

LECTURE-5

What is the UML?

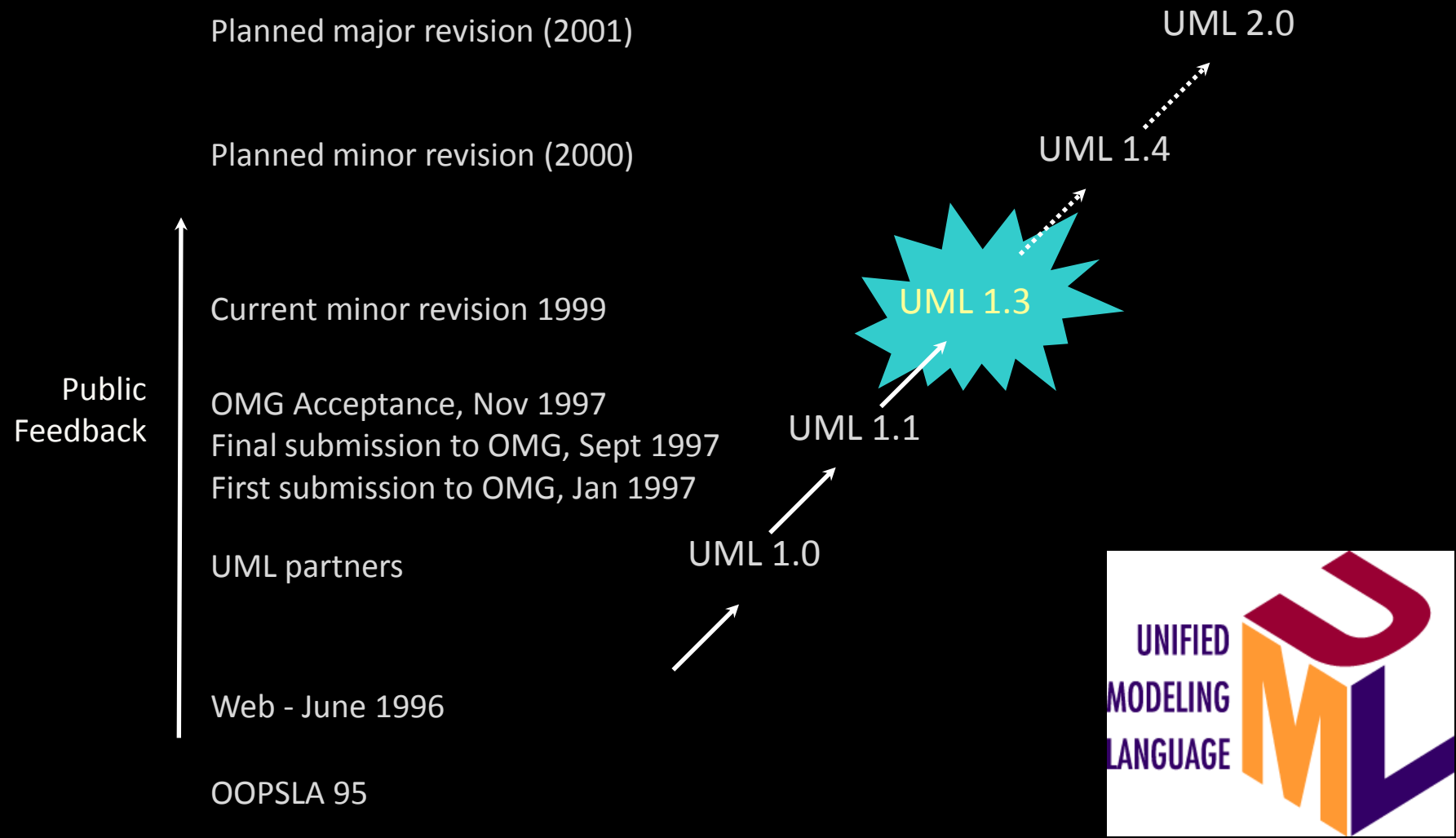
What Is the UML?

- UML is an acronym for Unified Modeling Language
- The UML is a language for
 - Visualizing
 - Specifying
 - Constructing
 - Documentingthe artifacts of a software-intensive system.



UML: Object-Oriented & visual modeling

History of the UML



OMG UML Specification

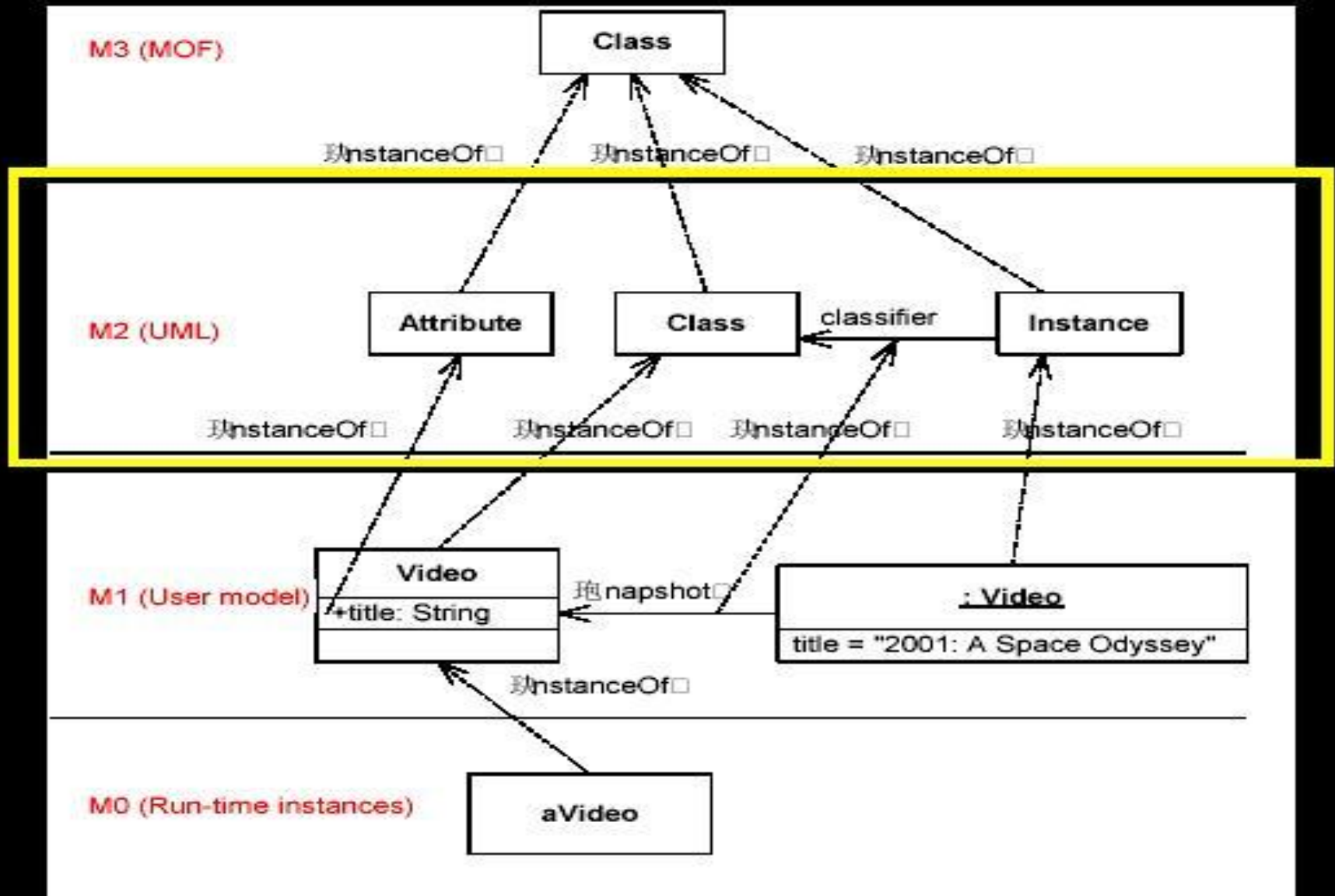
- UML Semantics
- UML Notation Guide
- UML Example Profiles
- UML Model Interchange
- Object Constraint Language Specification
- UML Standard Elements
- Glossary

UML Semantics

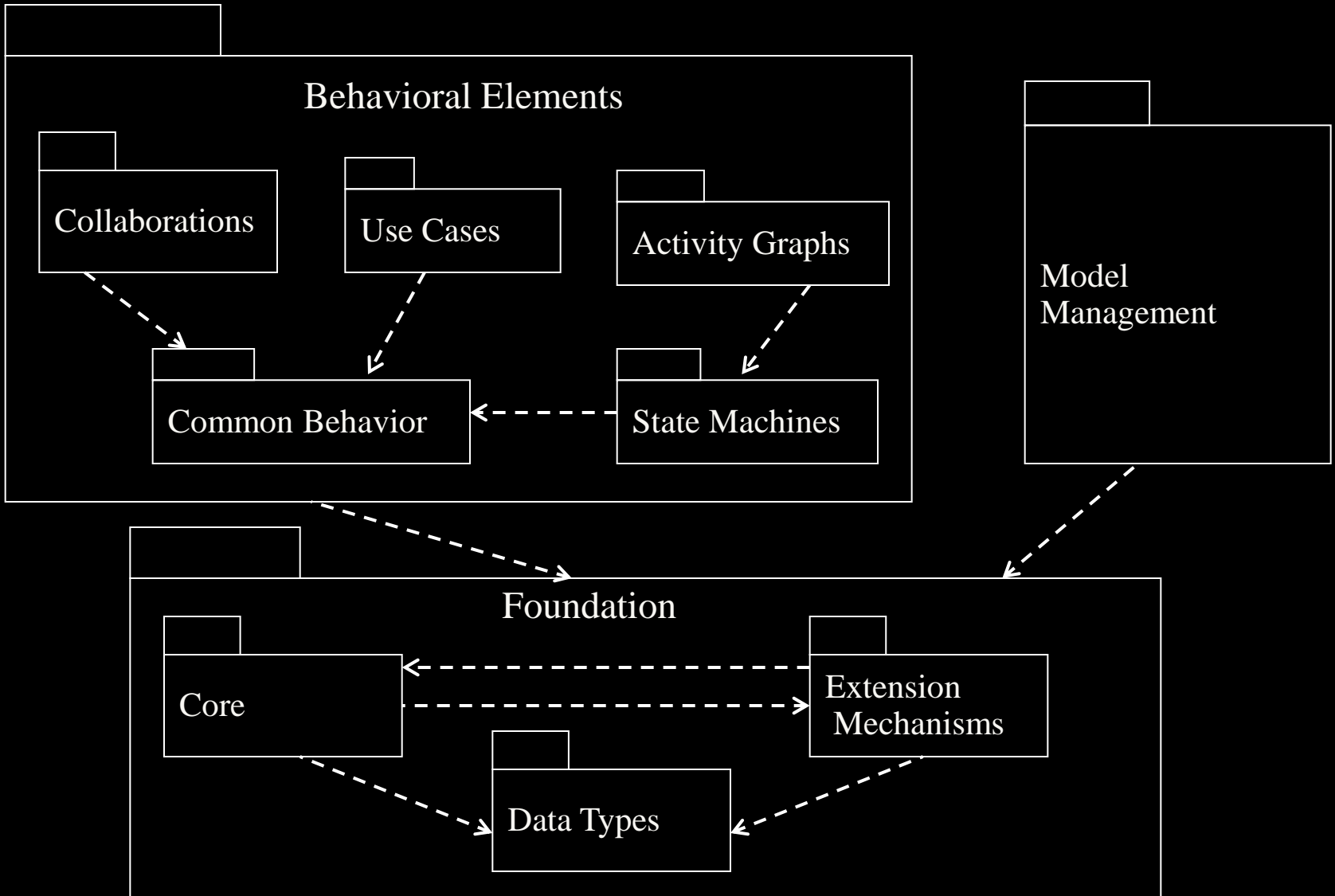
Four-Layer Metamodel Architecture:

Layer	Description	Example
meta-metamodel	The infrastructure for a etamodeling architecture. Defines the language for specifying metamodels.	<i>MetaClass, MetaAttribute, MetaOperation</i>
metamodel	An instance of a meta-metamodel. Defines the language for specifying a model.	<i>Class, Attribute, Operation, Component</i>
model	An instance of a metamodel. Defines a language to describe an information domain.	<i>StockShare, askPrice, sellLimitOrder, StockQuoteServer</i>
user objects (user data)	An instance of a model. Defines a specific information domain.	<i><Acme_SW_Share_98789> ,654.56, sell_limit_order, <Stock_Quote_Svr_3223></i>

3.1.1 UML Semantics



UML Semantics



1.3 Software Process and OOA&D

- Iterative Development and the Unified Process
- Object-Oriented Analysis and Design Overview

Iterative Development and the Unified Process

A Definition of Process

A process defines **Who** is doing **What**, **When** and **How** to reach a certain goal.



Agile Process

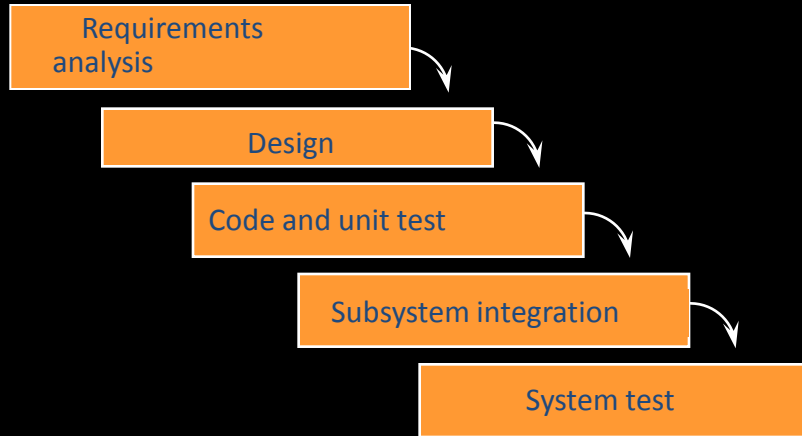
- An **agile process** implies a light and adaptive process, nimble in response to changing needs
- Example: XP (eXtreme Programming)
- heavy vs. light
 - A heavy process is a pejorative term meant to suggest one with the following qualities:
 - many artifacts created in a bureaucratic atmosphere
 - rigidity and control
 - elaborate, long-term, detailed planning
 - predictive rather than adaptive

Agile Process

- **predictive vs. adaptive**
 - A predictive process is one that attempts to plan and predict the activities and resource (people) allocations in detail over a relatively long time span, such as the majority of a project.
 - Predictive processes usually have a “waterfall” or sequential lifecycle—first, defining all the requirements; second, defining a detailed design; and third, implementing.
 - In contrast, an adaptive process is one that accepts change as an inevitable driver and encourages flexible adaptation; they usually have an iterative lifecycle.

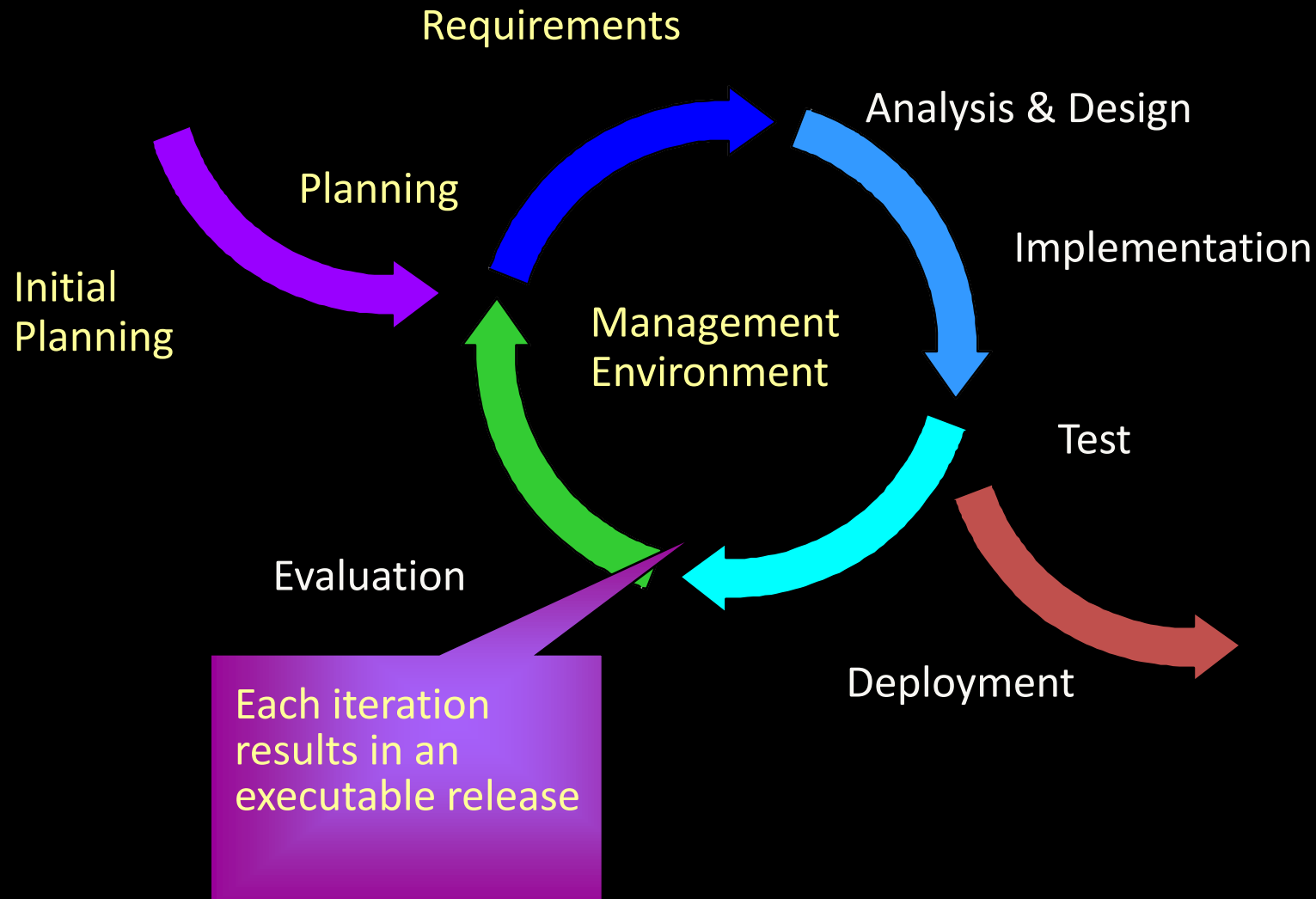
Waterfall Development Characteristics

Waterfall Process



- Delays confirmation of critical risk resolution
- Measures progress by assessing work-products that are poor predictors of time-to-completion
- Delays and aggregates integration and testing
- Precludes early deployment
- Frequently results in major unplanned iterations

Iterative Development Produces an Executable



Risk Profiles

