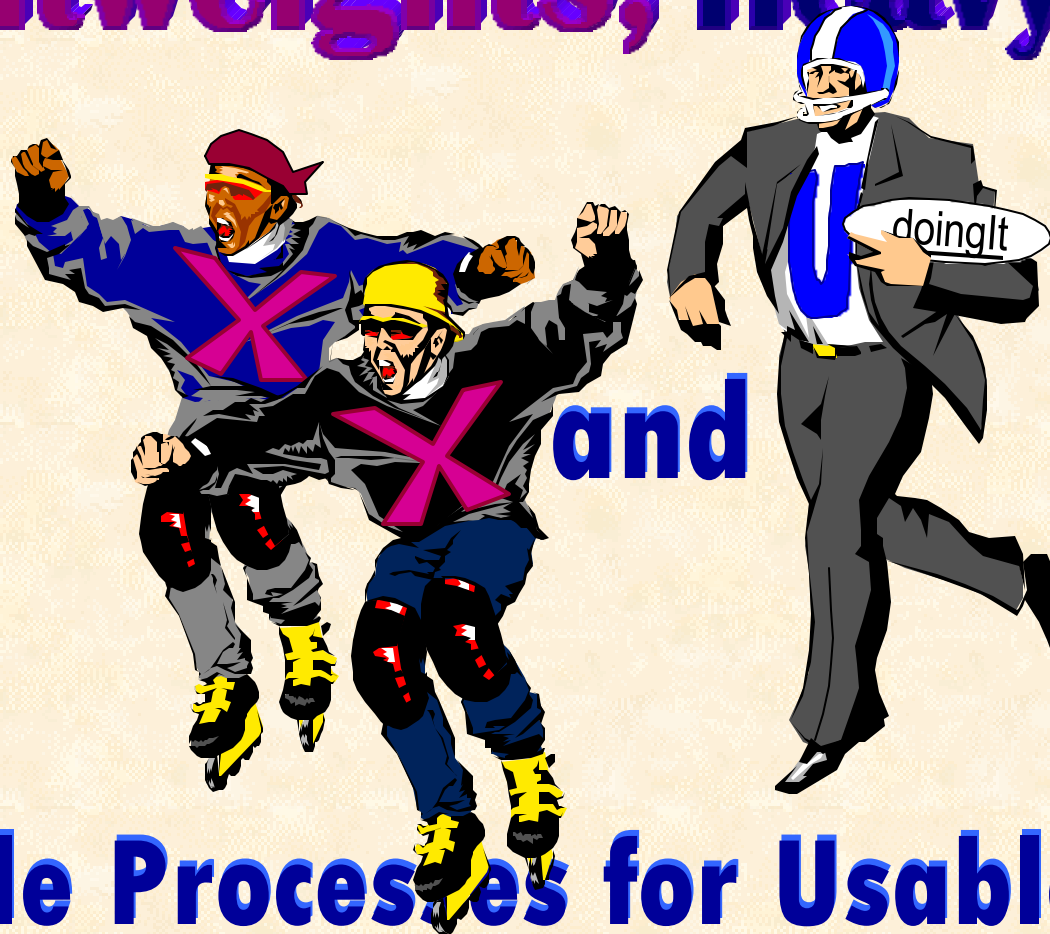




Constantine & Lockwood, Ltd.

Software Development 2001

# Lightweights, Heavyweights



## Usable Processes for Usable Software

Larry Constantine



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# **Software Development 2001**

**San Jose**

**9 April 2001**

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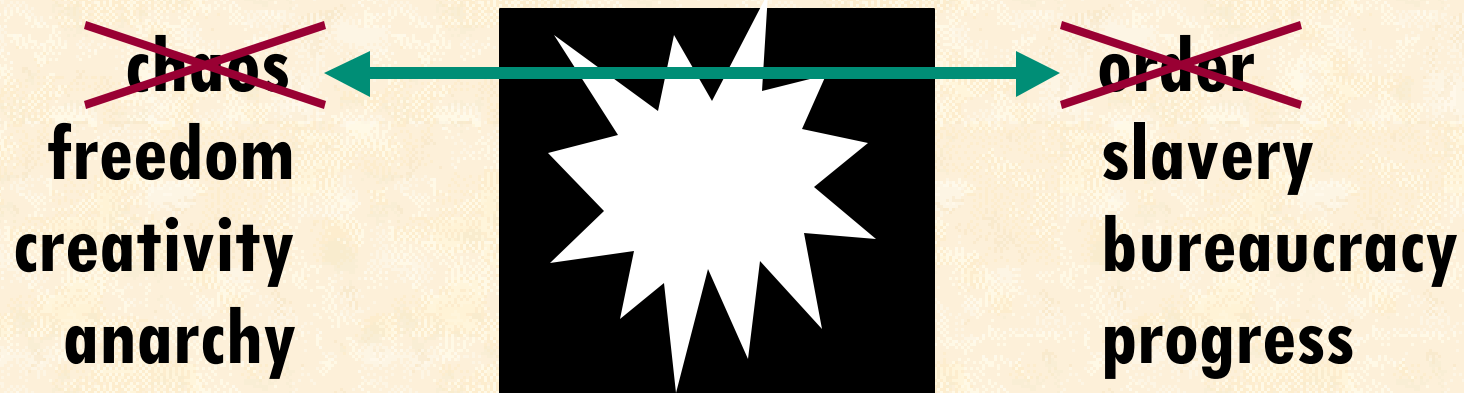
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**“your partners in managing people, process and technology”**

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**Graphics and Sound: Corel, Illarion Studios, Masterclip, Presentation Task Force, SoftKey, Sound Design.**

- Before methods **CHAOS**. After methods **STRUCTURE**.



Do you have a systematic,  
well-defined development process?

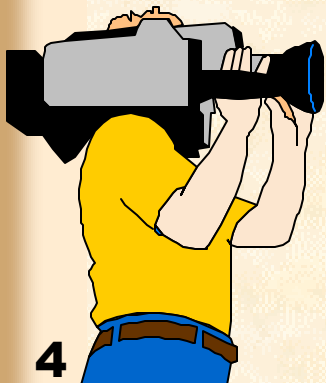
Well, sort of.

Do you actually follow that  
development process?

Not really.

- Reality:
- No process at all.
  - Hack-and-slash cowboy coding.
  - Quasi-coordinated chaos.

- The **Unified Process** coupled with the **Unified Modeling Language** is a single framework comprising a **comprehensive** and **customizable** collection of **fully integrated** concepts, models, notations, tools, tactics, and techniques with supporting training for the **disciplined** and **systematic** generation of software solutions in virtually **any application** in **any domain** over the **full range of scales** in system complexity and project time lines.



- Almost nobody is actually using it as sold or intended.



- ✓ Comprehensive coverage of all issues.
  - ✓ Standardized models and notation.
  - ✓ Fully supported by software tools.
  - ✓ Widely known, respected.
  - ✓ Fully documented process.
  - ✓ Adaptable to variety of applications and organizational contexts.
- 
- ✗ Big! Expensive.
  - ✗ Long learning curve.
  - ✗ High overhead, lots of activities, documents.
  - ✗ Customization of process by elaboration or reduction of a complex process.

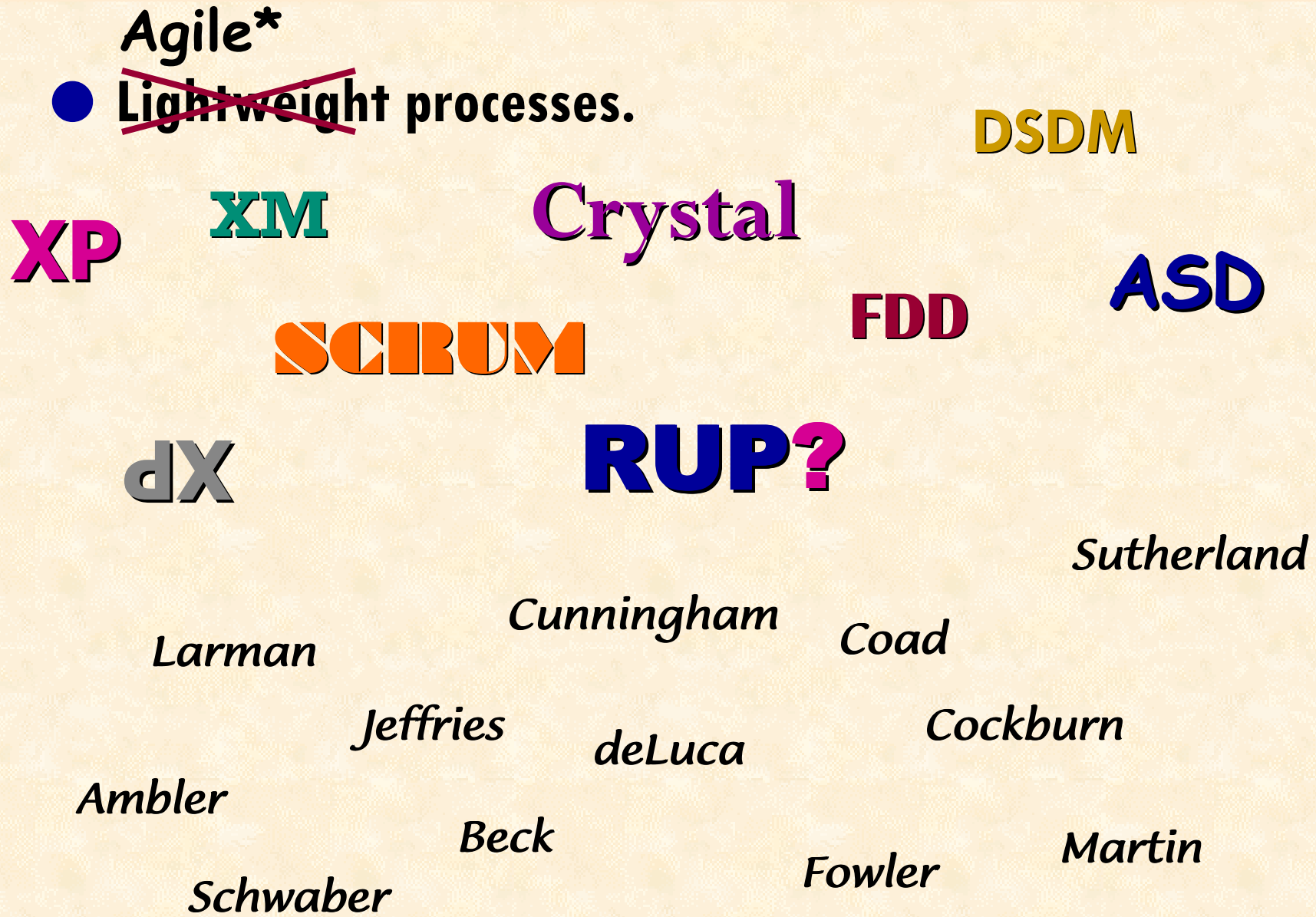


- ✓ Simple, at least in concept.
- ✓ Fast, at least in iterations or release cycles.
- ✓ It's about programming.
- ✓ Build big things in small increments.
- ✓ Low overhead.
- ✓ No (or few) diagrams and documents.
- ✗ Requires genuine discipline.
- ✗ Highly dependent on developer quality, effective management.
- ✗ Deceptively simple.
- ✗ Short on design.
- ✗ Problems scaling up.





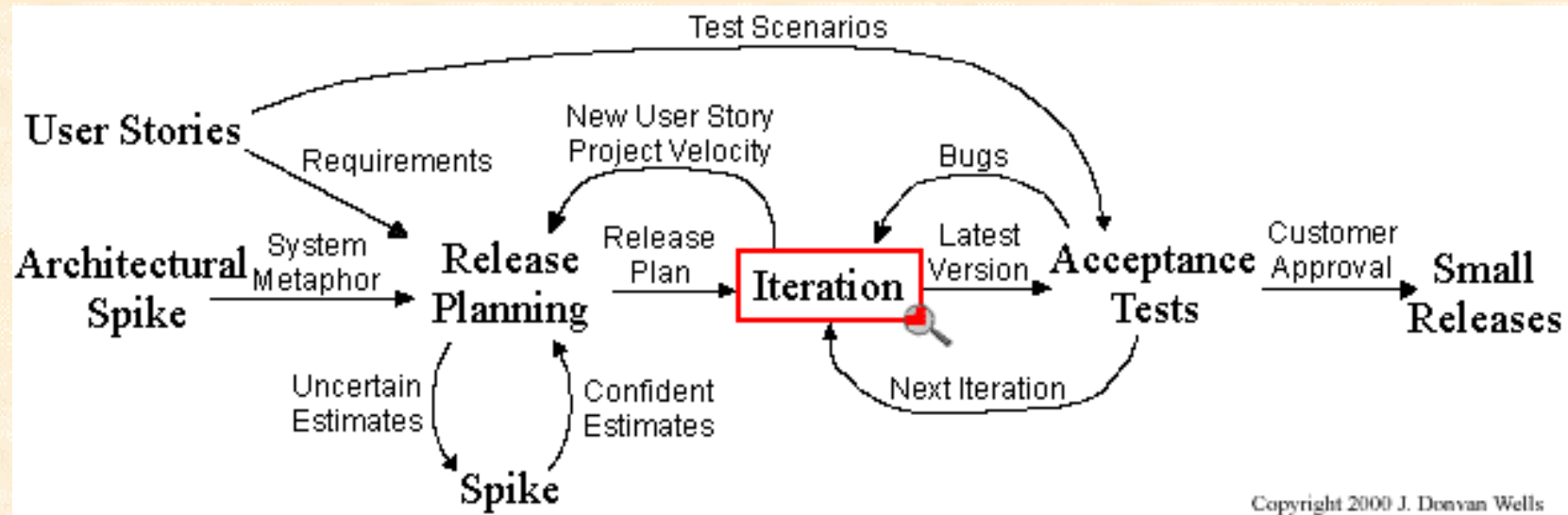
# Teams and Star Players



- **Based in core values.**
  - **Communication.**
  - **Simplicity.**
  - **Feedback.**
  - **Courage.**
  - **Humility.** -Ambler
- **Project management and project organization not just programming.**
  - **Paired programming.**
  - **Customer access.**
  - **No overtime.**
  - **Cross-training, rotation, fungibility.**
- **Common emphases include -**
  - **Efficient teamwork practices.**
  - **Close coordination/collaboration with customers.**
  - **Early defect detection and elimination.**







- **Spiral, iterative refinement process with short release cycles, concentric implementation.**
- **No advanced overview, comprehensive design, or full architecture.**
- **Can easily go down wrong path.**

**Refactoring to the rescue!**

- XP and others employ “user stories” to identify and define features and functions.
- User stories are concrete, quasi realistic scenarios, a plausible story of use of the proposed system.
- They are called user stories, but they are written by the customer.
- Clients and customers are not the same as users.
- Users outnumber customers.
- If you meet the real user needs, you meet the customer needs.

Once upon a dark  
and stormy night...

- XP and other agile methods have proved themselves on a variety of projects of varying scope, but...

**“GUI-intensive projects are problematical for XP (and probably for many approaches).”  
—Ron Jeffries**



**“It is not a ‘weak point’ [of the agile methods], it is an absence.”  
—Alistair Cockburn**

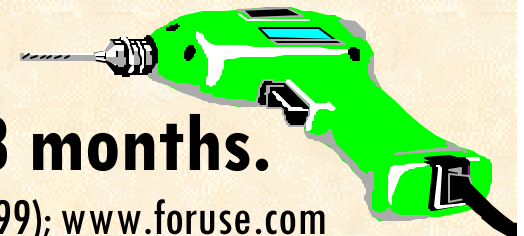
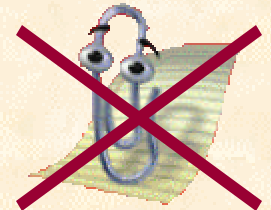
- To the user, the user interface **IS** the system.
- Usability is increasingly important for success.
- Usability is a competitive advantage and an alternative to price and feature wars.
- No process, however comprehensive or unified, no process, however light or agile, is complete without a simple, systematic, and effective approach for enhancing usability and designing the user interface to meet the genuine needs of users.

Software, sites, and systems for use need to be designed for use.



**Usage-centered design\*** is a refinement of **user-centered** design focused on **building better tools** to support work users are trying to accomplish.

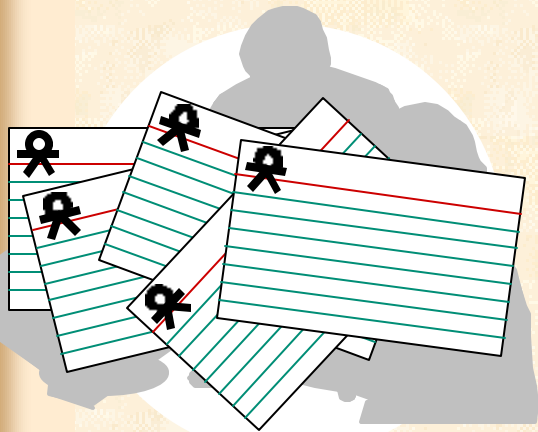
- **Objective:** simpler systems supplying everything needed for efficient completion of tasks to be accomplished. **NOT** silly “user-friendly” interfaces like Office Assistant or “intelligent” Web shopping agents.
- **Users involved selectively,** focused on their work, their relationships with the system, and their intentions.
- **Applications:** industrial automation, e-commerce, CAD/CAM, medical informatics, education, finance, telecommunications, peripherals,...
- **Scope:** 3 people for 3 months to 19 over 23 months.



\*Constantine & Lockwood, Software for Use (Addison-Wesley, 1999); [www.foruse.com](http://www.foruse.com)

To design for use, you have to understand three things -

## ① Your users.



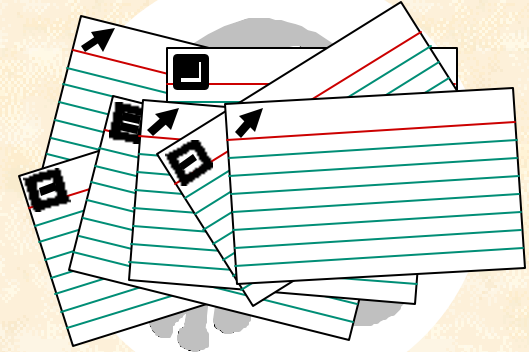
What **roles** do they play in relation to the system?

## ② Their work.



What **tasks** are they trying to accomplish?

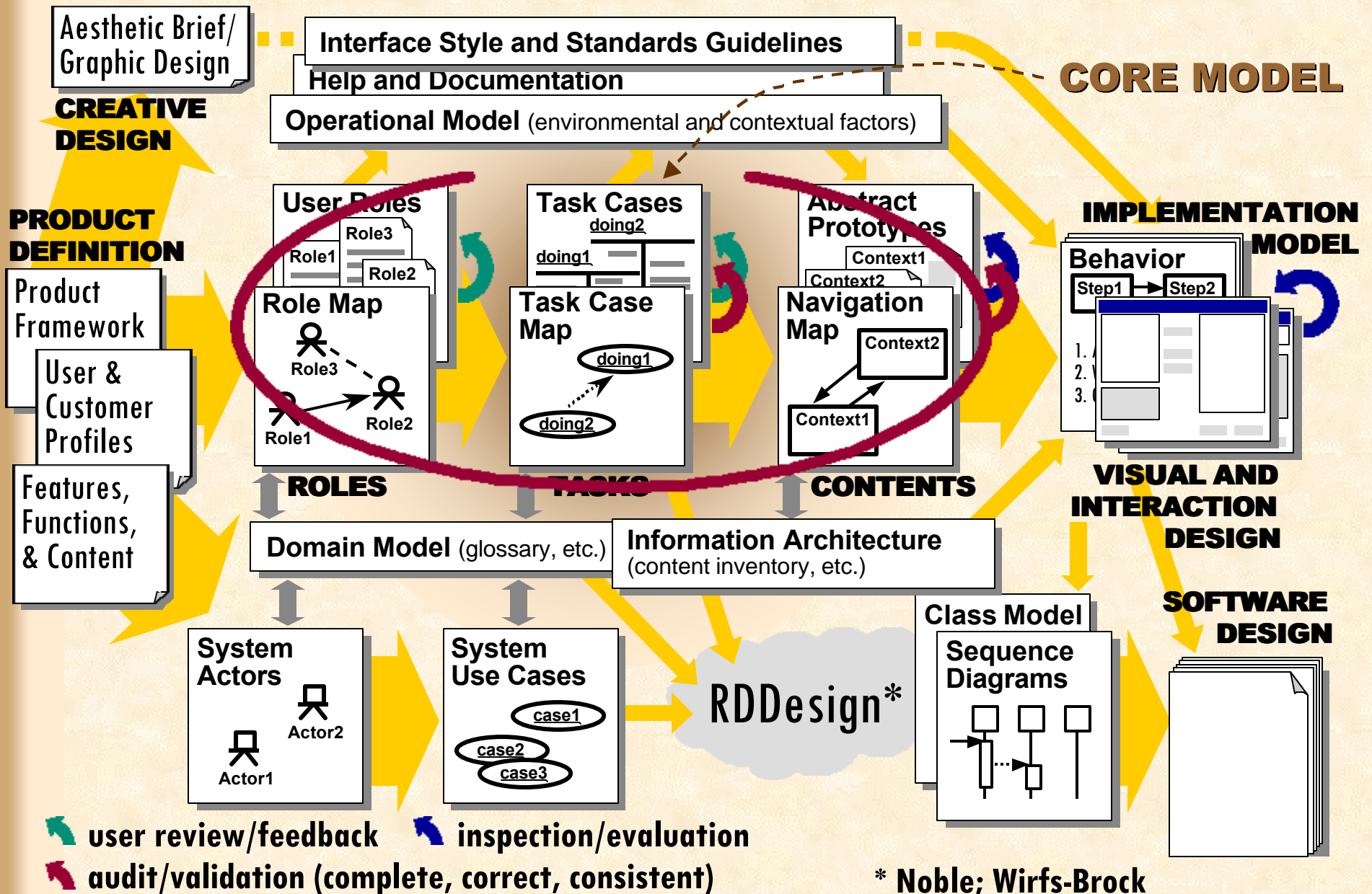
## ③ Their needs.



What **tools** and **materials** are needed for the tasks?

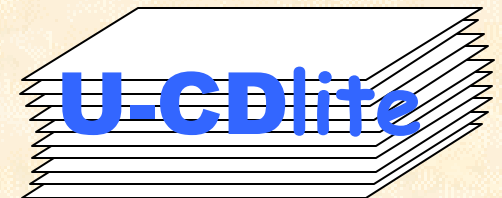
Simple, abstract models can build and hold understanding.

# Scaleable, Adaptable Process





- **Work with users and clients collaboratively.**  
(If not, immediately review and validate or use JITR.)
- **Construct user role inventory and describe on index cards.**
- **Sort cards to prioritize.**
- **Construct task case inventory on index cards.**
- **Sort cards to rank (frequency, overall priority).**
- **Sort: required (do first), desired (do if time), deferred.**
- **Write essential narrative (on card) for task cases that are critical, complex, unclear, or interesting.**
- **Cluster task cases by apparent affinity.**
- **For each cluster, sketch a proposed paper prototype.**
- **Inspect prototype with users and clients.**
- **Revise and begin programming.**





- Systems are more than just code. To the user, the user interface **IS** the system.
- Faster is not necessarily better. Time to market is mostly myth.
- Modeling matters. Models are more than just diagrams and documents.
- Good models provide mental leverage, speed the process, and improve results.
- Design is not overhead.
- Overall architecture, of the user interface as well as software, is critical and must be planned.
- Truly innovative, world-class user interfaces require complete and detailed design.



- One size does **not** fit all, especially if it is the extra jumbo deluxe heavyweight all-in-one unified edition.
- A simple process that can be scaled up is better than a complex process that can be cut down.
- Every diagram, document, activity, or artifact must save time, improve quality, or facilitate problem solving.

**Products not process!**

**Consumables not deliverables!**

- Model only what helps and only to the extent and precision that helps.
- Leave rigor and obsessive completeness and correctness to methodologists.
- User interface design is not an afterthought.



- If you don't know what you're going to do before you do it, you don't know what you're doing.
- If you spend all your time figuring out what you're doing, you're doing nothing.





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