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Submitted by: DENNY WINSON Date: 8/26/87

Authorized by: [signature] Project Code: JJJJ

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DISTRIBUTED DATA BASE MANAGEMENT SYSTEMS

AN EARLY LOOK

R. DENNIS WAYSON
Director, Information Systems Program

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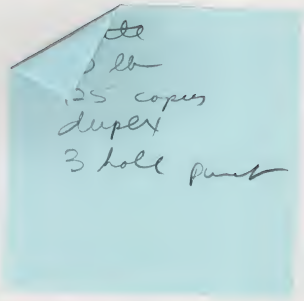
NOTES:



JJJJ-DW-1

OBJECTIVES

- **Examine the state of:**
  - **Distributed Data Base Management Technology**
  - **Current & Future Applications**
- **Explore the Impact of DDBMS on:**
  - **Systems Integration**
  - **Information Systems (IS) Strategy**

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NOTES:

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OVERVIEW

- Motivating Forces
- DDBMS - A Practical Definition
- State of the Technology
- Early Applications
- Opportunities and Issues
- Impacts

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DOMINANT TRENDS

- Continuing Movement to Distributed Processing
- Increasing Sophistication of End Users
- IS Requirements for Control
- Integration of Office & Departmental Systems
- Maturation of Relational Data Base Technology
- Growing Sophistication of Network Technology

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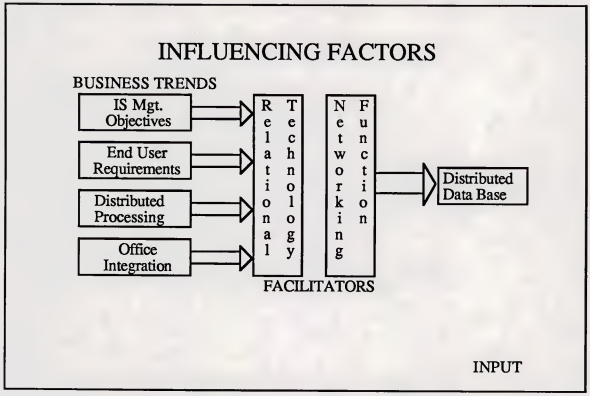

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DEFINING A DISTRIBUTED DATA BASE SYSTEM

- A Collection of Data Bases
- On Interconnected Computers
- Where:
  Individual DBMSs Manage Data Relationships Locally

  The Distributed DBMS Manages Data Relationships Between Systems

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CHARACTERISTICS OF A DDBMS

- Distributed Query and Update Capability
- Network Data Management
- Elimination of Redundant Data Storage
- Platform Independence
- End User Transparency

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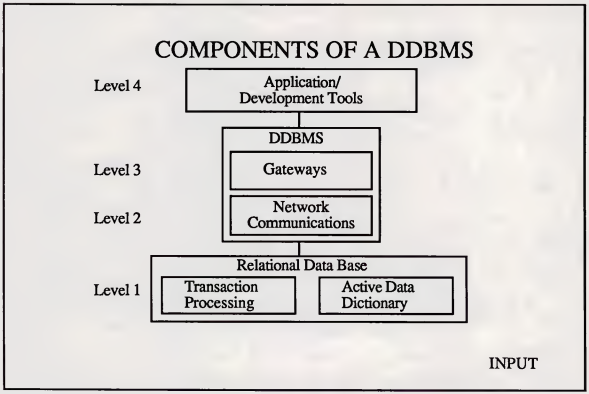

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HOMOGENOUS AND HETEROGENOUS SYSTEMS

- **Homogenous Systems**
  - Common DBMS on Multiple Platforms
- **Heterogenous System**
  - Support Multiple DBMSs
  - Multiple Platforms

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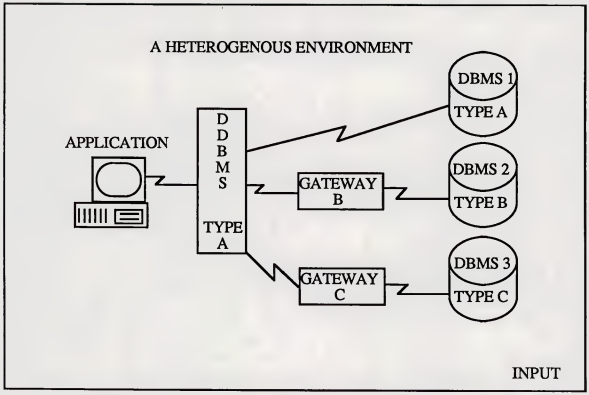

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AN EXAMPLE:

ORDER ENTRY/SHIPPING/INVOICING

- The Data Is Distributed Across Three Computers
- The Functions Are Performed At Separate Sites
- Each Application Draws On Local & Distributed Data
- The Data Is Distributed, The Application Integrated

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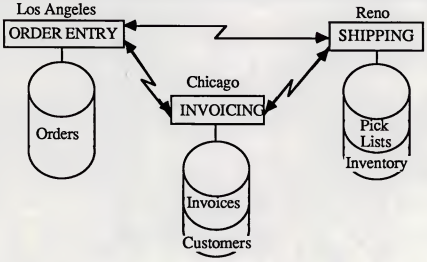
DISTRIBUTED DATA BASE - AN EXAMPLE



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NOTES:

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STATE OF THE TECHNOLOGY

- Status of Current Vendor Offerings
- Positions of Other Vendors
- Overview of Functional Capabilities

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NOTES:

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CURRENT VENDOR OFFERINGS

VENDOR	RELATIONAL PRODUCT	DISTRIBUTED PRODUCT
ADR	DATACOM	D/NET
ORACLE	ORACLE	SQL*Star
RELATIONAL TECHNOLOGY	INGRES	INGRES/STAR
SYBASE	SYBASE	SYBASE
TANDEM	NonStop SQL	NonStop SQL

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POSITIONS OF OTHER VENDORS

- IBM Offering Likely by Late 1989 (DB2)
- DEC Announcement Anticipated By Year End
- CINCOM, CULLINET & SOFTWARE AG All Indicated Products Under Development

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CURRENT FUNCTIONAL CAPABILITIES

- Based On Relational Models
- Contain SQL Interfaces
- Active Integrated Data Dictionaries
- Have (Or Will Have) Gateways

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LIMITATIONS

Current Implementations Although Usable Have Some Restrictive Limitations

- Update Processing Only At A Single Location
- Gateways Largely Still Under Development
- Availability of Global Data Dictionaries
- Data Replication Functions Missing
- STAR Capability Not Available On All Major Platforms

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USER SURVEY RESULTS

- Reflect Introductory Status of the Technology
- Identified IS and User Management Issues
- Forecast A Future User Requirement for Distributed Capabilities
- Identified Three Early Applications

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EARLY APPLICATIONS

INDUSTRY	APPLICATION
PHILIPS PETROLEUM	PURCHASING/INVENTORY CONTROL
CITICORP	SECURITIES ACCOUNT MANAGEMENT
CARNEGIE MELLON	STUDENT INFORMATION SYSTEM

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TECHNICAL ISSUES

- Data Modeling
- Replicated Data Maintenance
- Security and Recovery Processes
- Processing Performance
- Data Communications Capabilities
- Design and Implementation Processes

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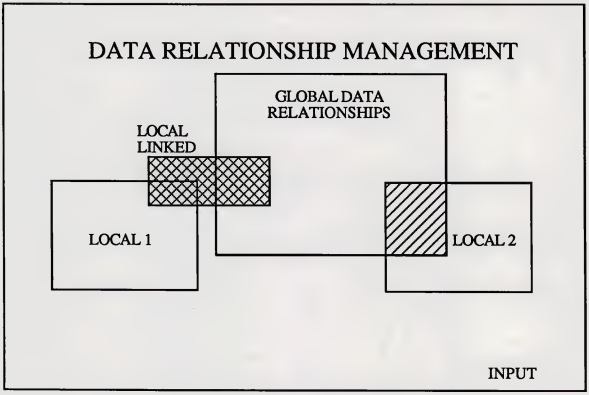

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MANAGERIAL ISSUES

- Status of Relational Technology
- Corporate Policy on Data Management
- User Maturity
- User Independence

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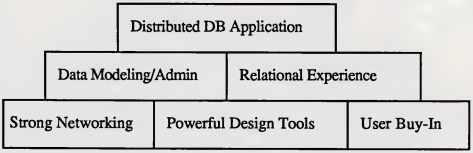
SUCCESSFUL IMPLEMENTATIONS



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INPUT'S VIEWS

- Powerful New Technology - Significant Impact
  - Missing Component in Decentralization
  - Supports Multiple Management Objectives
- Usable Today - Maturing Over Next Five Years
- Strategic Implications For IS Management

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NOTES:

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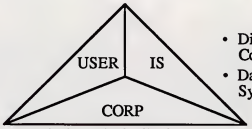
THREE VIEW POINTS

- Local Autonomy
- Transparency



- Distributed Control
- Data Synchronization

- Balanced Distribution
- Reduced Redundancy
- Ease of Access

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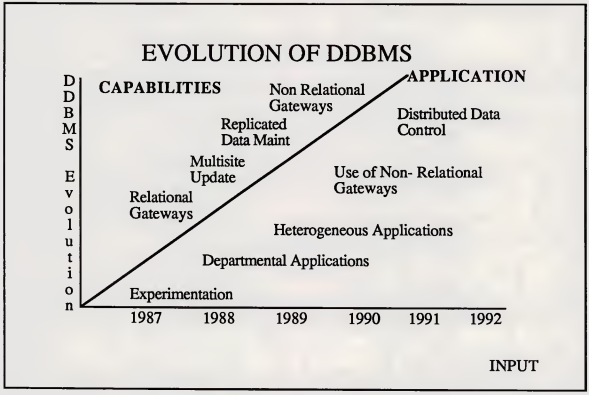

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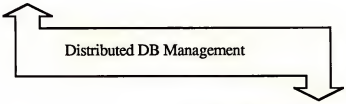
STRATEGIC IMPLICATIONS FOR IS

Vehicle for Integration



Or, Controlled Decentralization

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NOTES:

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R. Dennis Wayson
Manager, Information Systems Program
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Denny Wayson has more than 20 years of experience in the management and planning of information systems. His experience includes executive positions in the management of systems development, data processing operations, and office systems. Mr. Wayson recently joined INPUT from Bank of America where his responsibilities included the management of user-based systems on a worldwide basis. His other experience includes a position as Director of Information Systems Development & Technology at Sun Company.

Mr. Wayson completed his undergraduate education at Lehigh University and has a M.S. degree in Operations Research and Computer Science from Cornell University,