Software Engineering Essentials

Software Lifecycle Models

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Learning goals

1) Explain typical software development activities
2) Describe typical software lifecycle models

Questions in software development

What is the problem?

How can we partition the problem?

What is the solution?

What are the best mechanisms to implement the solution?

How is the solution constructed?

Is the problem solved?

Can the customer use the solution?

Are enhancements needed?

Software development activities

Requirements elicitation	What is the problem?
Analysis	How can we partition the problem?
System design	What is the solution?
Detailed / object design	What are the best mechanisms to implement the solution?
Implementation	How is the solution constructed?
Testing	Is the problem solved?
Delivery	Can the customer use the solution?
Maintenance	Are enhancements needed?

Software development activities

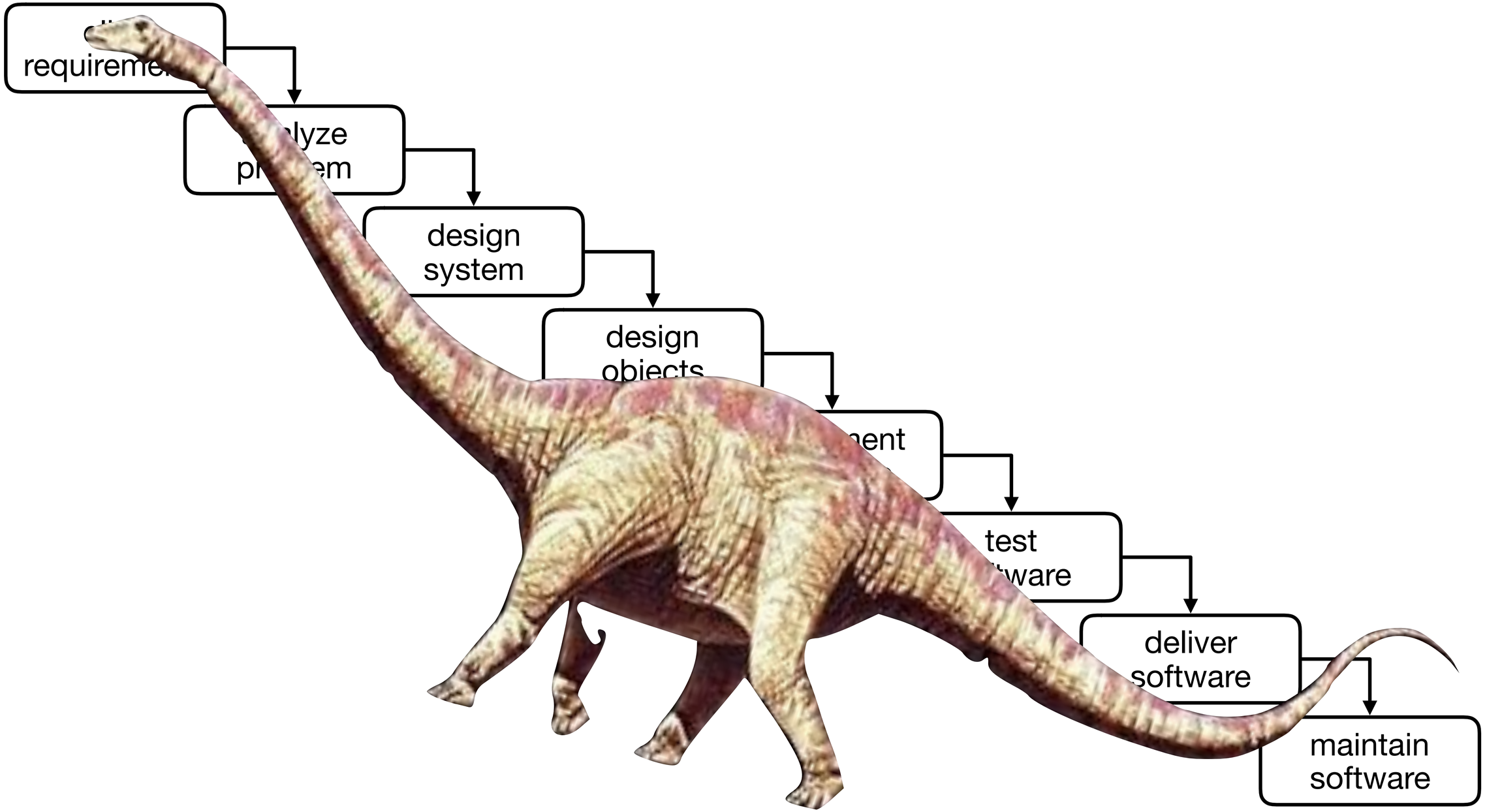
elicit requirements	What is the problem?
analyze problem	How can we partition the problem?
design system	What is the solution?
design objects	What are the best mechanisms to implement the solution?
implement software	How is the solution constructed?
test software	Is the problem solved?
deliver software	Can the customer use the solution?
maintain software	Are enhancements needed?

Software lifecycle

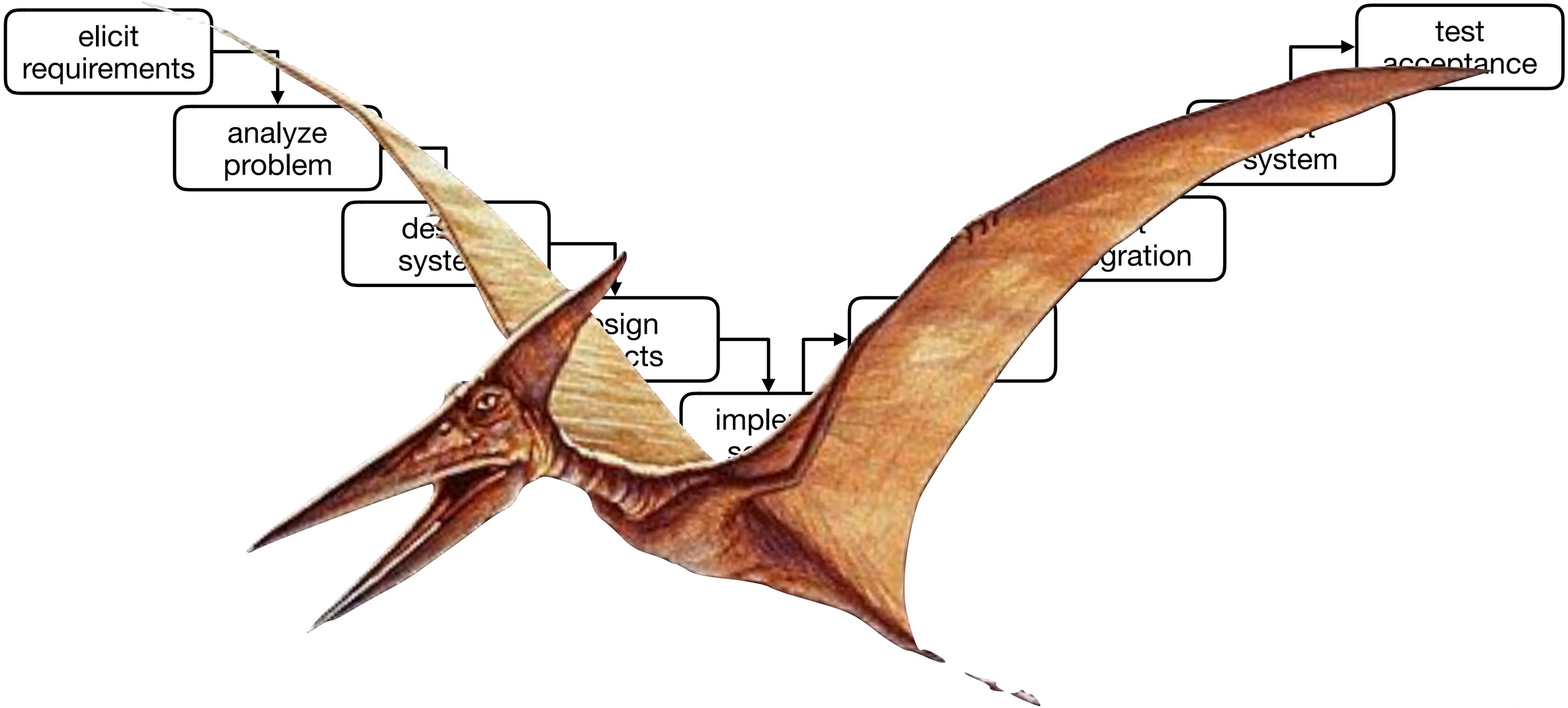
- **Software life cycle** (also software process):
  Set of activities and their relationships to each other to support the development of a software system

- **Software life cycle model** (also software process model):
  An abstraction that represents a software life cycle for the purpose of understanding, monitoring, or controlling the development of a software system.

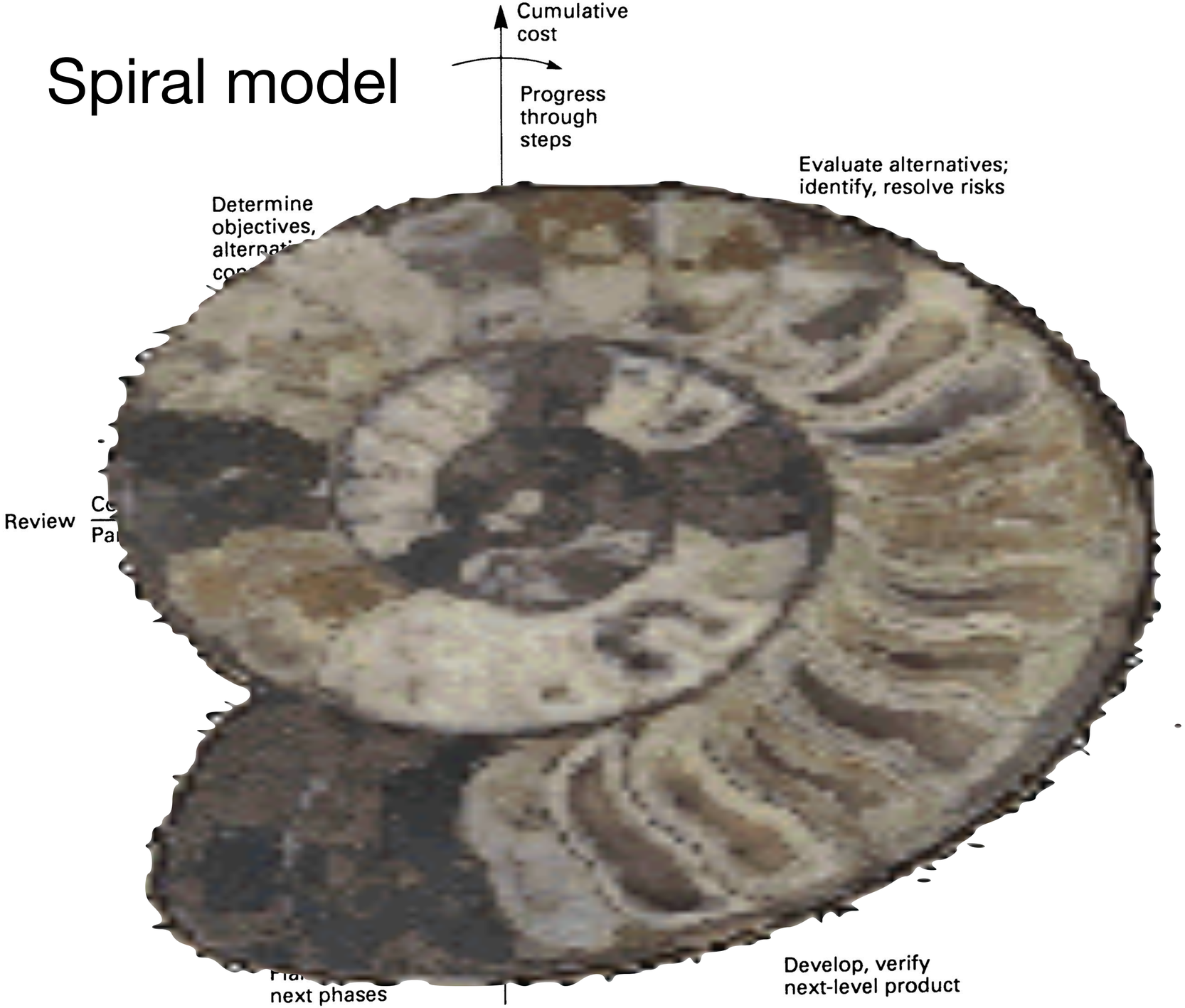
The waterfall model (simplified)



From the waterfall model to the V model



Spiral model



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