“Modeling” Phase

Week 4

Announcement

- Midterm I
  - Monday March, 7th
- Scope
  - Ch. 1, 2, 3, 4 and Ch. 6 of the text book
  - Ch. 1, 2 and 3 of the lab book

Agenda (Lecture)

- “Modeling phase” or equivalent phase

Agenda (Lab)

- Weekly progress report
- Lab/homework assignments

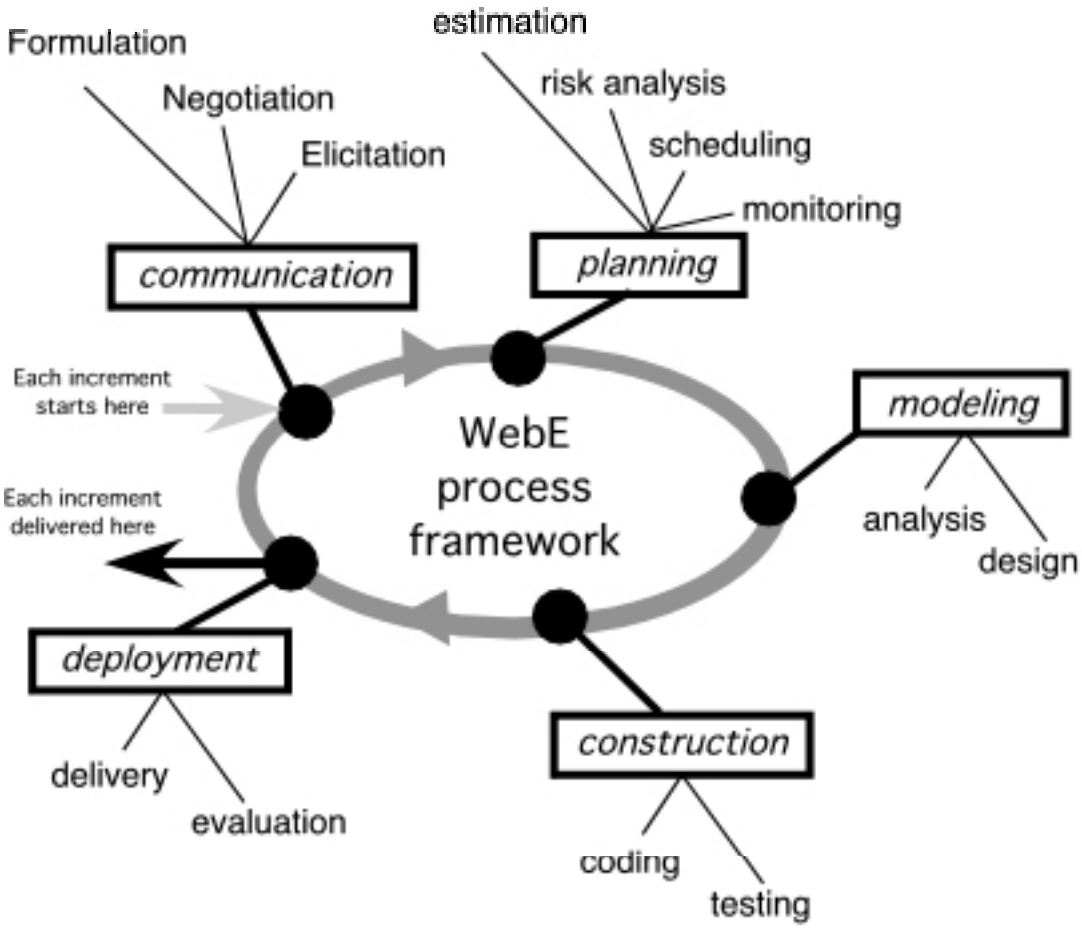
Team Homework Assignment #5

- Study the analysis modeling for WebApps (Ch 7 or related materials) and prepare for presentation slides.
- Due date is 7:00 pm, February 21th

Team Lab Assignment #4

- Submit the first version of analysis modeling diagrams for your group project
  - Make slides for presentation
- Due date
  - The beginning of the 2/21 lab session

WebE Process Activities & Actions



Chapter 6: *The Modeling Activity*

- Analysis modeling helps you to understand the nature of the problem being addressed and the "shape" of the WebApp that will allow you to address that problem
- Design modeling is about understanding the internal structure of the WebApp being developed and how this creates the shape of the WebApp that was identified by the analysis model.

Modeling Languages

- A *modeling language* (ML) incorporates a set of notations, terms, and/or symbols, as well as the rules for establishing associations between them
- A *modeling language* often has a formally structured representation as well as a set of graphical elements
- Some MLs are general purpose (e.g., UML) and others are more specific (e.g., WebML)

Modeling Languages

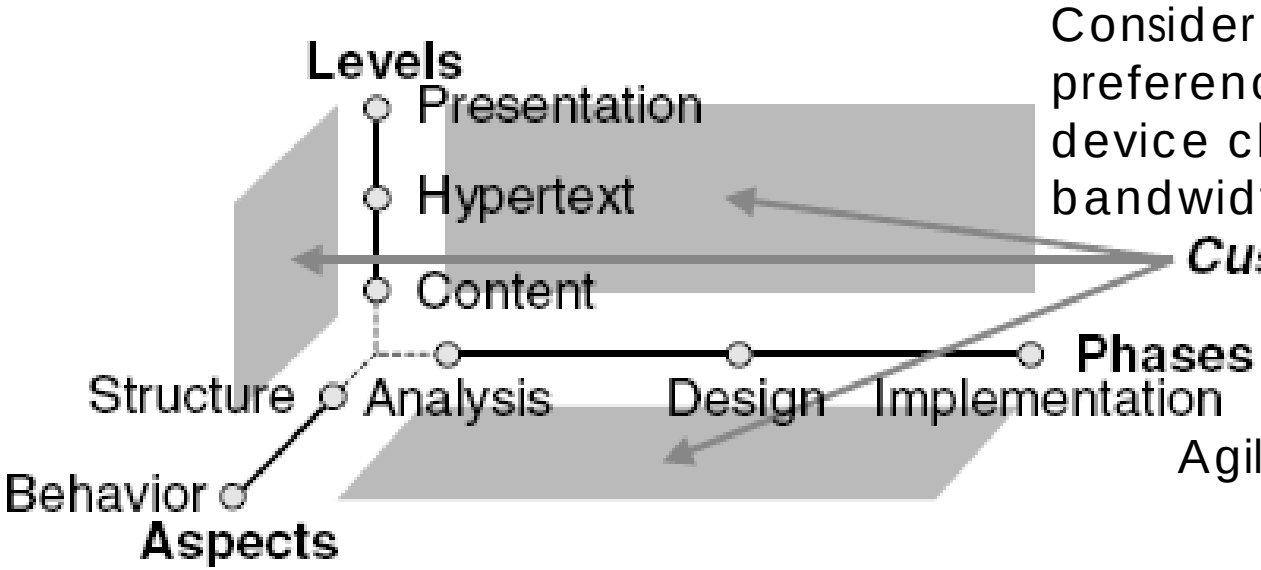
- What Capabilities Should Exist to Model Functionality?
  - Ability to model integration and connectivity.
  - Ability to support pattern modeling.
  - Ability to represent concepts in a technology-neutral fashion.
  - Ability to model sophisticated system functionality.

- What Capabilities Should Exist to Model Information Content?
  - Ability to model presentation-level concepts.
  - Ability to model navigational structure and behavior.
  - Ability to model user interactions with the information.
  - Ability to model user roles and user groups.
  - Ability to model content.

- What Generic Capabilities Should Exist in a Modeling Language?
  - Ability to model business domain concepts.
  - Ability to link business models with the technical architecture.
  - Ability to link information with functionality.
  - Ability to maintain system integrity.
  - Ability to support understanding and communication.
  - Ability to support Web system life cycle management.

Web Application Modeling

Content = information + application logic
(hypertext-oriented vs. presentation-oriented)



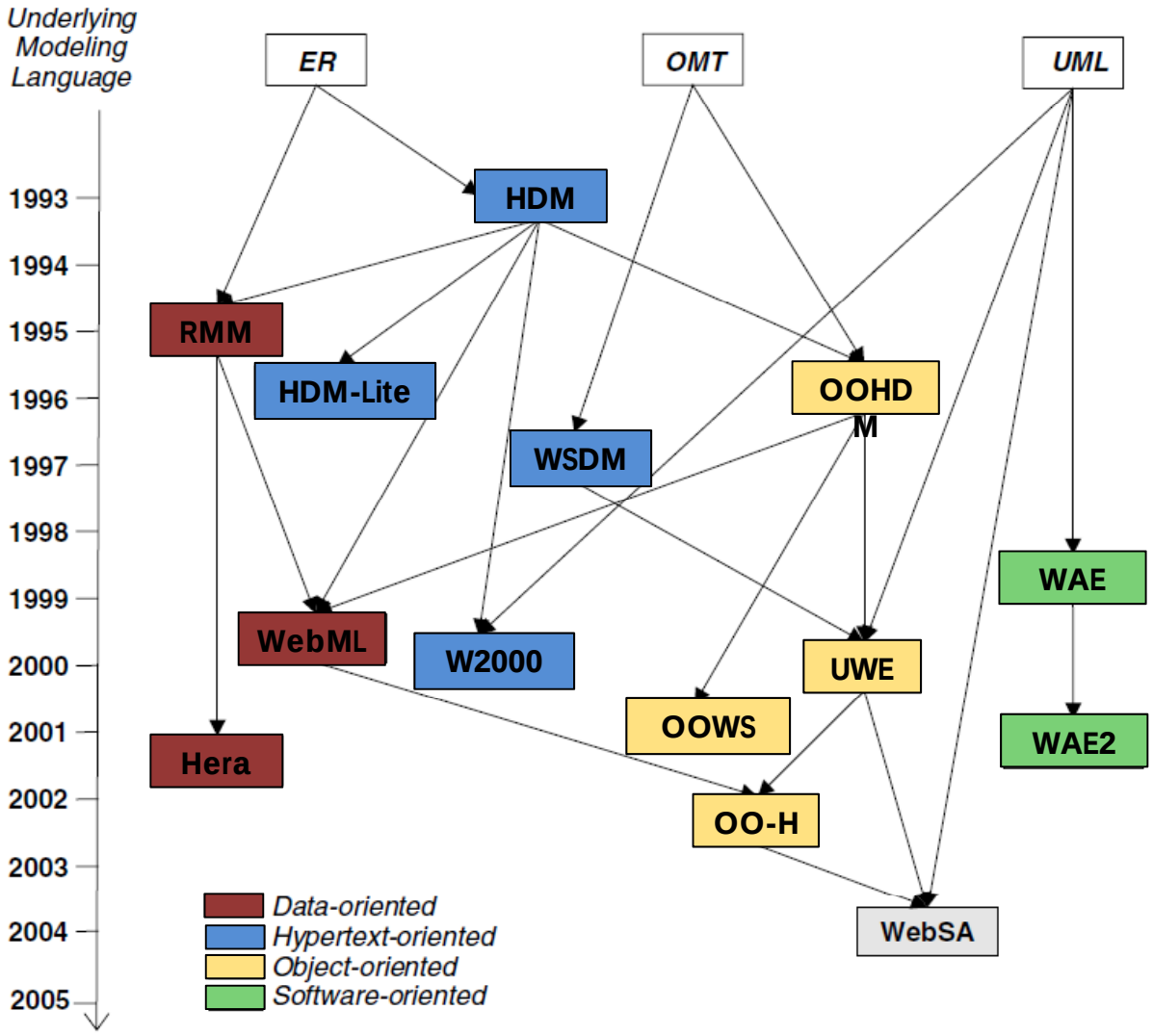
Consider the context: users' preference, device characteristics, bandwidth restrictions, etc.

Customization

Agile vs. RUP

Static information driven vs. high interaction driven

Web Methodologies



(Kappel, Proll, et al 2003/2006, pg. 59)

Web Models and Methods

Modeling Method	Modeling Paradigm	Notation	Evolving	Requirements Modeling	Content Modeling	Hypertext Modeling	Presentation Modeling	Customization Modeling	Structure and Behavior	Process / Approach	Tool Support	Generation	Strengths
HDM-lite	HT	ER + own notation	×	×	×	✓	✓	×	s	own	generation tools	auto	process for model transformation, automatic generation
Hera	DB	ER + RMM+ own notation	✓	×	✓	✓	✓	✓	s + b	own	authoring & generation tool	semi	model-driven development
OO-H	OO	UML + own notation	✓	✓	✓	✓	×	pers	s + b	own	modeling- & generation tool	auto	tool for automatic generation
OOHDM	OO	UML + own notation	✓	✓	✓	✓	✓	pers	s + b	own	×	×	powerful concepts for contextual navigation, personalization
OOWS	OO	UML + own notation	✓	✓	✓	✓	✓	×	s + b	own	modeling- & generation tool	auto	advanced (commercial) tool for automatic generation
RMM	DB	ER + own notation	×	×	✓	✓	✓	×	s	own	authoring tool	semi	hypertext modeling based on ER-model, predefined process
UWE	OO	UML	✓	✓	✓	✓	✓	pers	s + b	RUP	extended UML tool & generation tools	semi	UML-based method, model-driven development, aspect-oriented customization
W2000 (HDM)	HT	UML	✓	✓	×	✓	✓	pers	s	×	extended UML-tool	×	user-centric hypertext modeling
WAE2 (WAE)	SW	UML	✓	✓	✓	×	✓	×	s + b	RUP	standard UML-tools	×	implementation design, architectural design
WebML	DB	ER, UML	✓	✓	✓	✓	×	pers	s + b	own	modeling- & generation tool	auto	well-elaborated notation, database integration, generation
WS DM	HT	own notation	✓	×	✓	✓	×	×	s + b	own	×	×	user-centric approach for analysis

✓	supported
×	not supported

pers	personalization

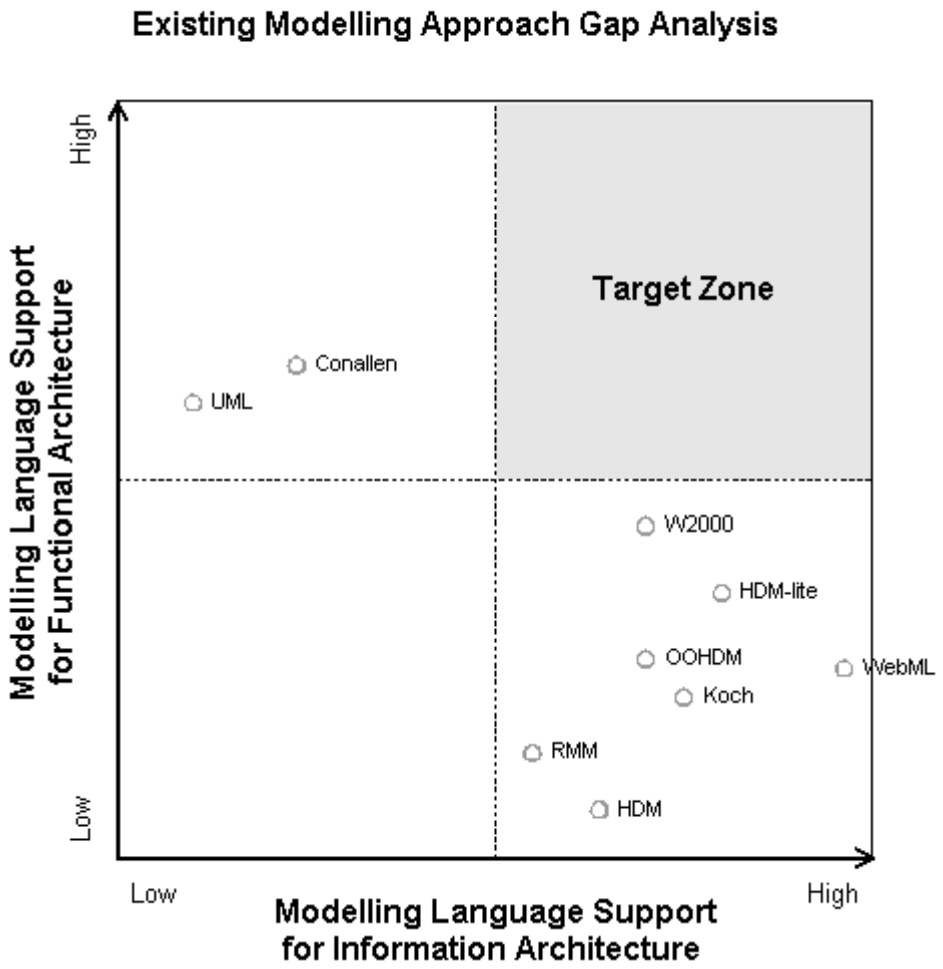
s	structure modeling
b	behavior modeling

RUP	Rational Unified Process
own	own process model / approach

auto	automatic generation
semi	semi-automatic generation

DB	data-oriented
HT	hypertext-oriented
OO	object-oriented
SW	software-oriented

(Kappel, Proll, et al 2003/2006, pg. 60)



Web Modelling Languages: the gap between requirements and current exemplars, Gu et. al. 2002

References

- www.csun.edu/~twang/595WEB/Slides/WebAppsModeling.pdf
- www.csun.edu/~twang/595WEB/Slides/UWE.pdf
- www.csun.edu/~twang/595WEB/Slides/WebML.pdf