

Dialog: The Beginning of Online Search

Panelists:

Roger Summit, PhD

Peter Rusch, PhD

Robert Simons, JD

Elizabeth Trudell, MLS

Deborah Hunt, MLS, ECMp

Interviewed by Brian A. Berg

Dialog }
INFORMATION TECHNOLOGY



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Doron Noyman will say a few words



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Overview of Tonight's Program

- Roger Summit, founder and Chairman Emeritus
 - the beginnings of Dialog in the 1960s
 - its growth and development through 1987
- Peter Rusch
 - technical overview: Dialog's usage and operation
 - the acquisition and processing of its data corpus
- Bob Simons, inside counsel
 - 1981: challenges of Dialog's corporate spinout
 - 1987: sale via a Goldman Sachs auction
- Elizabeth Trudell, VP Global Mktg./Product Mgmnt.
 - Dialog's progression of parents
- Deborah Hunt, long-time customer
 - Dialog's impact from a customers' perspective

Panelist #1: Roger Summit



Pre-Dialog Search Landscape

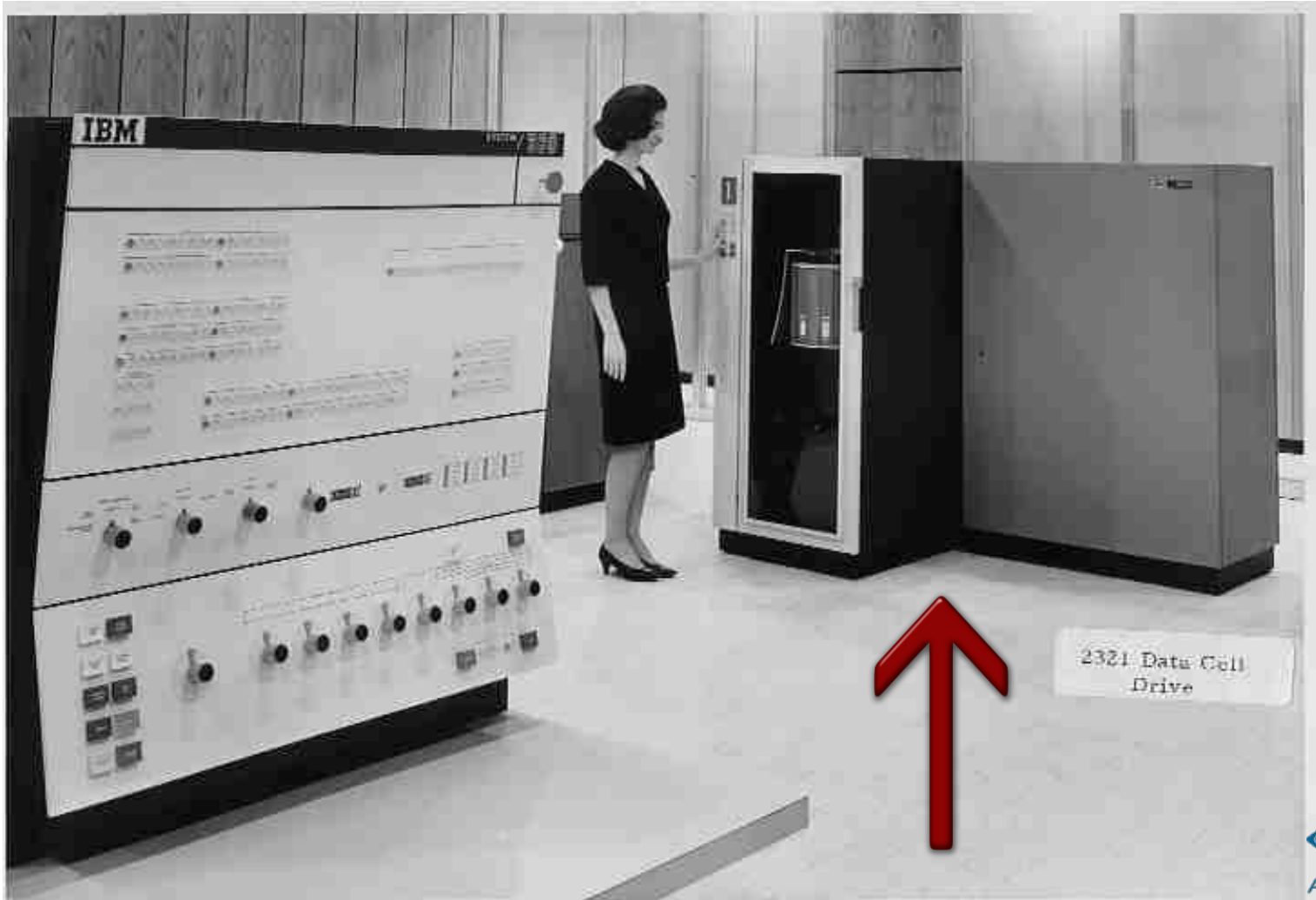
- My Introduction to Search
 - E. K. Fisher assignment
 - IBM and interest groups
- Convergence of Technologies
 - 3rd generation computer technology (1964)
 - Digital databases
 - Batch search services
- Lockheed Information Sciences Laboratory
 - With Herschel Brown backing (LMSC founder)
 - IBM 360/30 acquisition and configuration
 - My focus on Information Retrieval

IBM 360/30 Configuration: 2311 Disk drives @ 7.25 MB 2701 Comm. Controller, IBM 2321 Data Cell @ 400 MB



IBM 2321 Data Cell @ 400 MB, 1 sec. access time

(By 1980 we had about 28 of them, for 11.2 GB of storage)



Dialog's Backup Tape Library



Search Before Digital Automation



- Search until the early 1960s was mostly with hardcopy
 - Printed catalog collections and card drawer index
 - Some batch search

Search Before Digital Automation [Video]



NASA's Mel Day on Batch Search [Video]



Dialog Product Design

- “Dialog” Requirements Specification
 - Provide displayable index of words in database
 - Search is a process, not a probe
 - Must be cumulative and recursive
 - Search results can be used as an argument in a subsequent search
- Original project team in 1964 – 6 Total
 - Project leader: Roger Summit
 - System architect: Ed Estes
 - Systems programmer: Bob Mitchel
 - Applications programmer: Ken Lew
 - File conversion and loading: Dexter Shultz
 - Telecommunications: Jim Brick

File Structure & Search Commands

- Major Dialog Search Files
 - Inverted file index; Inverted file
 - Linear file index; Linear file
 - User set index; User set file
- Major Search Commands
 - Begin (file to be searched)
 - Expand (term)
 - Select (term, Boolean expression of terms or set numbers)
 - Type (set number, format, item(s))
 - Print (set number, format, item(s))

NASA's Mel Day: An Interactive System Was Needed; Dialog's NASA RECON System [Video]



The NASA Experience

- Contract Need Recognition
- Visit to Mel Day at NASA - 1965
- NASA IBM 1410 Search system
- NASA-Ames experiment
 - Obtaining a large database
- NASA RECON Procurement
- Subsequent DIALOG RECON implementations:
 - AEC (Atomic Energy Commission)
 - US-DOJ (US Dept. of Justice)
 - ESRO (European Space Research Agency)
 - USOE (US Office of Education)

1969: European Space Research Organization (ESRO) [Video]



Business Redirection: Services v. Development

- 1970 contracts:
 - U.S. Office of Education (USOE)
 - Educational Resources Info. Center (ERIC)
- Significance of redirection
 - Contract dictated hires and layoffs
 - Continuity of service contracts
- 1972
 - Beginning of Dialog's commercial service
- Lockheed reluctance
 - Decision trigger
 - Cash-flow positive from the beginning

Early 300 Baud Search Terminal



1972-1981: Dialog, the Business

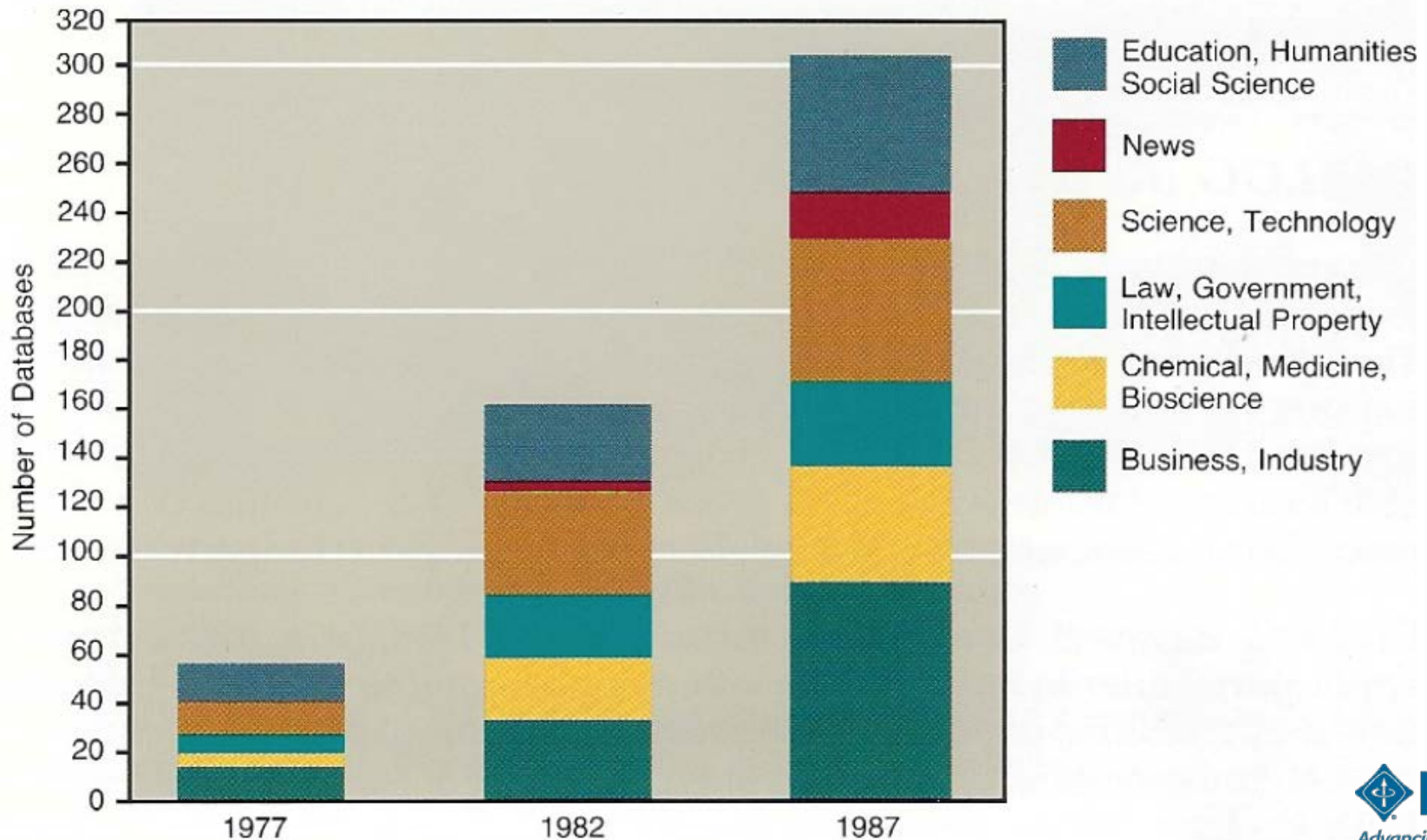
- Database expansion
 - Storage hardware requirement
 - Facilities expansion
- Geographical expansion
 - Europe via Tymshare
 - Japan and Australia via leased lines
- Customer expansion
 - Response time and CPU requirements
 - Customer services needs
- Personnel expansion
- Outcome
 - New facility at 3251 Hanover, Stanford Industrial Park
 - Spinout as Dialog Information Services, Inc.

Dialog Indexes the Societies



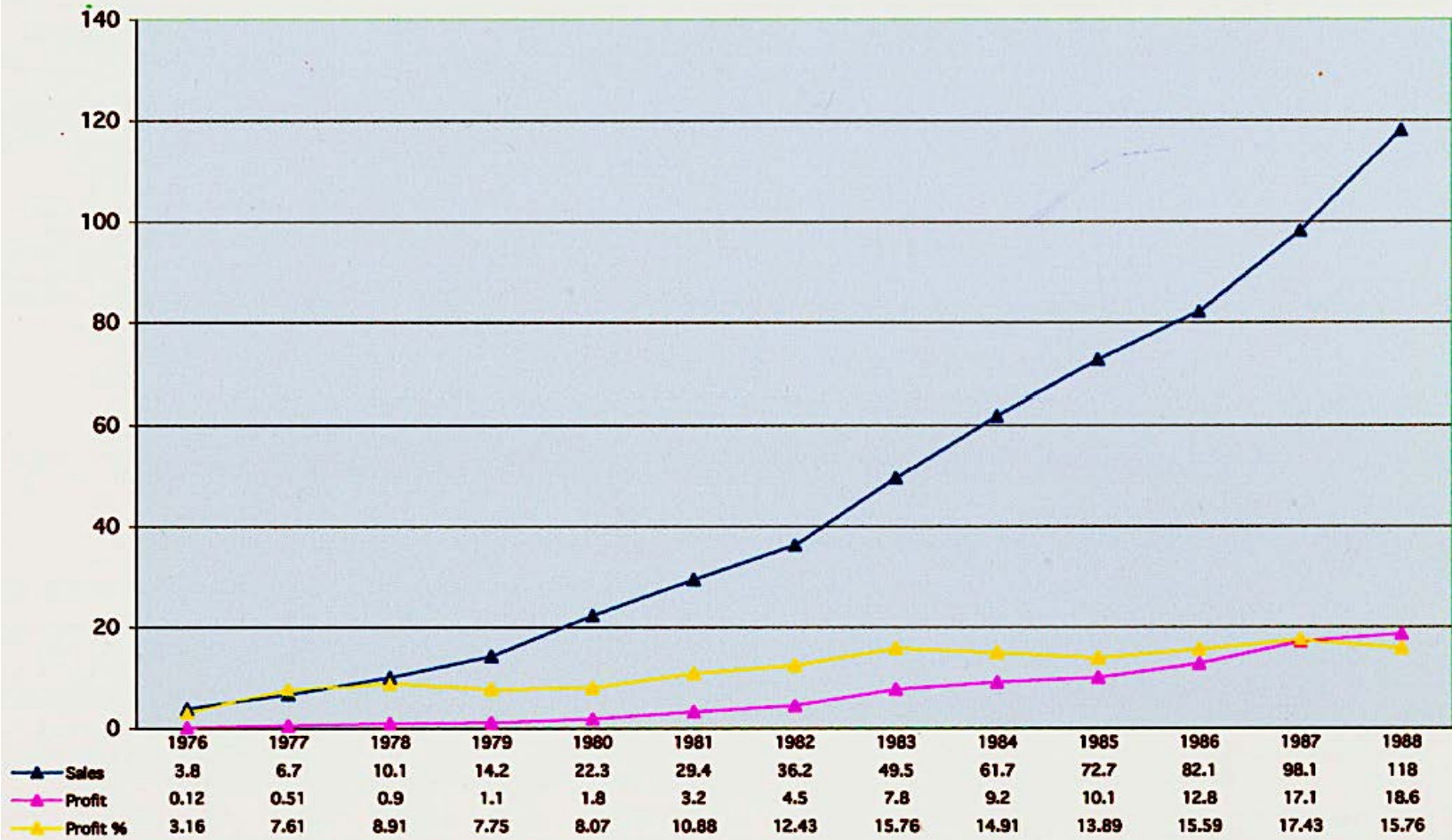
Growth in Content Offerings

Cumulative Growth of Databases
by Type of Information



Revenue and Profit Growth

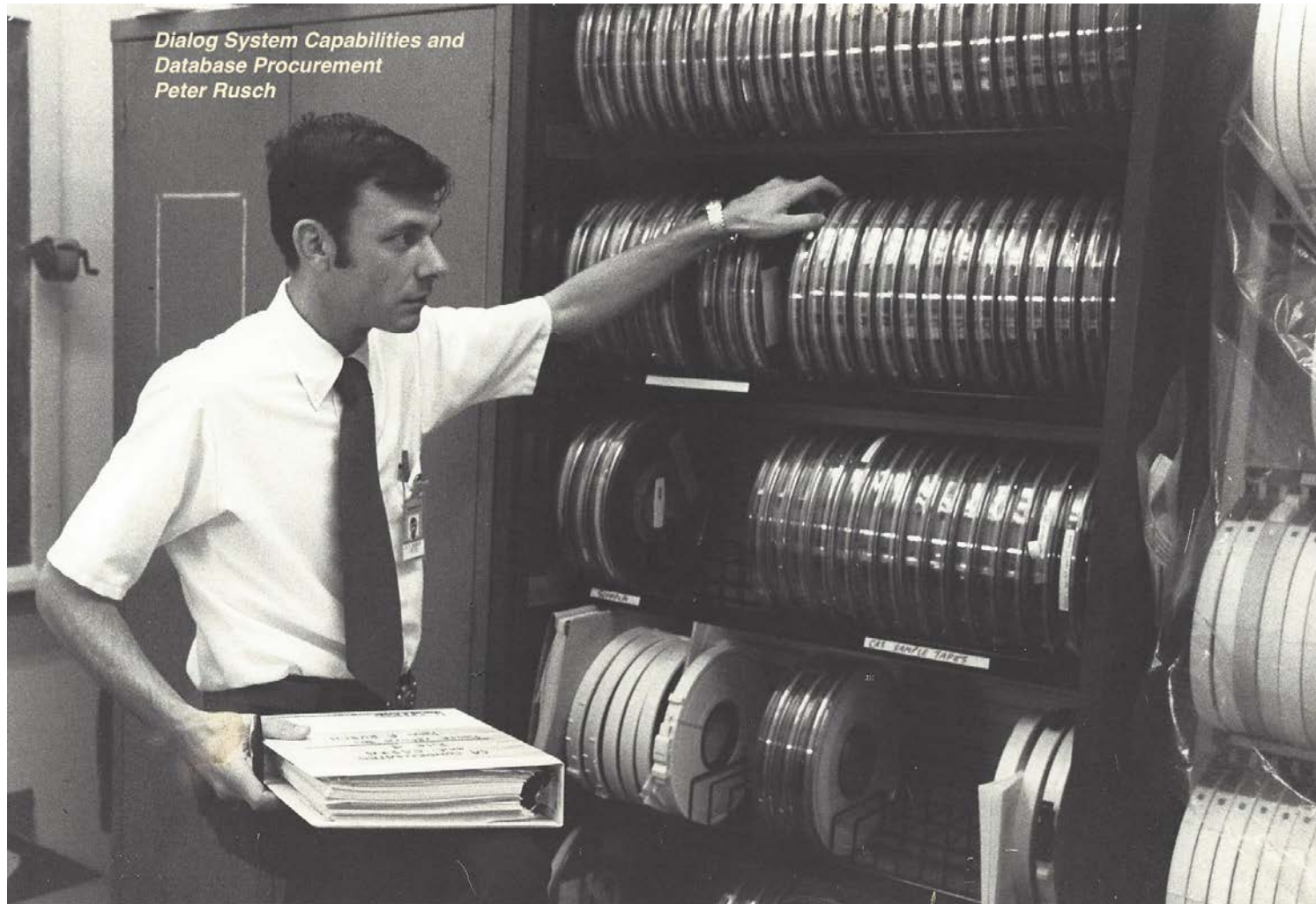
Dialog Sales vs. Profit (\$ Millions) 1976-88



1987: Dialog's 300 Employees



Panelist #2: Peter Rusch



Dialog Capabilities and Implementation

- Mainframe computers:
 - Memory and storage were low density and expensive
- Telecommunications with dial-up and acoustic coupler
 - New packet-switched networks: 1200/2400/9600 baud
- Assembly language software
- Multi-user environment
- Database items were in separated files
 - Each item had a unique accession number
- Retrieval system used an inverted file for search
- Rich user interface

Dialog Capabilities and Implementation (cont.)

- Command-Driven Interface (“BEST”)
 - **B**egin (database)
 - **E**xpand to view the inverted index terms and related terms
 - **S**elect the terms of interest
 - **T**ype the results from the linear file
- Creation of sets that were lists of unique accession numbers
- Sets conformable for lots of other commands including recursive use
- Boolean logic (inclusive OR, AND, NOT) of terms or sets or both
- Truncation for various word forms, e.g., search?
- Proximity search: fake(W) news ≠ news(W)fake

Dialog Licensing

- Database producers (US and foreign):
 - Government organizations
 - Non-profits
 - Commercial publishers
- Curation by authors or editors
- Copyright licenses (copyright is divisible)
 - Exclusive or not
 - Sponsored or not
 - Other (minimum)
- Royalty-free uses
- Royalties were amongst the largest expenses
 - No internet to crawl like today
- Format variety of submissions and conversion to common intermediate format
- The dreaded indemnity clause

Panelist #3: Robert Simons



1981: Lockheed Spin Off of Dialog

- Why would Lockheed spin off Dialog?
 - Simplified finance and accounting
 - Created a corporate wall
 - Established a self-contained entity
- Issues Presented
 - Option of employees to remain with Lockheed
 - Establishment of new, independent organization
 - Novation and assignment of contracts
 - Creation of Dialog-specific policies and procedures

1987: Lockheed Sale of Dialog

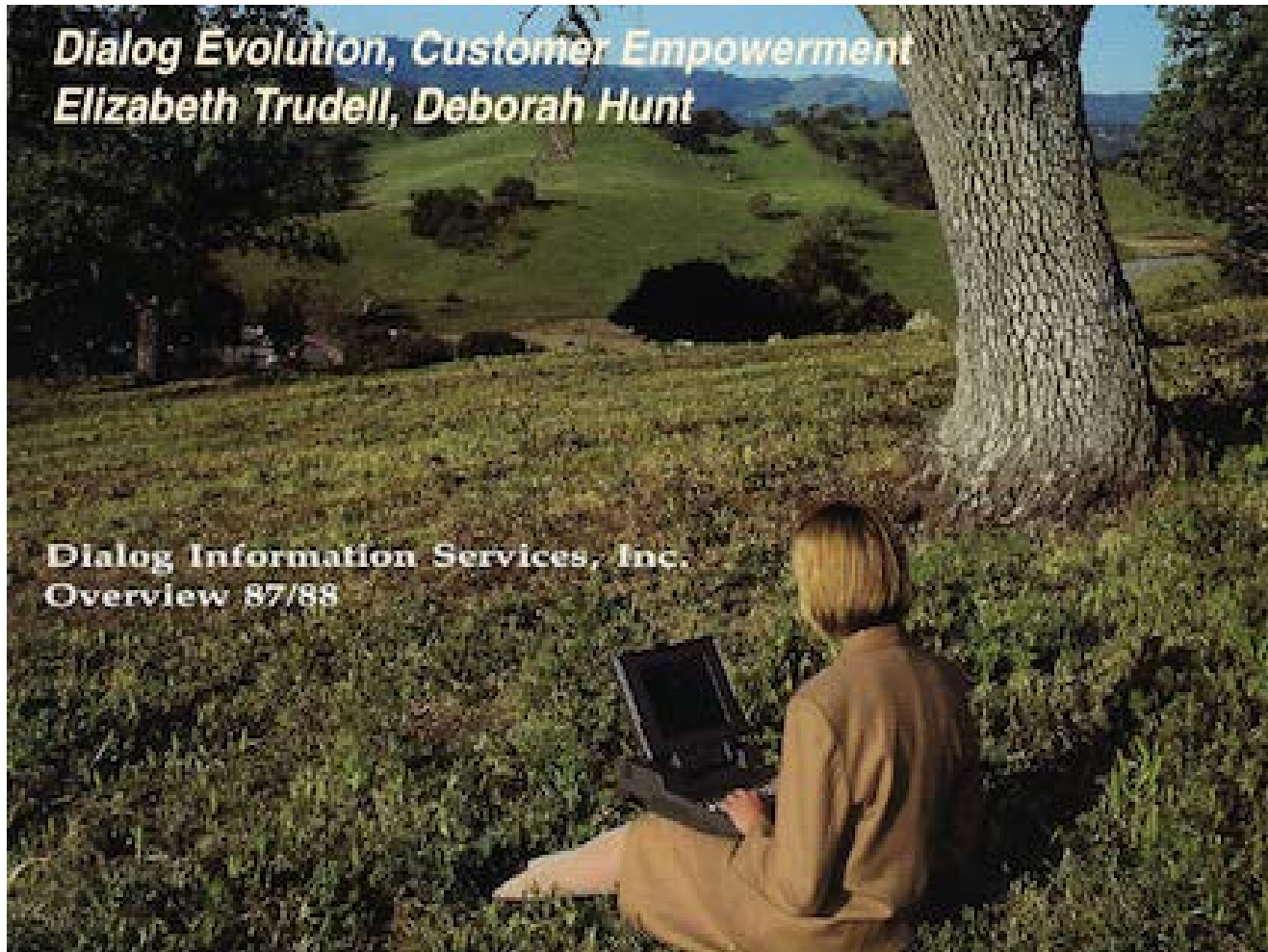
- Preparation of the buy-sell agreement
 - Proposal that Dialog senior staff draft the contract
 - Far less expensive for Lockheed
 - More consistent with other Silicon Valley buy-sell transactions
 - Ability to represent the uniqueness of Dialog
 - Purchaser issues required with bid
 - No negotiations after winner is declared
- The Goldman Sachs "Auction" Approach
 - Qualify and narrow the potential purchasers
 - Prepare successively more detailed "dog & pony" presentations
 - Final qualification for actual bid and sealed bid invitations
 - Highest bid wins

Special Things about Dialog

- Dialog's diverse workforce
 - 1987: domestically, 57% were women
 - Several minority employees (no count kept)
- An educated workforce
 - Bachelors: 34%
 - Masters: 30%
 - Doctorate: 4%
- Annual employee turnover: < 5%

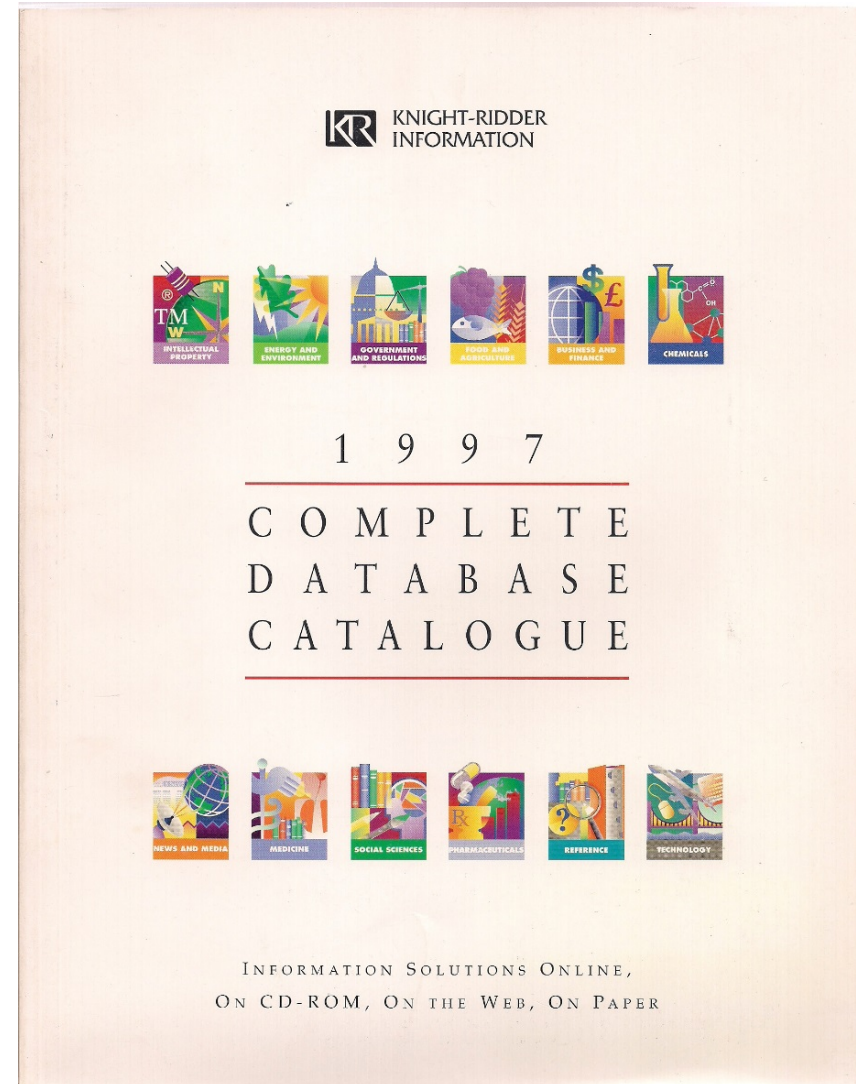
Speaker #4: Elizabeth Trudell

Speaker #5: Deborah Hunt



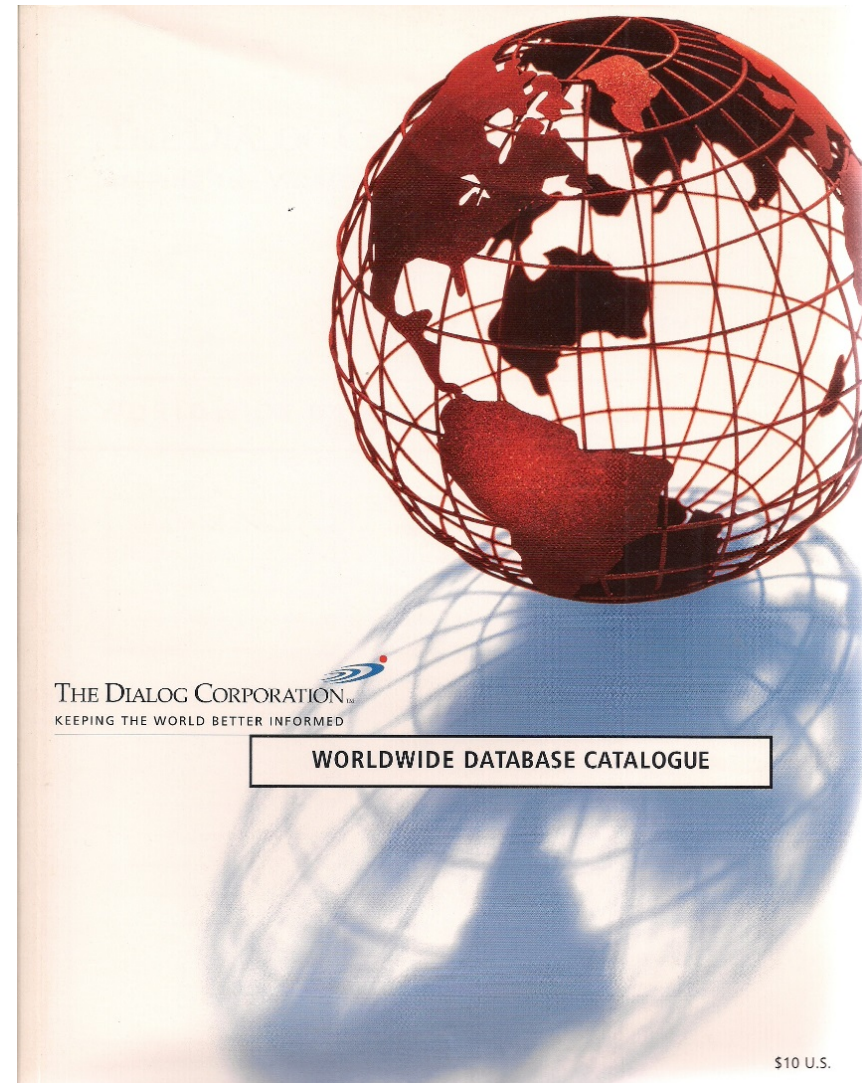
1987-1997: Knight-Ridder

- Multiple acquisitions including VuText & DataStar
- Introduced CD-ROM and document delivery services
- Launched BusinessBase, ScienceBase, ProBase
- Global expansion
- Internet, PC and web development
- Failed to adapt newspaper advertising model to the online environment



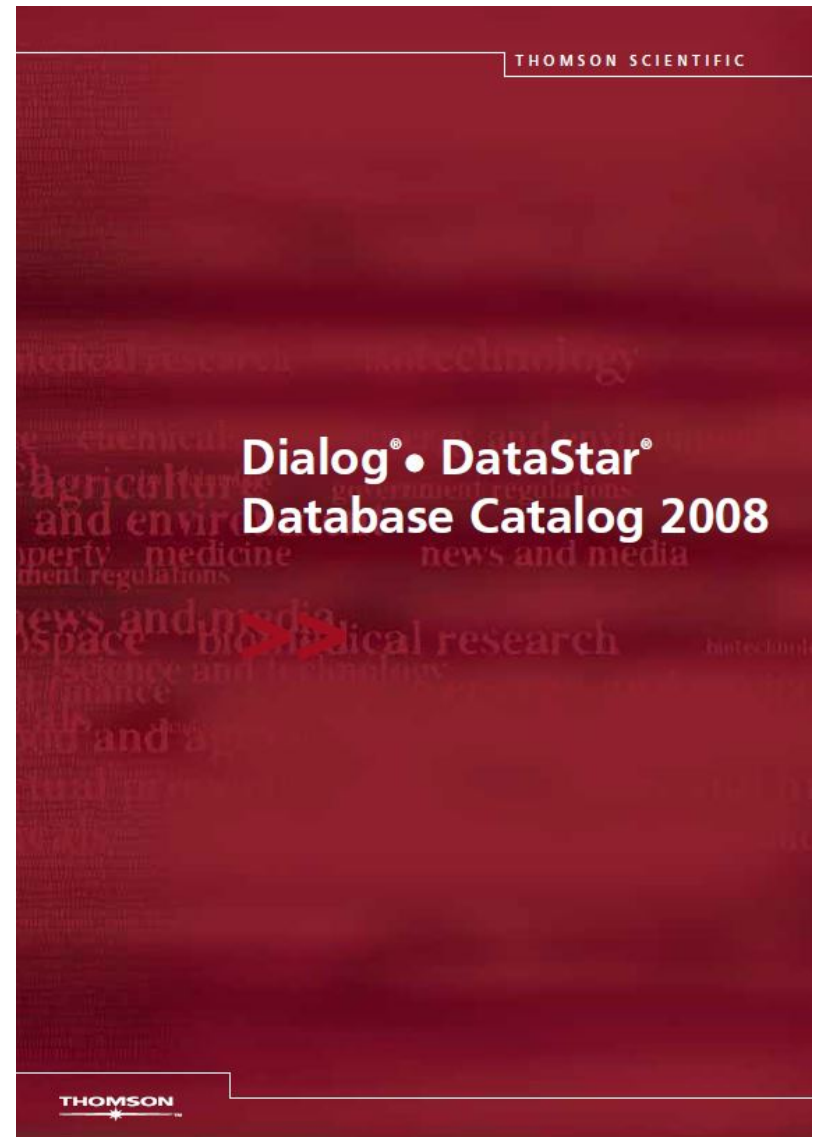
1997-2000: The Dialog Corp.

- Sold to London-based M.A.I.D, LLC, which renamed itself The Dialog Corporation
- Three platforms: Dialog and DataStar, plus Profound for market research
- Launched DialogClassic Web
- Replaced connect time pricing with “Dialunits”
- Heavy debt load limited resources for investment and R&D



2000-2008: Thomson Dialog

- Multiple options considered for moving Dialog to new platform; none executed
- While part of Thomson Legal, acquired NewsEdge
- Difficult fit across Thomson business units, leading to:
 - Profound and NewsEdge moved to Thomson Business Intelligence
 - Dialog and Datastar moved to Thomson Scientific



2008-Present: ProQuest Dialog

- New owner with strong cultural and technical alignment
- Clear focus to combine Dialog and DataStar on new platform
- End of 2010:
 - DataStar migrated to ProQuest platform
- End of 2013:
 - Dialog migrated
- **Current product:**
 - **robust solution for scientific, patent and engineering customers**



Customer Empowerment

- Dialog was sophisticated:
 - Information professionals invested significant time to learn it and become search experts
- Their expertise brought tremendous value to their organizations
- For many, Dialog provided a new level of challenge and career opportunity