

# ISPI ISD CONFERENCE

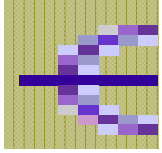
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## *Give the Customer What They Meant to Ask For... Designing Training at Three Levels*

- ▶ System or Curriculum Level
- ▶ Instructional Process Level
- ▶ User Interface Level



PRH Consulting Inc.  
20 Danada Square West, #102  
Wheaton, IL 60187  
Phone. (630) 682-1649  
Mobile. (630) 272-4057  
E-mail. [pete@prhconsulting.com](mailto:pete@prhconsulting.com)

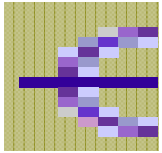


Introduction

# Engineering a System

*“Customers want you to give them  
what they meant to ask for”*

...anonymous systems engineer



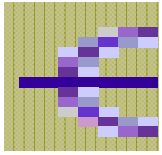
# Session Overview

*Purpose:* This session explains how to segment instructional and knowledge management system design into three levels to focus and accelerate decision-making.

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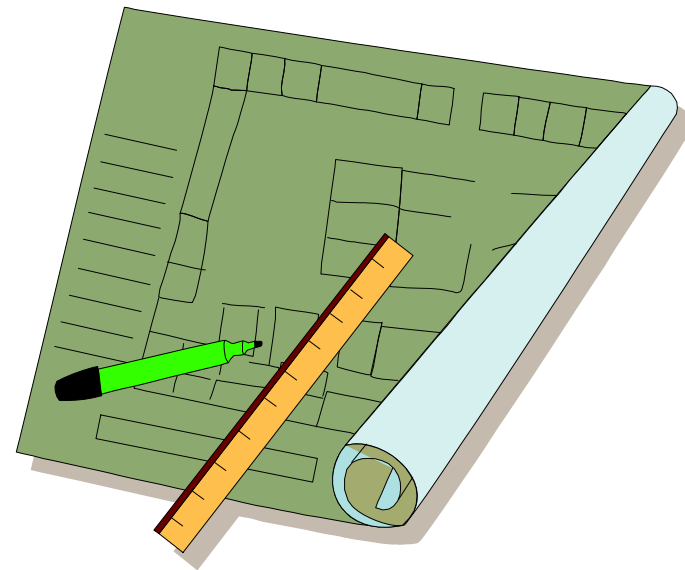
*By the end of the session, you will be able to*

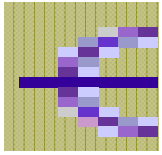
- ✦ Describe the three levels at which ISD can be performed
  
- ✦ For each level,
  - define the overall intent
  - identify design goals
  - Identify tips/techniques for accelerating the process
  
- ✦ Discuss how a three-level approach changes the role of the ISD professional



# Design is...

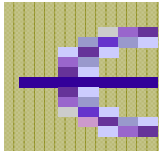
- ⊕ Requirements-driven
- ⊕ Making “trade-offs”
- ⊕ Customer-oriented
- ⊕ A learning process
- ⊕ An individual thing
- ⊕ Broad to narrow
- ⊕ Iterative





# Overview of 3-Levels Model

Levels	Building Example	Product Example	Software Example
System (Macro)	Campus layout or map of the subdivision	Product line architecture	System architecture
Component/ Sub-system design (Mid-level)	Plans for a single building, including structural plans, electrical wiring diagrams	Product specifications and drawings	Flowchart for a single application, dataflow diagram
Detailed/User Interface Level (Micro)	"Details" or "typicals" (showing "close ups" of key features/steps)	Individual part drawings and specs	Prototypes of screen layouts



# 3 Levels Applied to ISD

Design Level...

...Is like...

...ISD Level

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System (Macro)



Curriculum and  
Management  
Systems

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Component/  
Sub-System  
Design (Mid-  
Level)



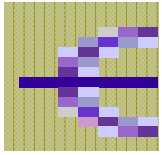
Instructional  
Process

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Detailed/User  
Interface Level



User Interface



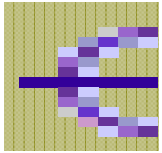
# Design Goals

Design goals define the “end in mind” for a designer

- ⊕ Intent
- ⊕ Target
- ⊕ Requirement
- ⊕ Measure
- ⊕ Success criteria

## Engineer's View

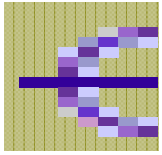
- Elegance
- Novelty/Innovation
- Robustness



## Example Design Goals for Various Stakeholders

Stakeholder Group	Example for a Training System or Course	Typical Requirements/Areas of Concern
Customers/Users	Learners Their managers Internal sponsor(s)	Ease of use, fit with immediate needs
"Owner"/Manager of end product over time	Training department manager	Minimum revisions/changes, ease of making updates, fits various work applications/situations
"Implementer"	Trainer	Minimum labor overhead/minimum non-value effort to deliver, acceptability to end uses
Far customer	Shareholders/business management	Payback/ROI

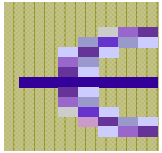




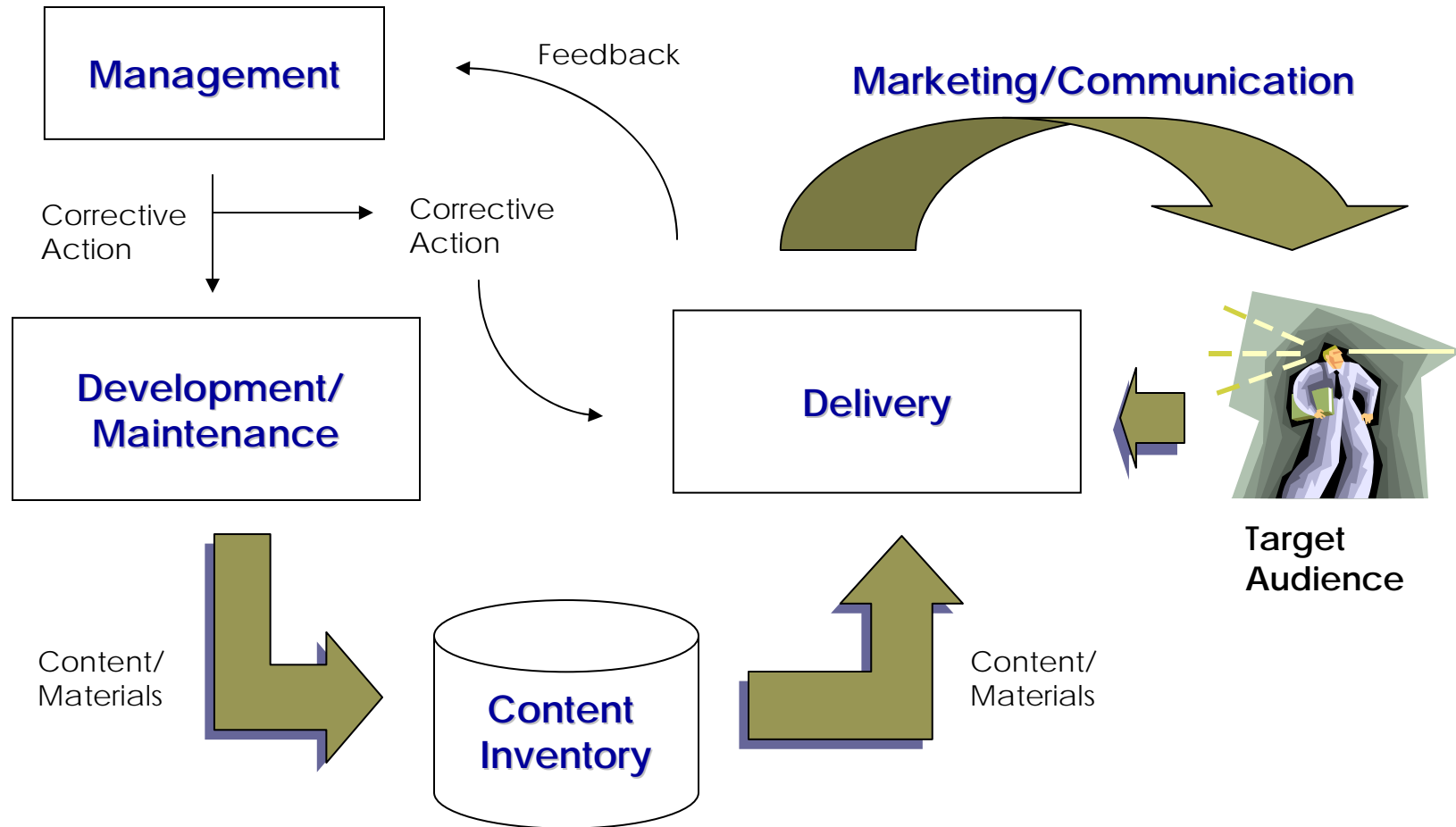
## System Level

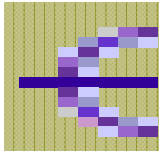
The system level addresses the set of processes and resources involved in deploying content to the audience

- ✦ Curriculum content structure (deliverables for audience)
- ✦ Content inventory structure (for “back office”)
- ✦ Content maintenance processes
- ✦ Delivery channels/processes
- ✦ Evaluation system
- ✦ Marketing/communication system/processes



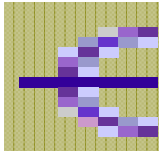
# Training Provisioning System Model





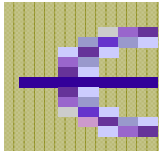
# System-Level Design Goals

Design Goals	Indicators/Examples
Content “chunking” enables sharing and reuse	Plan to use all or parts of the training for more than one audience
Content chunking anticipates future maintenance	Volatile content can be updated more frequently without disturbing stable content
Deliverable programs and paths address typical variations in audience need	Existing employees can be trained in the “delta” and new hires with updated complete programs



## System-Level Design Goals (continued)

Design Goals	Indicators/Examples
Delivery and communication channels reach all key end-user groups	Plan to get the training to those who need it within an appropriate cycle time
Deployment platforms support <i>performance</i>	Plan to incorporate reference materials in training
Evaluation plan is integrated into the deliverable (and appropriate for content)	Uses standard processes where appropriate  Performance tests where possible



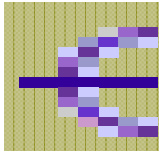
# Group Exercise

Goal: Apply design goals to example situations

Steps:

- ✦ Walk-through the scenario and review the plan
- ✦ Assess strengths/weaknesses per design goals
- ✦ Identify additional situation-specific design goals and assess



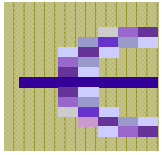


## Process Level

The process level addresses the sequence of instructional activities

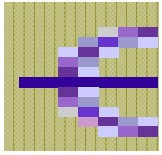
- ✦ *Information* delivery (e.g., models, facts, etc.)
- ✦ *Demonstration* of key procedures, tasks, behaviors, etc.
- ✦ *Application* of content (by learner) to performance situation

*Find the shortest path...  
...that actually leads to performance!*



# Process Level Design Goals

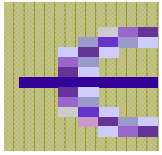
Design Goals	Indicators/Examples
Supports <i>performance</i> (even if addressing enabling K/S)	Sufficient practice to ensure learners can and will use on the job
Enables individual learning (even if group-paced)	Every participant gets a chance to practice (and receive feedback)
Minimizes cycle time and resources used	No wasted time
Reliable/repeatable	Content and packaging will work over time (planned life cycle) in various anticipated environments



## Process Level Design Goals (continued)

Design Goals	Indicators/Examples
Content/packaging are maintainable	Stayed consistent with the modular design (at systems level)
Sufficient learner support to ensure success	Enough information, guidance, and instructions to allow the learner to complete all activities successfully
Appropriate targeting and level of effort of evaluation	Minimize knowledge tests—maximize simulations/performance tests





# User Interface Level

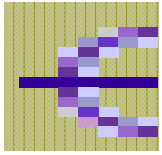
The user interface level addresses two large areas

## ✦ *“Look and feel”*

- Layout
- Interface conventions/standards
- Learner experience (e.g., pace, level of interaction)

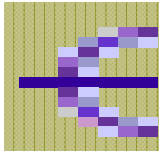
## ✦ *Content*

- Use of simulations and application exercises
- Sequence of information presentation
- Use of illustrations, models, analogies, etc.



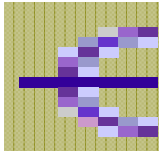
# User Interface Level Design Goals for “Look and Feel”

Design Goals	Indicators/Examples
Compliance with organization guidelines	Doesn't reinvent something that works unless improvements go beyond aesthetics
Visible organizational structure	Uses headings, prompts, cues
Patterned content presentation	Learners can see where to go looking for specific content
Use of appropriate primary delivery media	Single location for instructional procedures



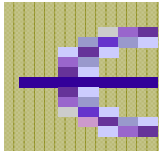
# User Interface Level Design Goals for “Look and Feel”

Design Goals	Indicators/Examples
Useable in the intended environment (and likely variations)	Appropriate use of indexes, forms, tables, etc. for post-training use  Sufficient details for instructor/coach use
Emphasis on key content (and de-emphasis of non-key content)	Use of “white space,” colors, formatting for rapid content consumption
Ready availability of help	Tools or people address common learner questions
Activities/exercises fit the learning environment	Appropriate trade-offs to make activities challenging but feasible



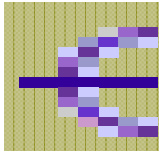
# User Interface Level Design Goals for Content

Design Goals	Indicators/Examples
Takes the shortest path to performance	Uses simulation or job-application exercises
Activities/exercises fit the performance	Activities are similar to job (not "make-work")
Chunking and sequence fits state of learning research	Works from simple to complex, uses appropriate examples/non-examples
Information delivery is minimized...application is maximized	Content is distilled into lists, tables, etc. for later reference or application

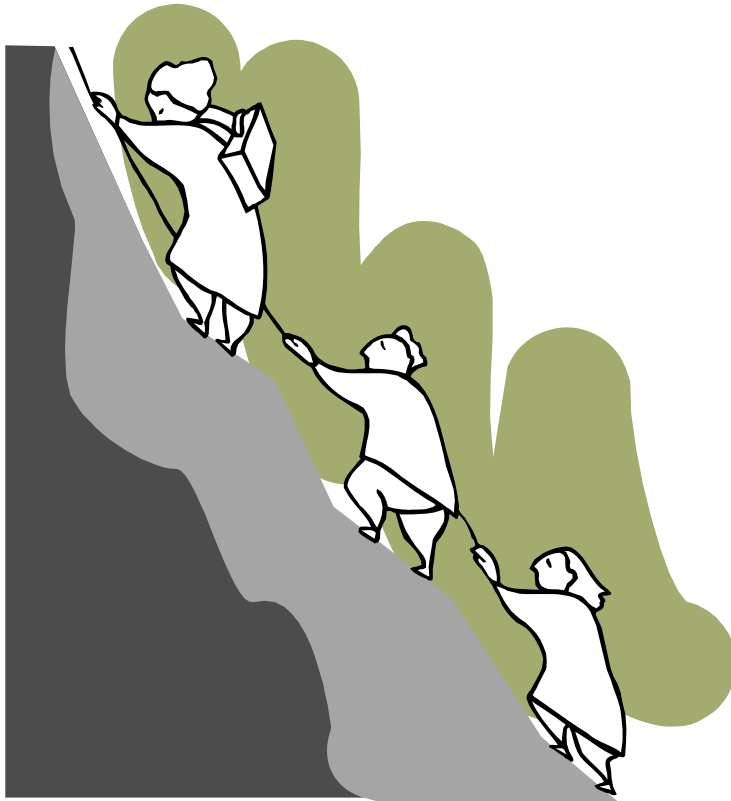


# User Interface Level Design Goals for Content

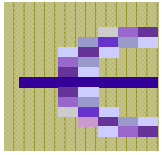
Design Goals	Indicators/Examples
Reinforces key themes, models, graphics	Use of a few key graphics to organize content
Clearly-defined instructional procedures	Includes steps, notations, and example outputs
Includes (or at least refers to) tools and information used on the job	New content is primarily explanation or example referring to tools
Defines acronyms, abbreviations	Demystifies terms and eliminates unnecessary detail to accelerate learning of general concepts
Maintains modularity	Doesn't create redundant content and doesn't mix content from unrelated activities



# Enterprise-Level ISD—Using Design Goals to Drive Performance



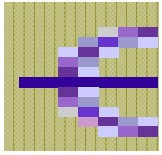
- ✦ Meet business need (vs. elegant instruction)
- ✦ Timely and effective delivery (vs. beautiful)
- ✦ Reuse and leverage of content (vs. reinvent)
- ✦ *Shortest path to performance!!*



# Summary

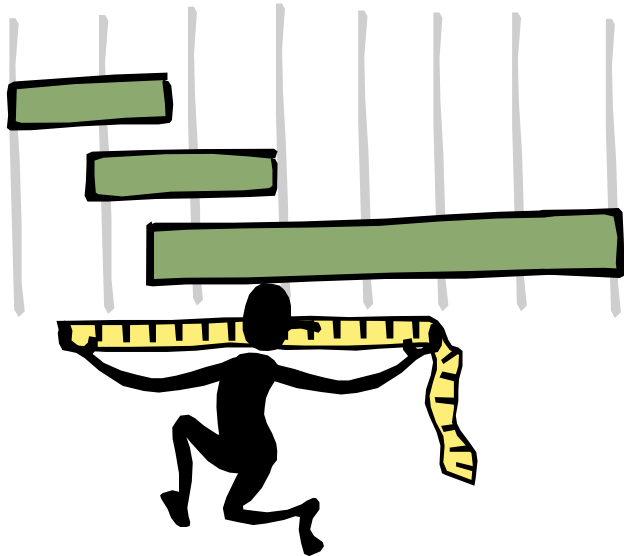
Now that we're finished, can you...

- ⊕ Describe the three levels at which ISD can be performed?
  
- ⊕ For each level,
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  - Identify tips/techniques for accelerating the process?
  
- ⊕ Discuss how a three-level approach changes the role of the ISD professional?



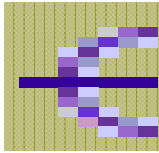
## Session Close

**Thanks for your attention!**



*Please remember to  
fill out a session evaluation form!*





## For More Information . . .

### Contact

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*Peter R. Hybert*

PRH Consulting

3 Danada Square East, #101

Wheaton, IL 60187

Phone: (630) 682-1649

Mobile: (630) 272-4057

E-mail: [pete@prhconsulting.com](mailto:pete@prhconsulting.com)

Website: [www.prhconsulting.com](http://www.prhconsulting.com)

### See Also

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- ✦ "Give Customers What They Meant to Ask For," Peter Hybert. *Performance Improvement*, Vol. 40, #9.
- ✦ "Designing for the ISD Life Cycle," Wallace, Hybert, Smith, Blecke. *Performance Improvement* Vol. 41, #7.
- ✦ "*lean-ISD*," Guy Wallace. CADDI Press, 2000.
- ✦ Or, request electronic copies of articles from CADDI's Pursuing Performance newsletter
  - Systems Engineering for Training—Curriculum Architecture Design (Winter 2001)
  - Instructional Process Design (Spring 2002)
  - Instructional Activity Design (Summer 2002)