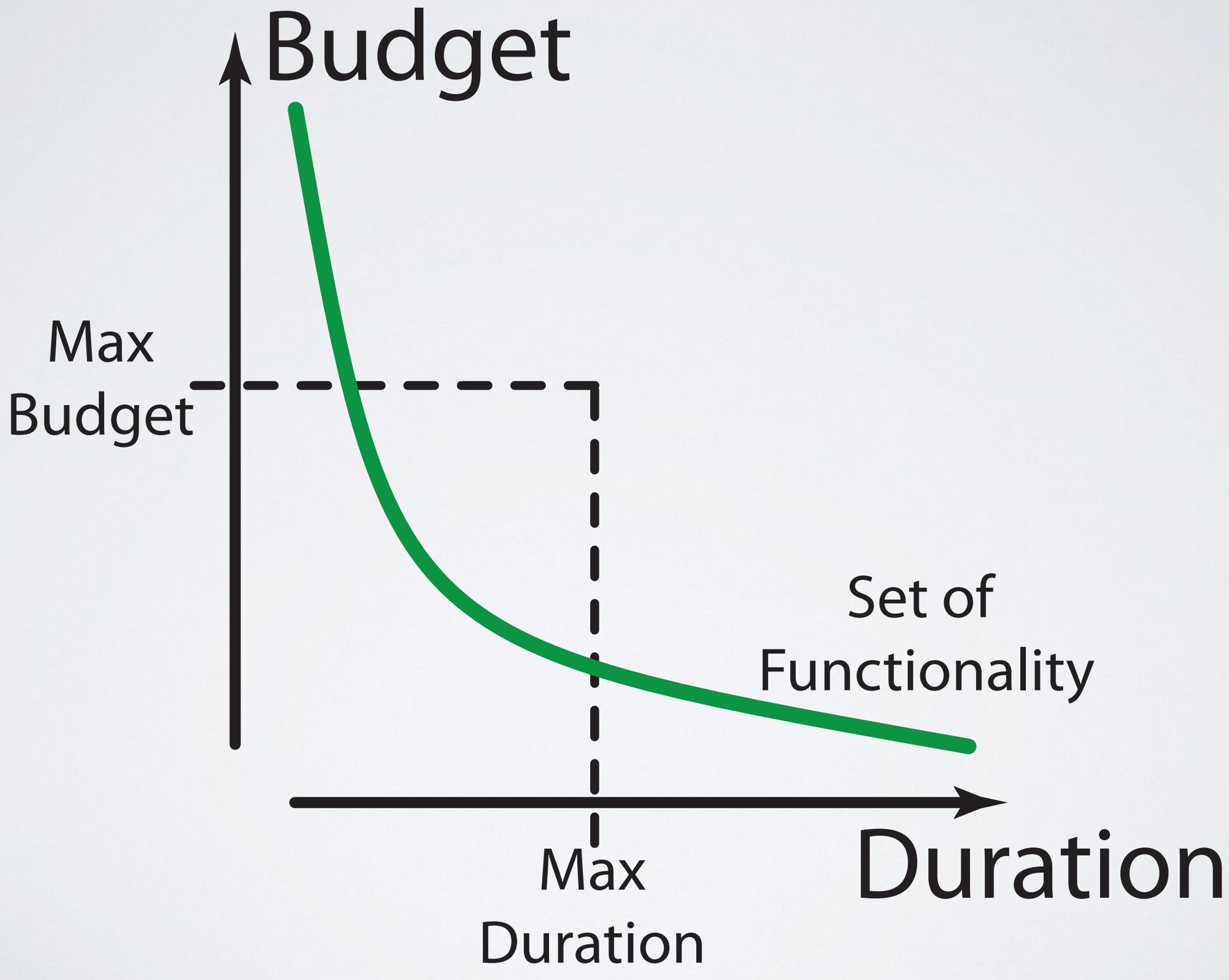
The Engineer Accelerator
Malcolm Knapp

WHAT IS THE GOAL OF THE HARDWARE DEVELOPMENT PROCESS?



TO REALIZE A SPECIFIC FUNCTIONALITY WITHIN A CERTAIN TIME AND BUDGET

COST/DURATION TRADE OFF



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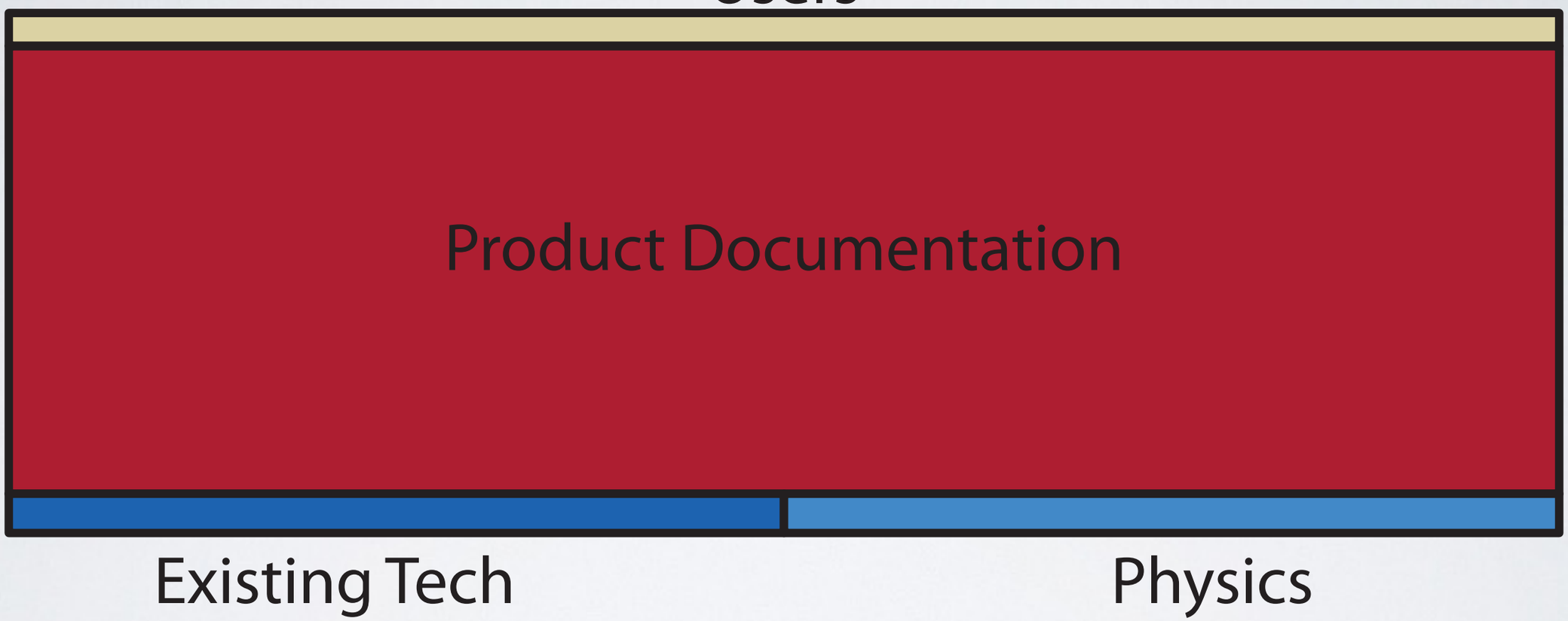

TO CREATE SET OF DOCUMENTATION THAT ACCURATELY REPRESENTS A PRODUCT WITH A DESIRED FUNCTIONALITY

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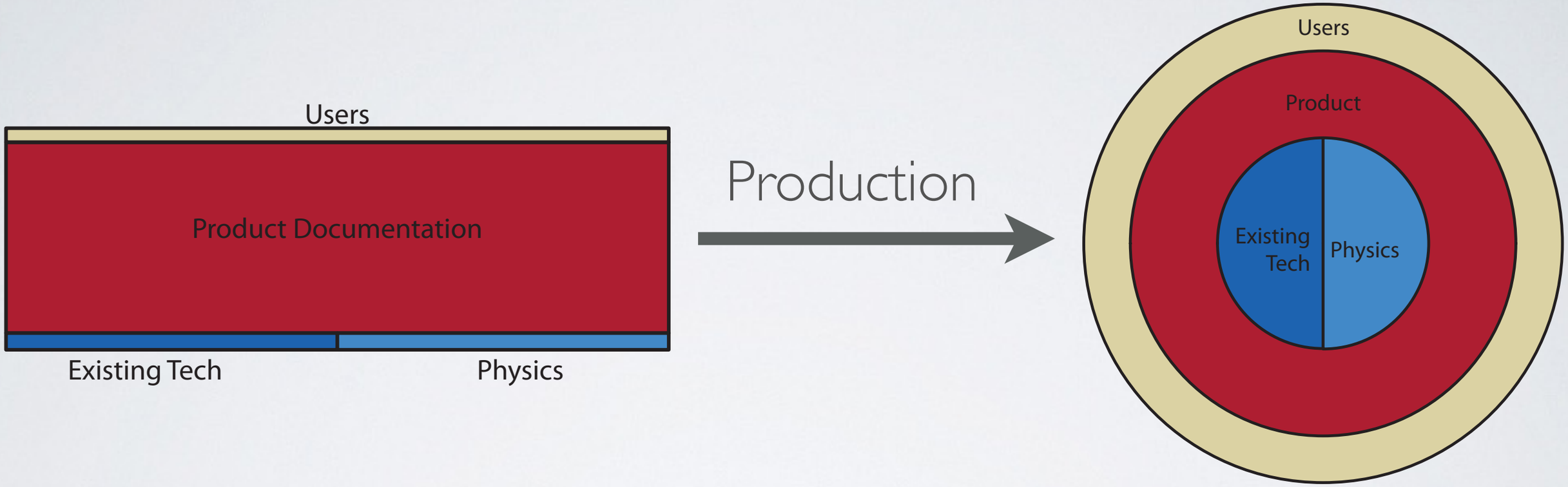

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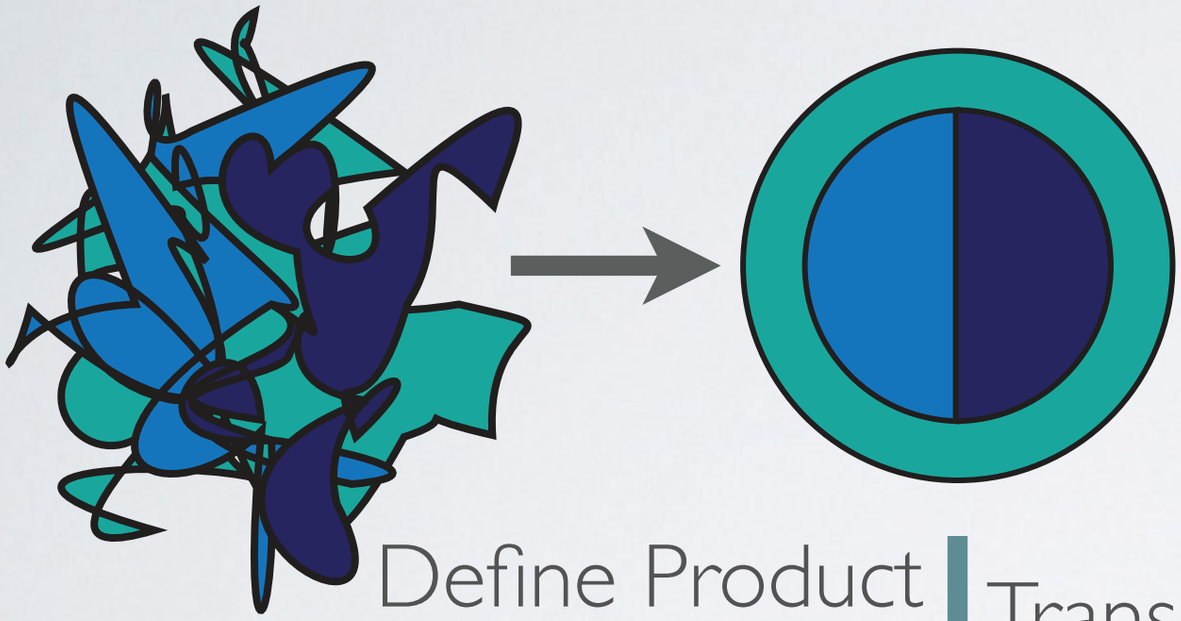
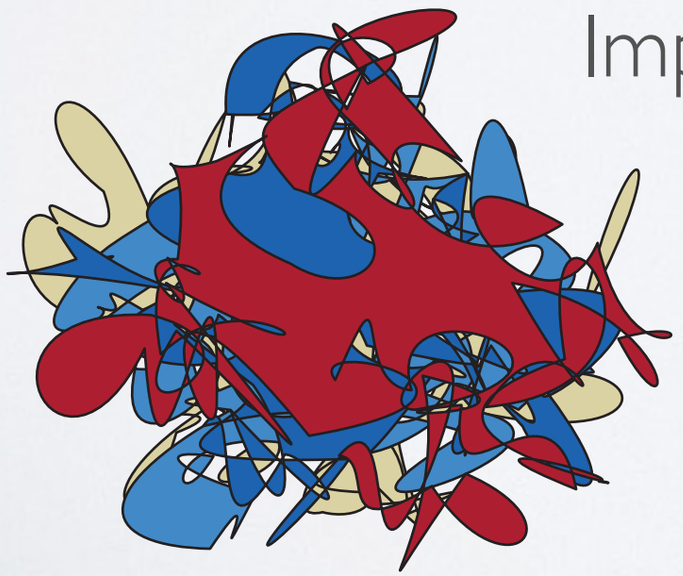


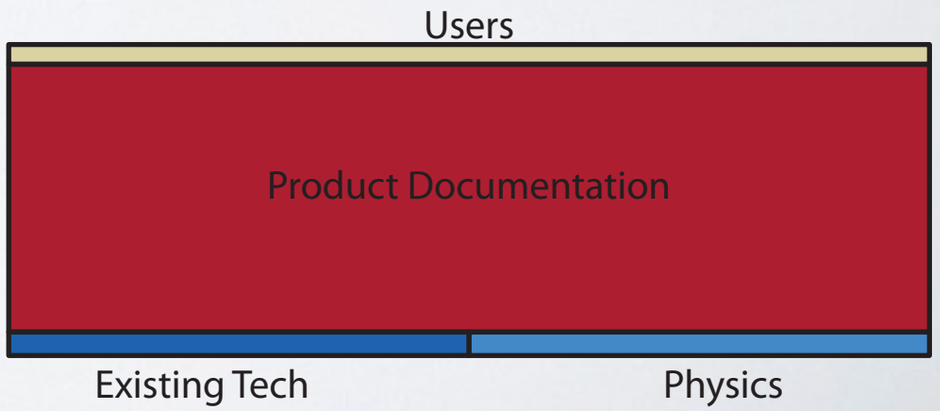
Define Product

Translate Definition
Object Space

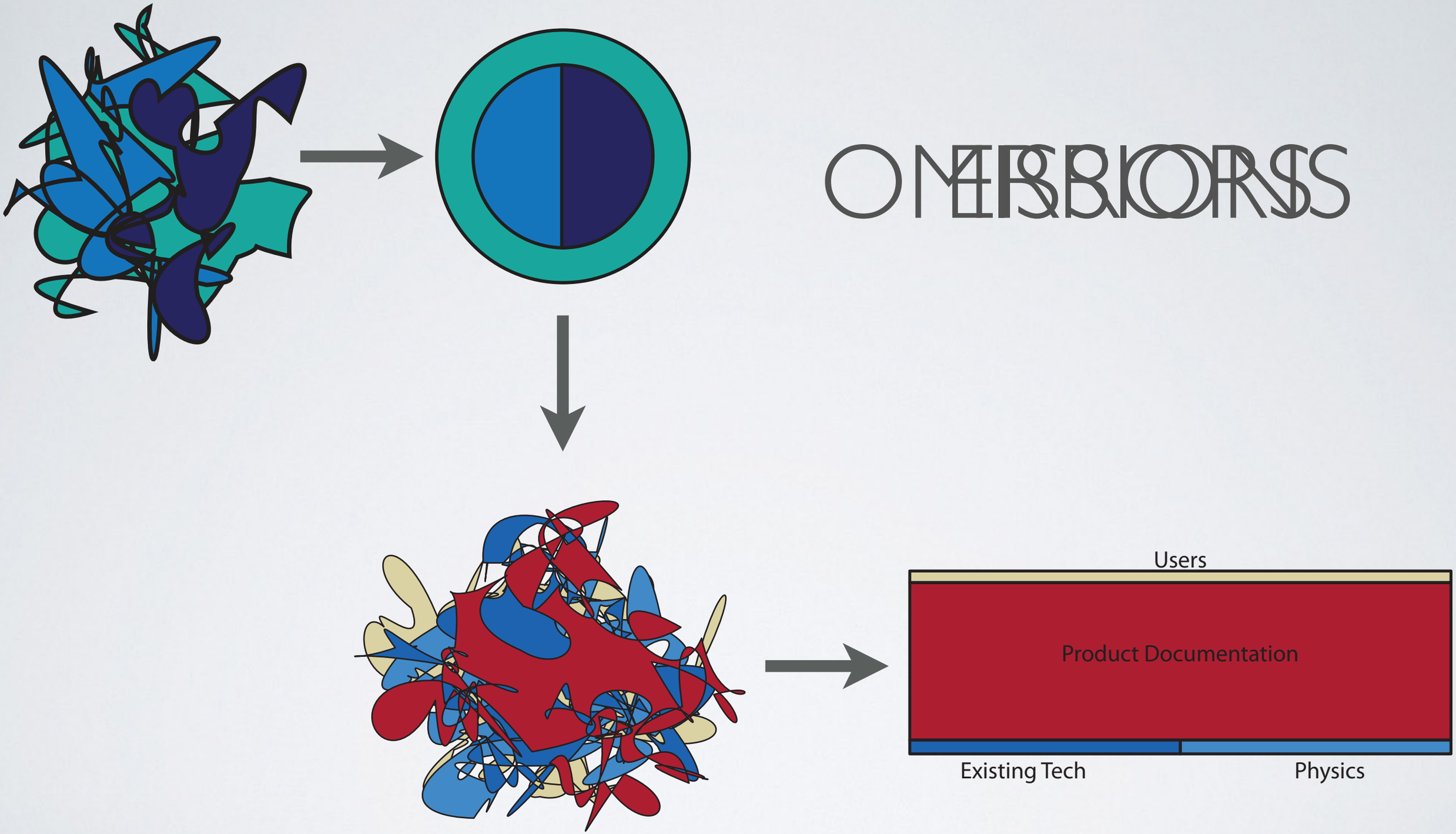
IT IS THE FILTERING AND ORGANIZATION OF RELEVANT INFORMATION

Implement Product

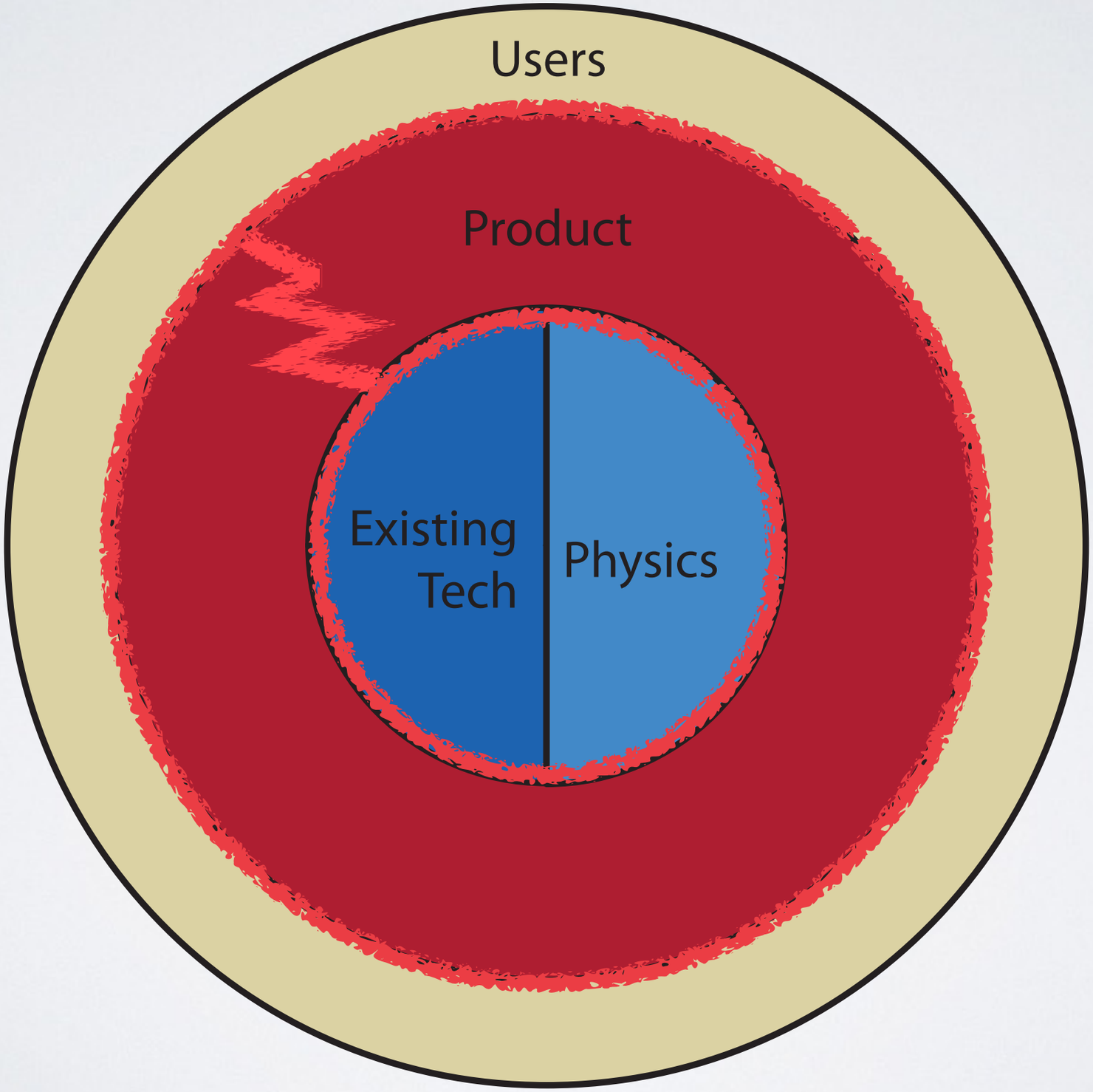




THIS IS PROCESS IS MESSY


Users
Product Documentation
Existing Tech
Physics

DESIGN CONFLICTS

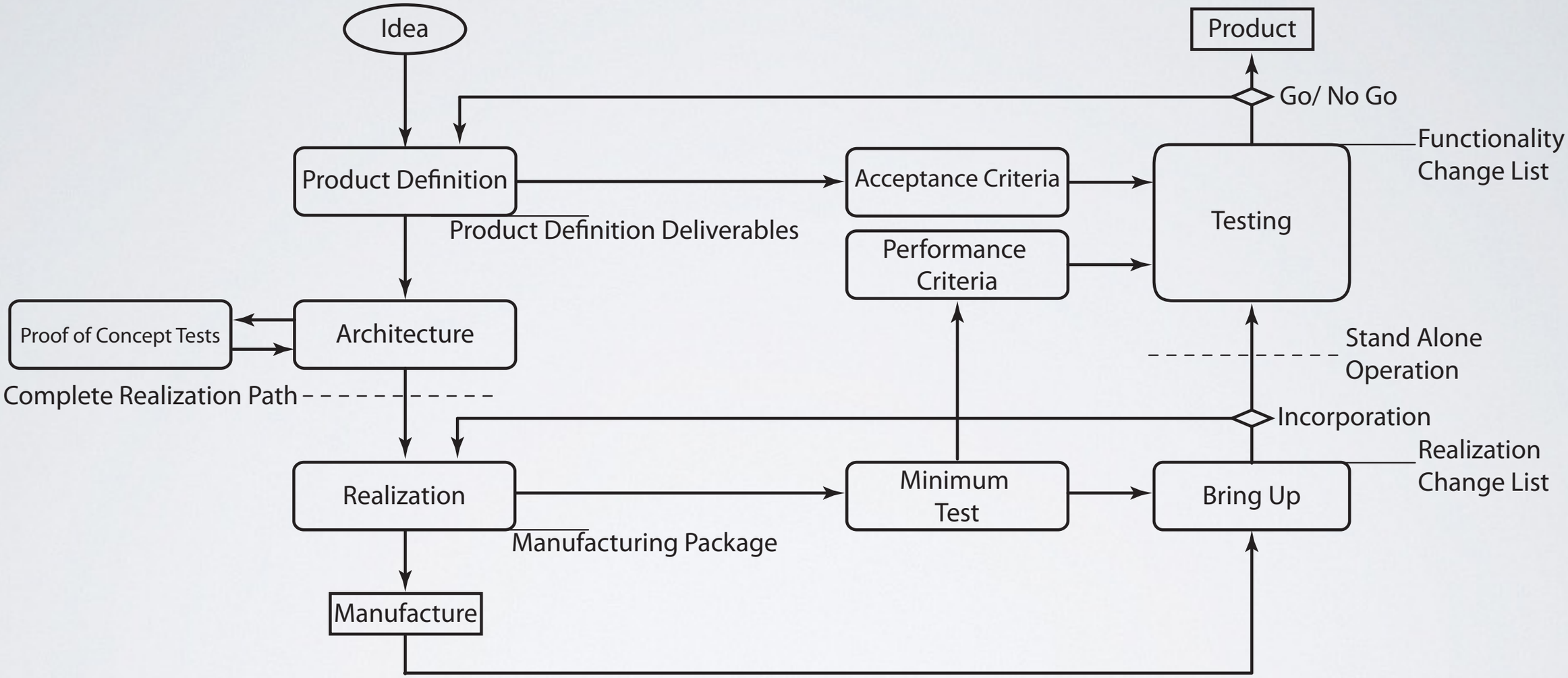


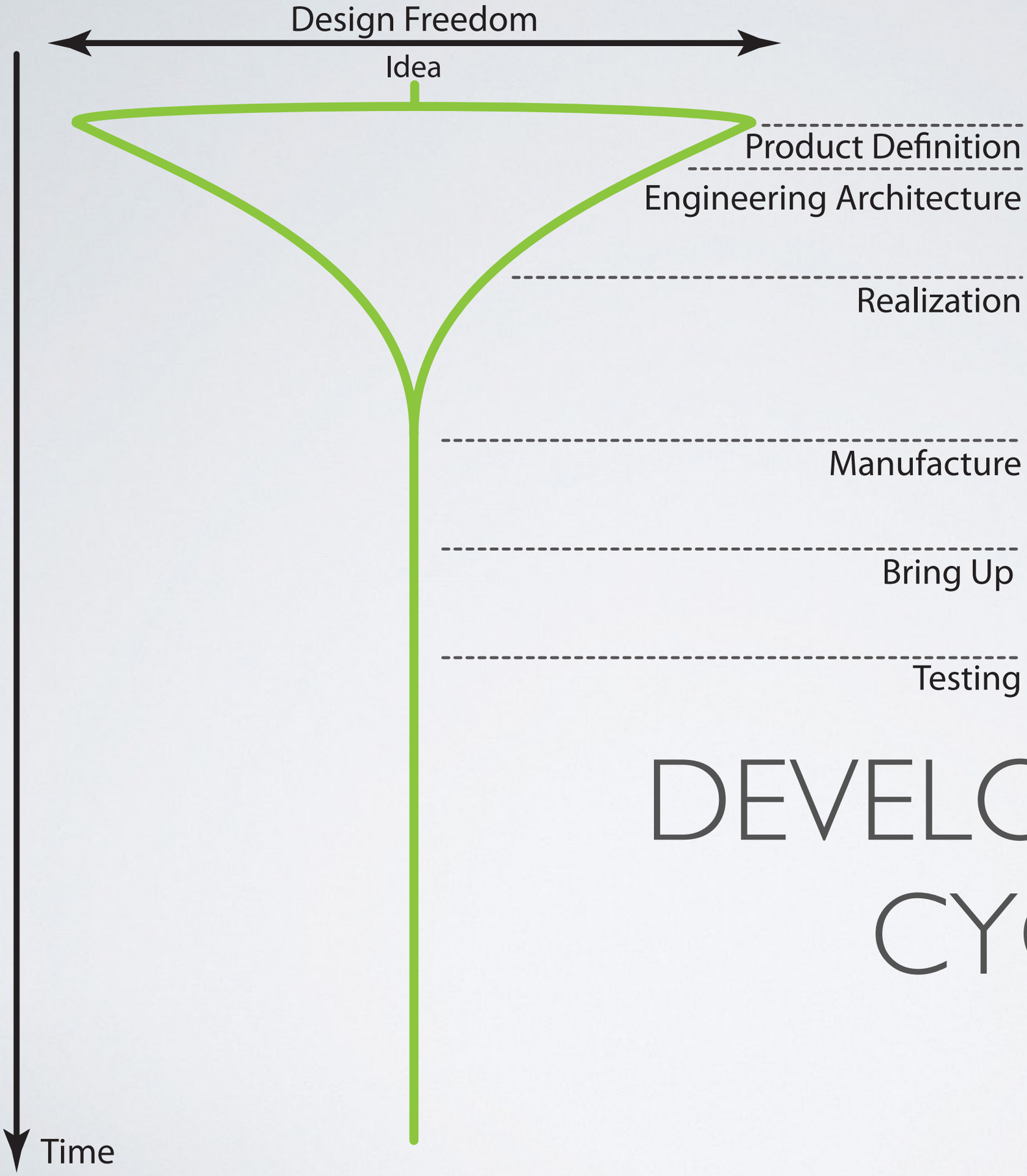
DELAYS

MITIGATION

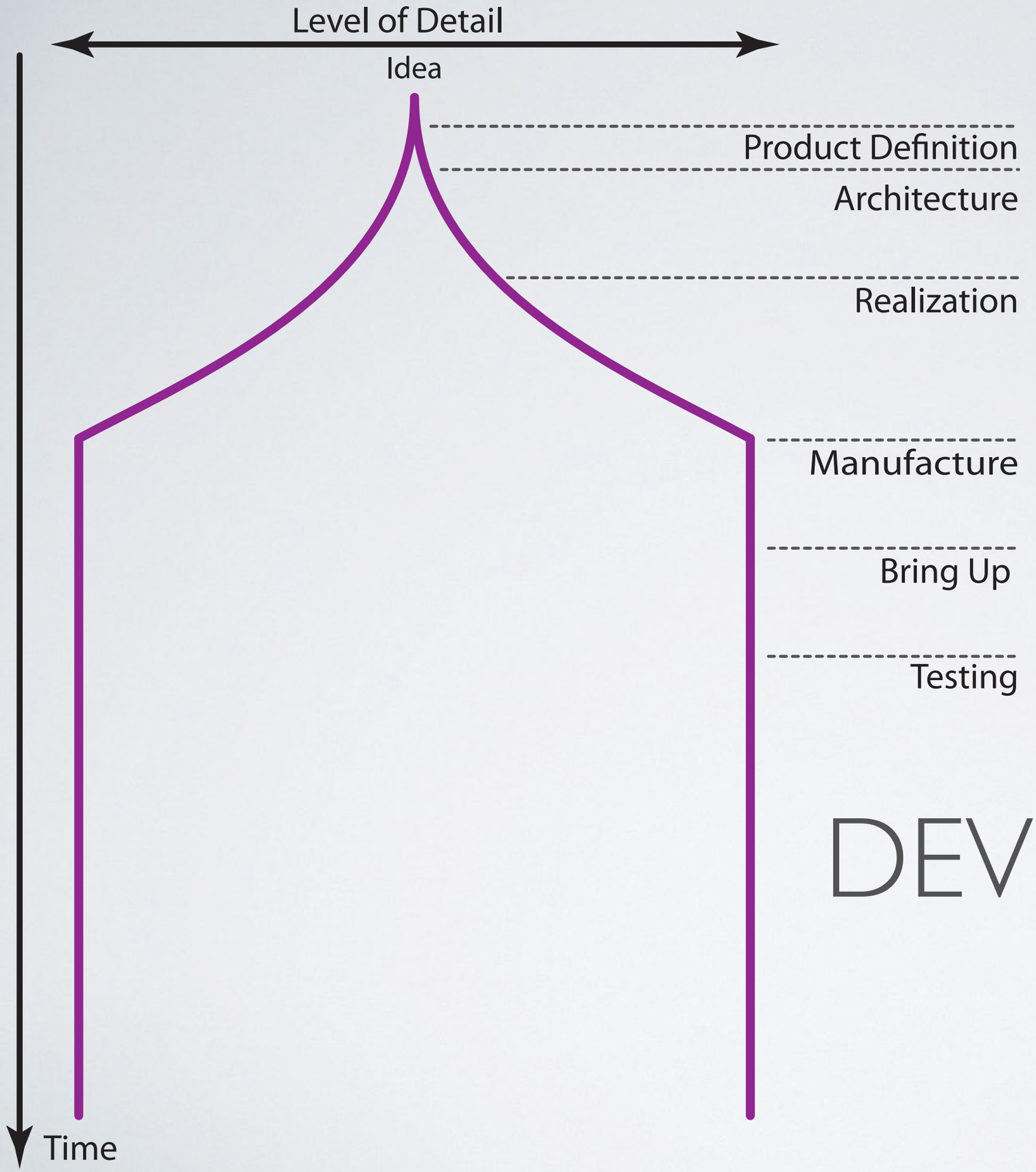
- Structured Process
- Formalized Communication
- Standardized Documentation
- Design Reviews

DEVELOPMENT CYCLE



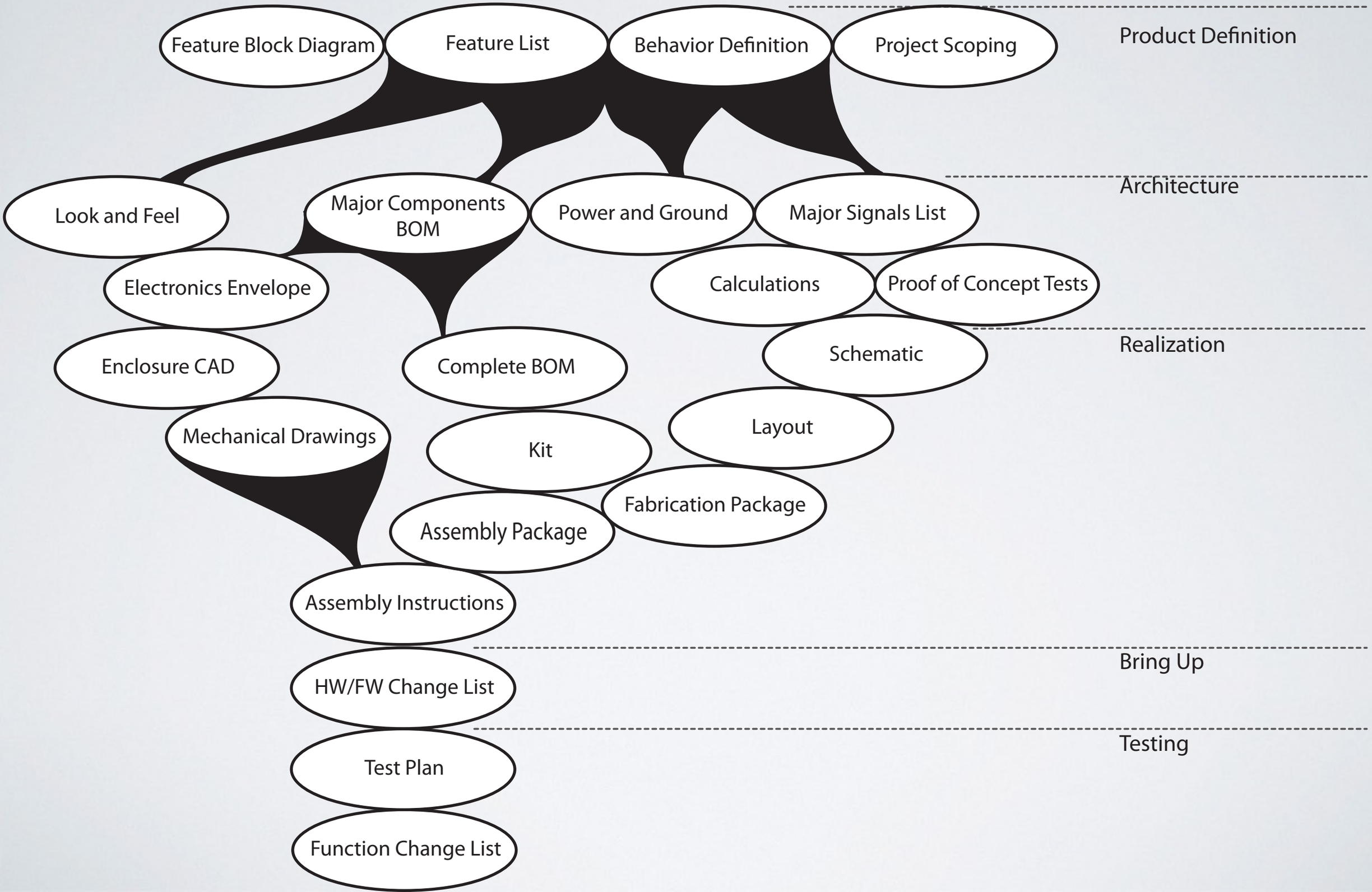


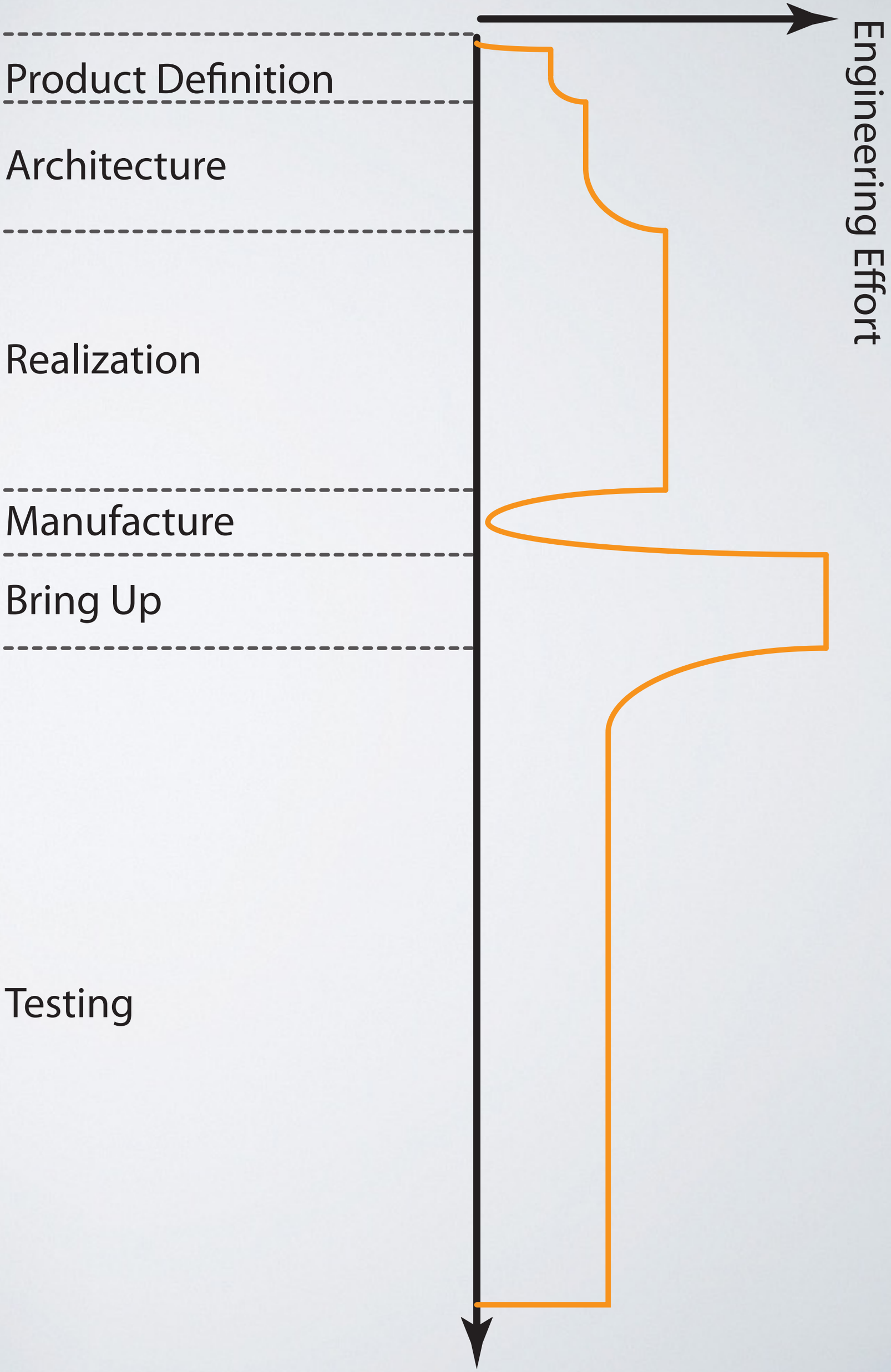
DEVELOPMENT CYCLE

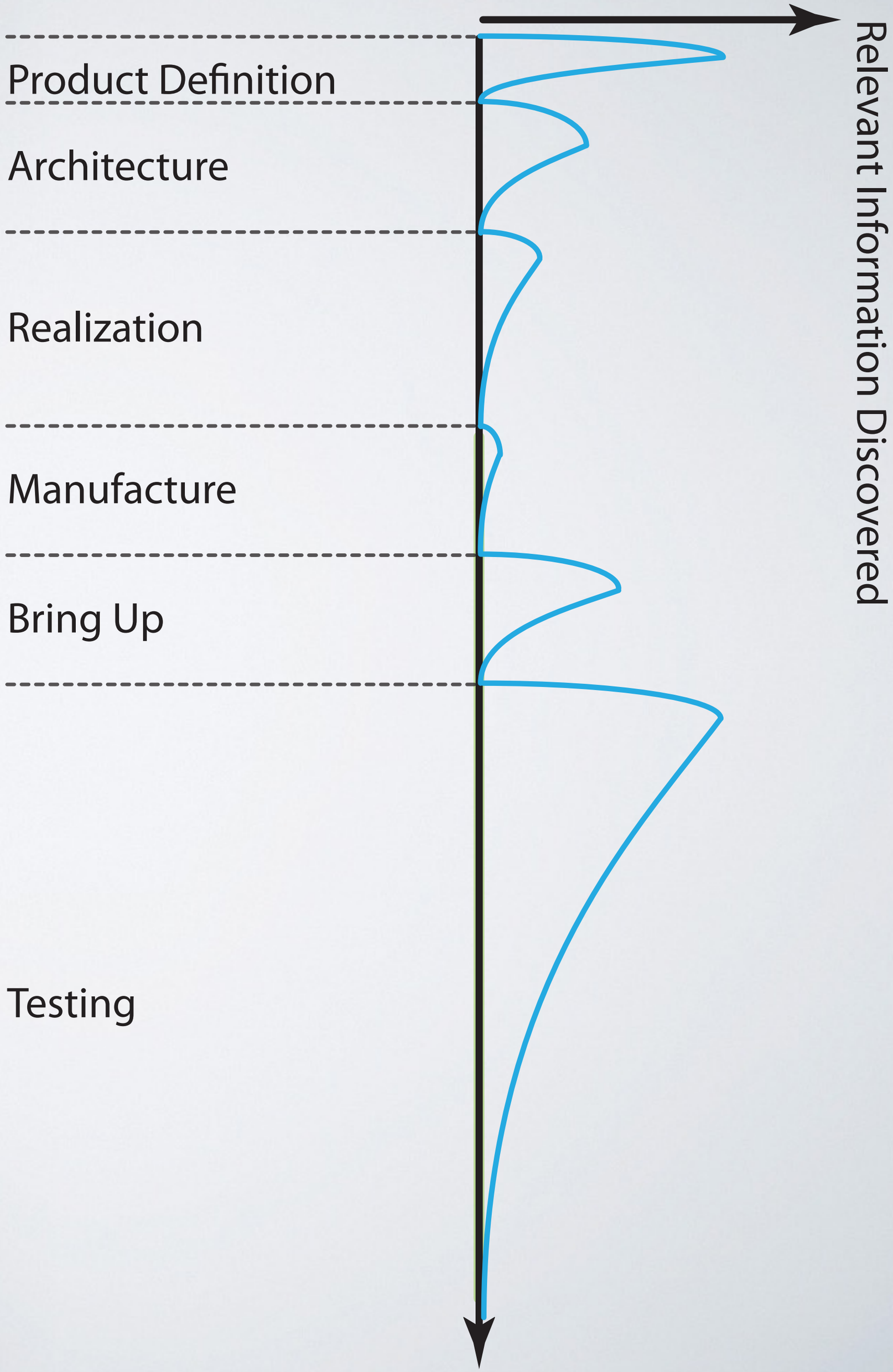


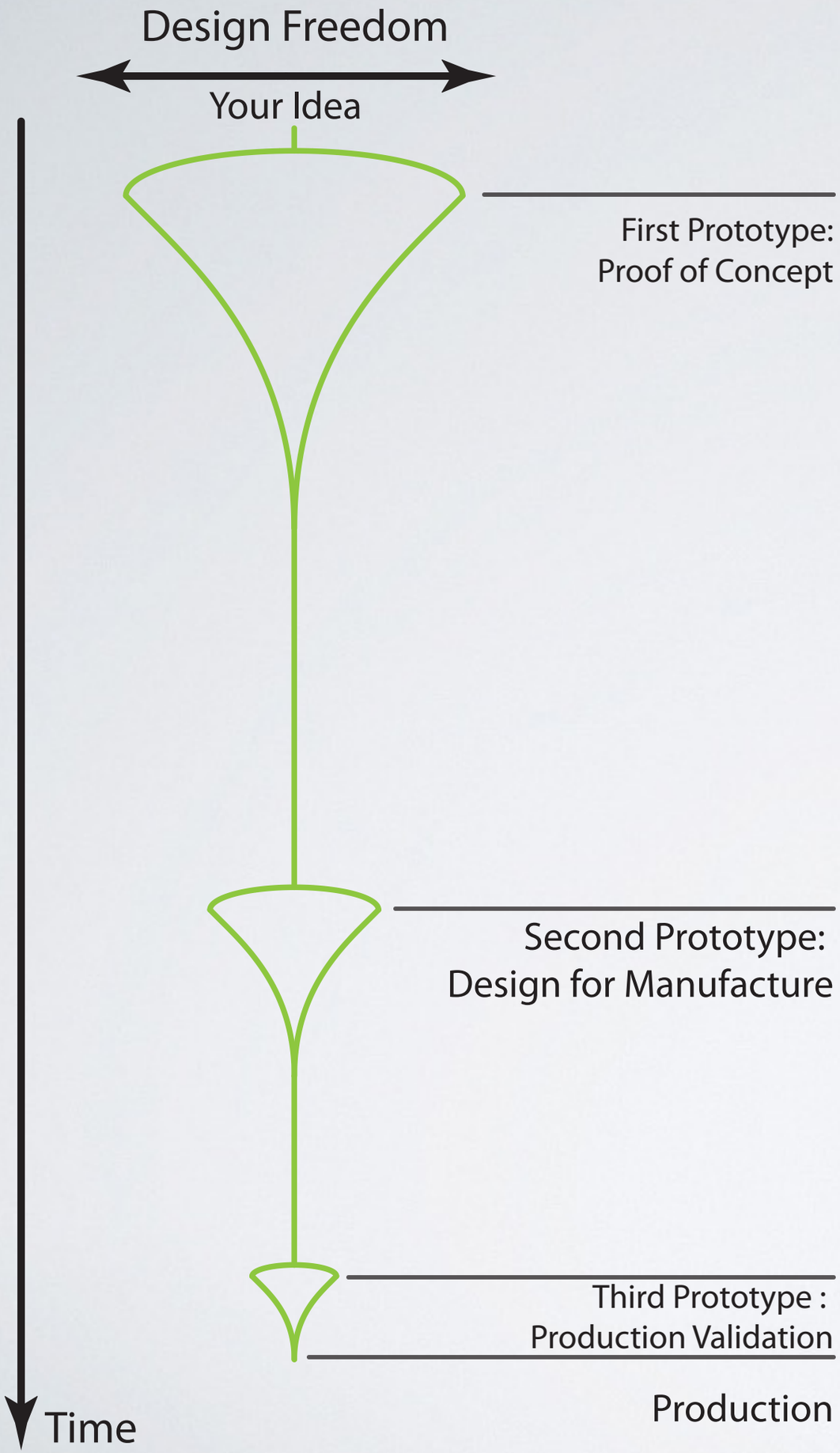
DEVELOPMENT CYCLE

DEPENDENCY HIERARCHY

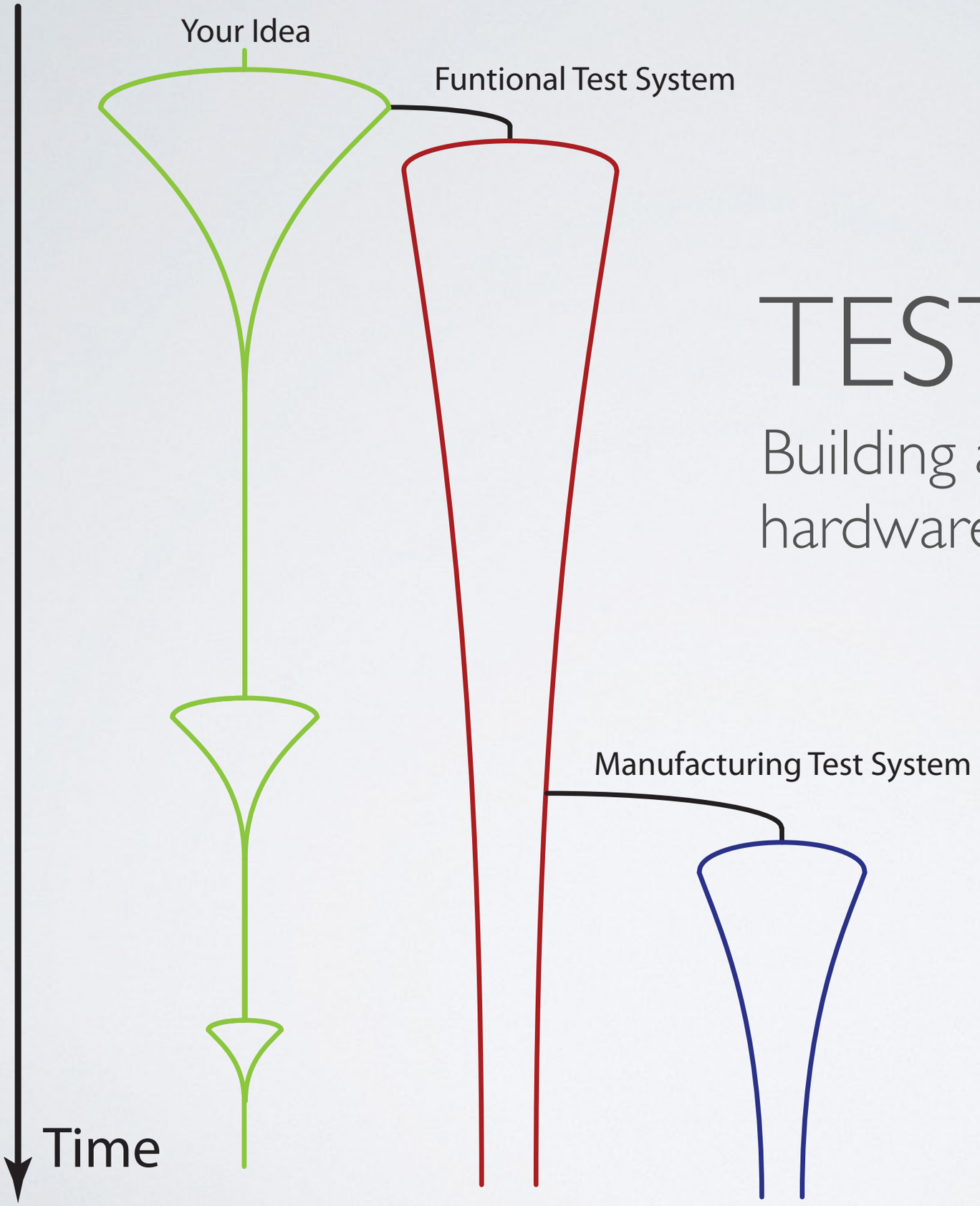



Product Definition
Architecture
Realization
Manufacture
Bring Up
Testing
Engineering Effort


Product Definition
Architecture
Realization
Manufacture
Bring Up
Testing
Relevant Information Discovered



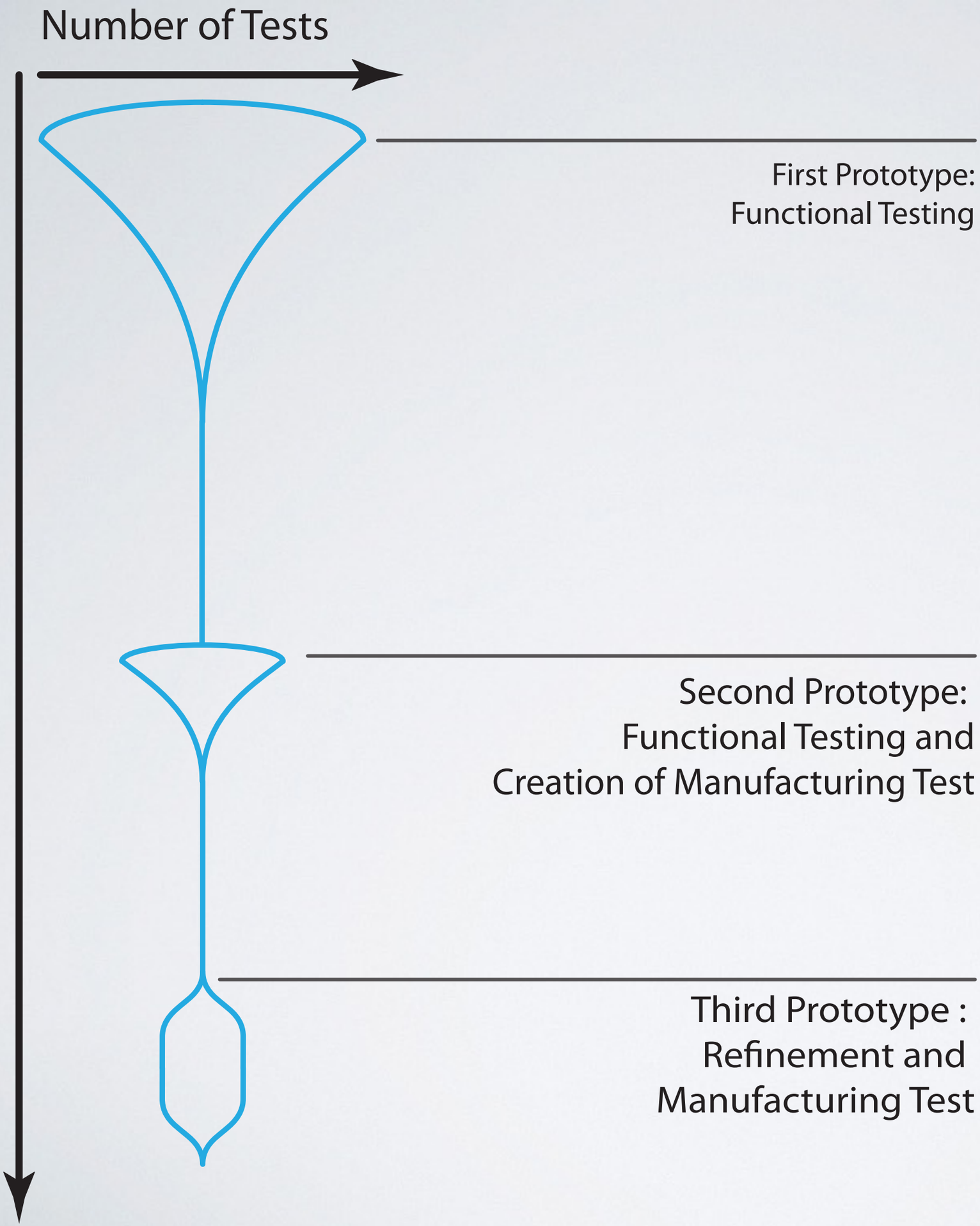
PROTOTYPING CYCLES

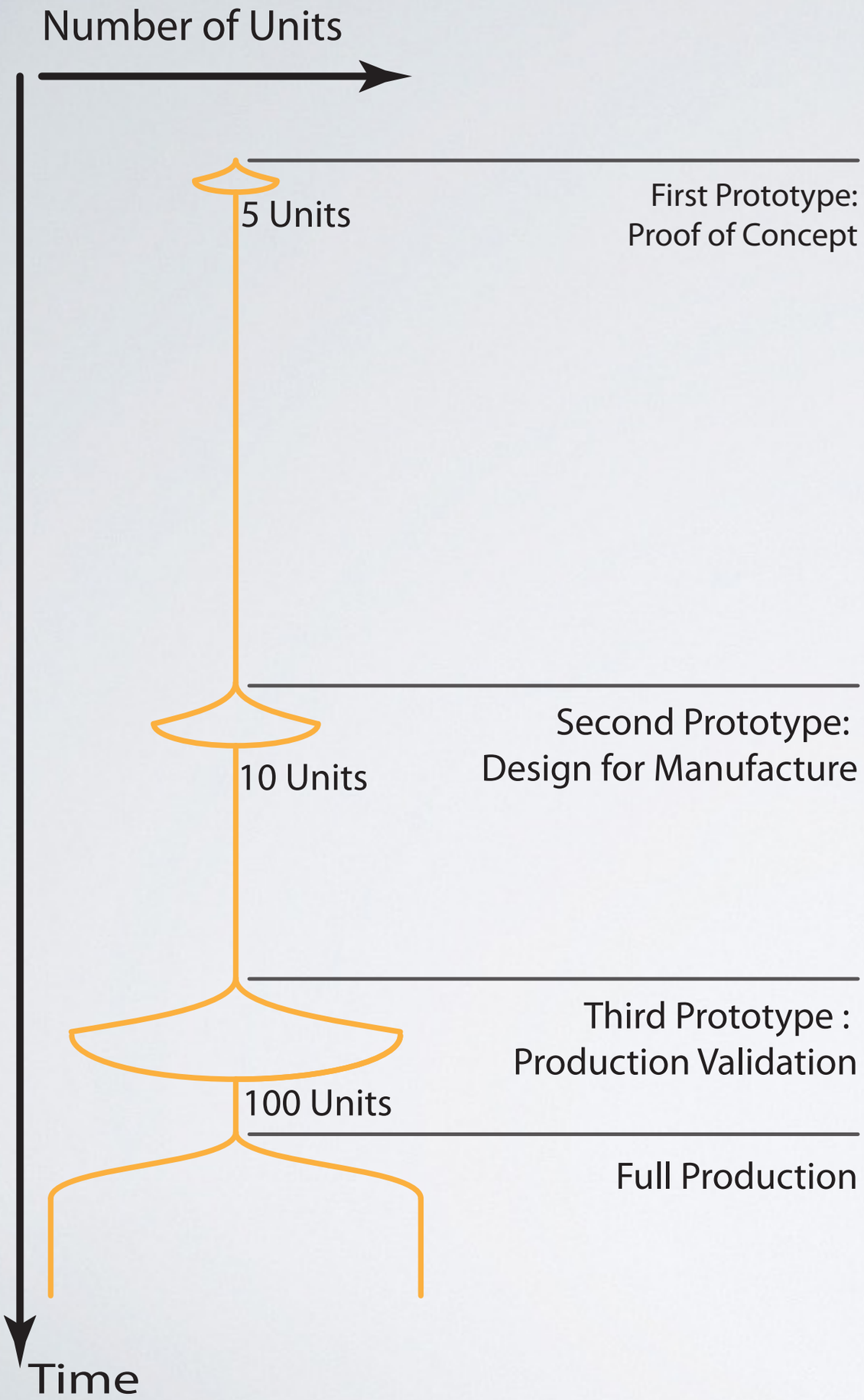


TEST SYSTEMS

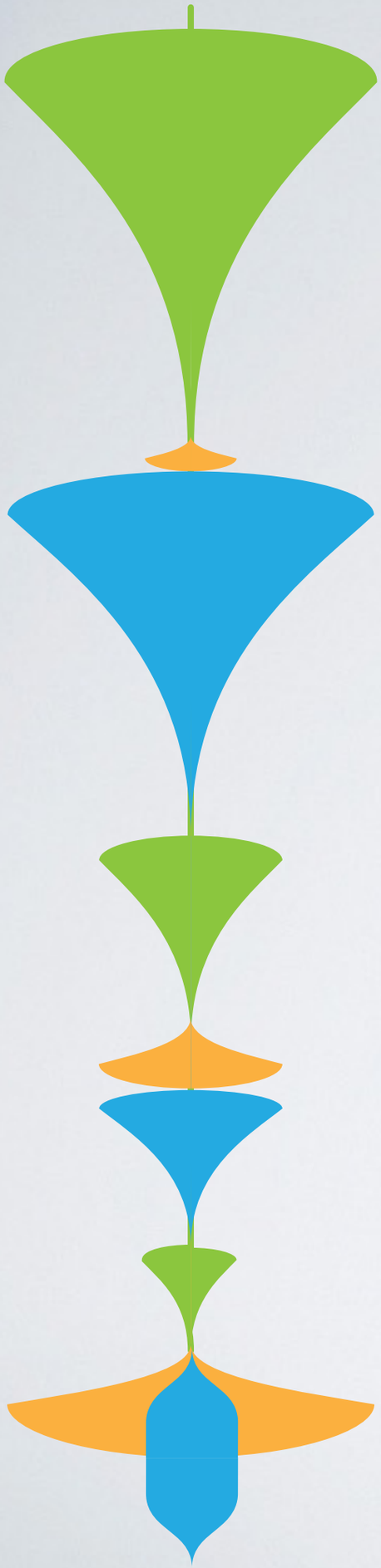
Building a test system is its own hardware development process

TEST CYCLES


Number of Tests
First Prototype:
Functional Testing
Second Prototype:
Functional Testing and
Creation of Manufacturing Test
Third Prototype :
Refinement and
Manufacturing Test
Time



MANUFACTURING CYCLES



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