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Bootstrapping Organizations Into the 21st Century

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## TOGETHER WE CAN GET THERE!

# Patricia Seybold

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#### interviewing

Dr. Douglas C. Engelbart
Director, Bootstrap Institute

@ 1991 Bootstrap Institute

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Doug Engelbart's Odyssey

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## BASIC BOOTSTRAP CONCEPTS

Objective: Pursue high-performance org

Hypothesis #1: Collab. Knowledge Work (CODIAK)

Hypothesis #2: Open Hyperdoc System (OHS)

Hypothesis #3: Whole-system Augmentation

Hypothesis #4: ABC's of Org Improvement

Hypothesis #5: Bootstrap Strategy

Hypothesis #6: C Community

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## CODIAK:

Concurrent Development Integration and Application of Knowledge

#### THE CODIAK PROCESS -COLLABORATIVE, DYNAMIC, CONTINUOUS External Knowledge Records Intelligence Product Memos Articles, books Proposals Status reports Reports, papers Plans Meeting minutes Conf. proceedings Budgets Decision trails Brochures Legal contracts Market surveys Design rationale Milestones Change requests Industry trends Time lines Document review Competition Design specs Lessons learned Suppliers info Product descriptions Mfg plans Bug reports Customer info Field spt logs New technologies Test plans & results Design reviews New techniques Field spt manuals

CODIAK: COncurrent Development, Integration, & Application of Knowledge.

EVERY VIABLE ORGANIZATIONAL UNIT REQUIRES
BASIC KNOWLEDGE PROCESSES

External Environment

Interacting Scanning Ingesting
Ingesting Collection Product

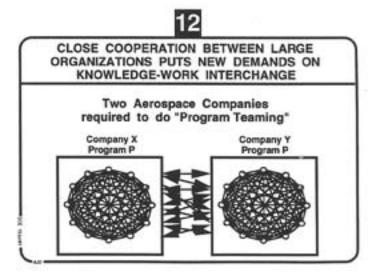
Analyzing

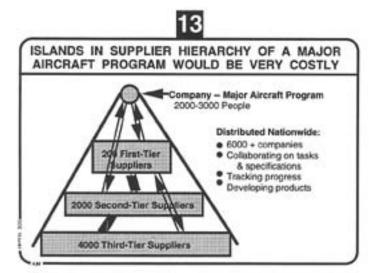
Digesting
 Integrating
 Developing
 Re-using



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Key Challenge: Interoperability among CODIAK domains





TEAMED AEROSPACE PROGRAM -- IMMENSE DEMAND FOR KNOWLEDGE-WORK EXCHANGE

Program P Company X: 2000-3000 People 2000-3000 People 2000-3000 People 2000-3000 First-Tell Suppliers

200 Second 2000-3000 Second Tell Suppliers

4000 4000-5000 Third-Tier Suppliers

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The need for CODIAK interoperability will extend the scope of standards.

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First beachhead for improving CODIAK capability: Hyperdocument <u>Systems</u>

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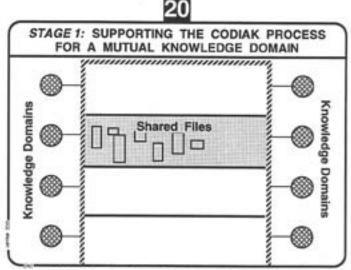
Hypothesis #6: C Community

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Essential Elements of Open Hyperdocument Systems



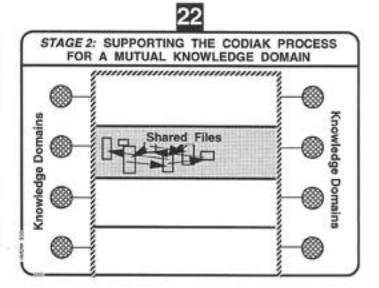
Shared On-line Filing



A Knowledge Domain can be any knowledge-work environment -- for an individual, project, department, functional area, whole org, or community

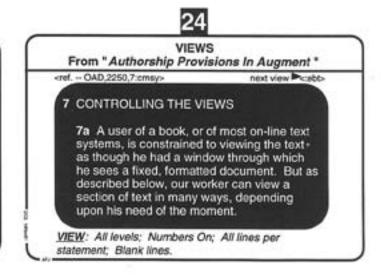
21

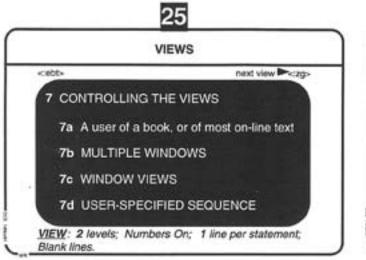
Structuring, Linking and Viewing

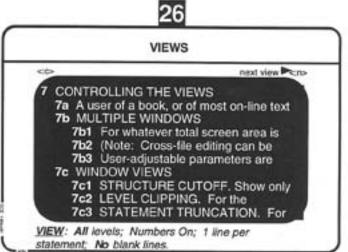


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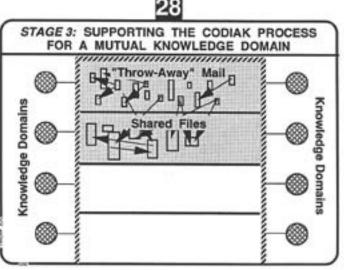
[Engelbart is showing page 9 of "Authorship Provisions in Augment" -- see last page of this handout.]

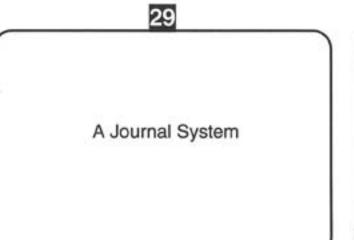


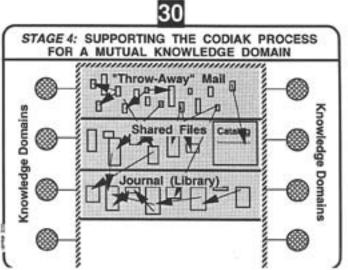






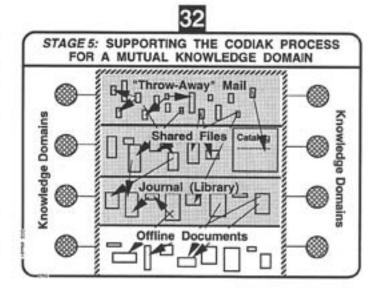






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Integrated External Document Management



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Shared Screen Support

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Common Evolving Vocabulary Among CODIAK Users

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## ESSENTIAL ELEMENTS OF AN OHS

- Mixed-object documents
- Explicitly structured documents
- View control of objects' form, sequence and content
   The basic "hyperdocument"
- Hyperdocument "back-link" capability
- Hyperdocument "library system"
- Hyperdocument mail
   Personal signature encryption
- . Shared-window teleconferencing
- Inter-linkage between hyper-
- documents and other data systems
- Link addresses that are readable and interpretable by humans
- Every object addressable
- Hard-copy print options to show addresses of objects and address specification of links
- External-document control
- Access control
- More

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STARTING TO THINK ABOUT AUGMENTING THE KNOWLEDGE WORKER: BEGIN WITH BASICS

Outside World

Percept. Motor

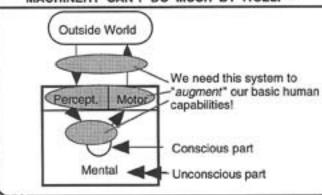
Conscious part

Mental

Unconscious part

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## BUT OUR BARE MENTAL-MOTOR PERCEPTUAL MACHINERY CAN'T DO MUCH BY ITSELF -



OUR CAPABILITIES GROW HIERARCHICALLY -- FOR BOTH INDIVIDUALS AND THEIR ORGANIZATIONS

Human-System Capability
Capability
Hierarchy
Procedures
Customs
Methods
Language
Compute
Language
Fercept. Motor
Training
Mental

Mental

Mental

Tool-System
Capabilities

Tool-System
Capabilities

Tool-System
Capabilities

Tool-System
Capabilities

Tool-System
Capabilities

Tool-System
Capabilities

Settieve
Compute
Communic.

Skills
Knowledge
Training
Mental

Mental

Mental

Tool-System
Capabilities

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## ABC's OF ORGANIZATIONAL IMPROVEMENT

An Organization

A
Core Business
Activity

B
Improves A's
Capabilities

C
Improves B's
Capabilities

10.5 (1.01) (2.51)

Product R&D, mlg, marketing, sales, accounting, etc. Ex: aerospace producing planes; congress — passing legislation; medicine — AIDS research.

B Activity:

Improving the organization's ability to perform A work. Ex: introducing email or CAD systems; upgrading quality

C Activity

Improving the organization's ability to perform B work. Ex: introducing better ways to address needs, or run pilots.

How an organization explicitly improves its improvement capability.

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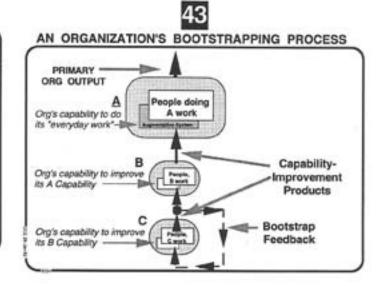
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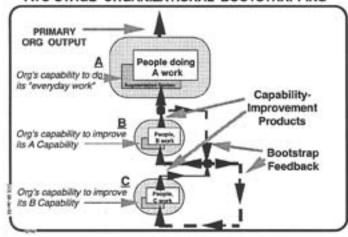
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TWO-STAGE ORGANIZATIONAL BOOTSTRAPPING



AN INFO-SYS VENDOR'S BOOTSTRAP LEVERAGE Those Info-Sys PRIMARY VENDOR OUTPUT Products that can support People doing vendor's own Vendor's capability to A work internal work do its 'everyday work processes. Vendor's capability to improve its A Capability Vendor's capability to improve its B Capability

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