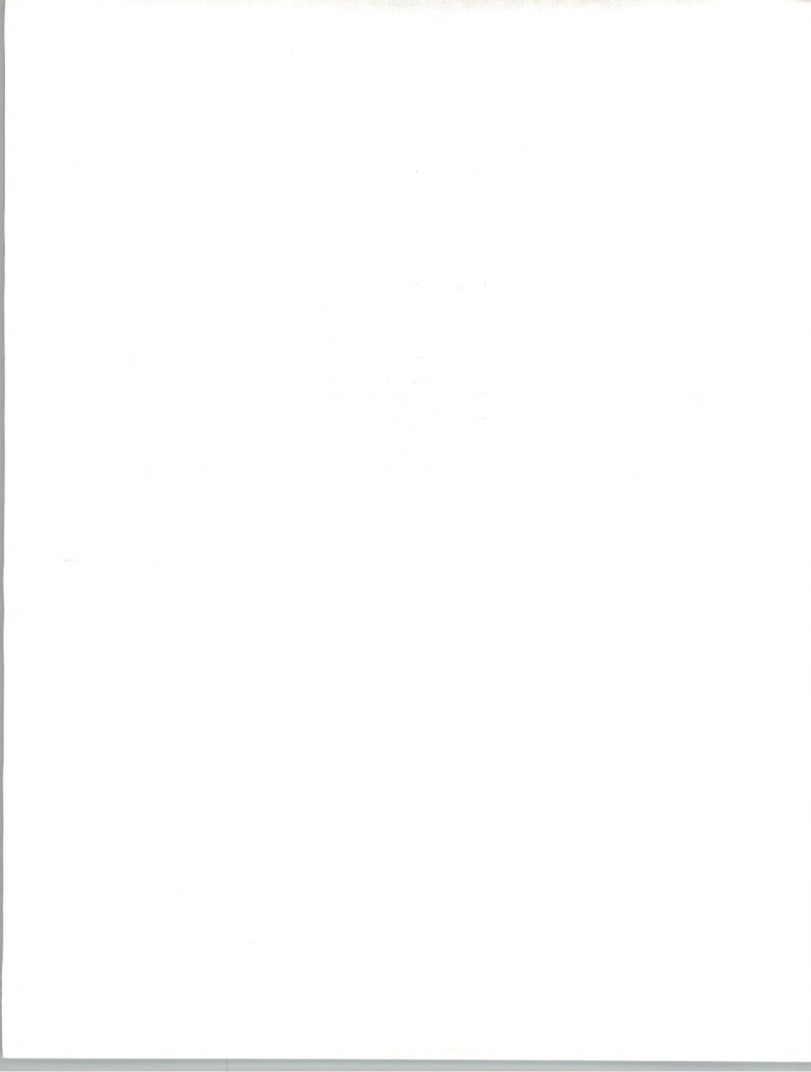


Trends for the 1990s

Dennis Wayson
Vice President, Research
INPUT



R. Dennis Wayson
Vice President, Research
INPUT

R. Dennis Wayson is Vice President of Research. He has well over 20 years of experience in many areas of the information services industry. At INPUT he is responsible for all U.S.-based research staff, including user and vendor programs, custom research, and corporate planning. As a senior manager he is a key player in all INPUT plans and activities. He has held positions with Bank of America in the management of user-based systems (worldwide), and was Director of Information Systems and Technology at Sun Company for many years. He is also a popular speaker at industry conferences and consultant to top companies around the world.

Mr. Wayson holds a B.S. degree from Lehigh University and an M.S. in Operations Research and Computer Science from Cornell University. He also has attended the Columbia University program in business management.



Overview

- Fundamental Driving Forces
- IS Organizational Change
- Information Services Industry Trends
- What Does It All Mean?
- Conclusions

INPUT

NOTES:

JJ88-DW-2



Fundamental Driving Forces

Key Business Trends:

Shorter Product Life Cycles

More Customization/Specialization

Narrower Market Segments

Higher Impact of Technology

More Competition

INPUT

NOTES:

JJ88-DW1-3



Fundamental Driving Forces

- *Apply to the Information Services Industry*
- *Are Restructuring the Role of IS*
 - Reactive to Proactive
 - Technology-Driven to User-Driven
 - Centralized To "Federated"
- *And Changing the Formula for Success*

INPUT

NOTES:

JJ88-DW1-4



Information Systems—Major Issues

- Rising Management Expectations
- User Demands for Increasingly Complex Solutions
- Managing the Technology Investment
- Integration of Data/Technology/Applications
- Delivery of "Mission Critical" Systems

INPUT

NOTES:

JJ88-DW1-5A.B

Date	Description
1890	...
1891	...
1892	...
1893	...
1894	...
1895	...
1896	...
1897	...
1898	...
1899	...
1900	...
1901	...
1902	...
1903	...
1904	...
1905	...
1906	...

Blocking Factors

- Infrastructure Gridlock
- Lack of Qualified In-House Personnel
- Existing Applications Portfolio
- Organizational Response Time

Create Opportunities for the Information Services Industry

INPUT

NOTES:

JJ88-DW1-6

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is crucial for ensuring transparency and accountability in the organization's operations.

2. The second part outlines the various methods and tools used to collect and analyze data. This includes the use of surveys, interviews, and data mining techniques to gather insights into customer behavior and market trends.

3. The third part focuses on the implementation of data-driven strategies. It details how the collected information is used to inform decision-making and to develop targeted marketing campaigns that resonate with the audience.

4. The final part of the document addresses the challenges and risks associated with data management. It highlights the need for robust security measures to protect sensitive information and the importance of staying up-to-date with the latest industry regulations.

5. In conclusion, the document underscores the value of a data-centric approach in today's competitive landscape. It encourages organizations to embrace data as a key asset and to invest in the necessary infrastructure and talent to maximize its potential.

6. The document also provides a list of recommended resources and further reading materials for those interested in deepening their understanding of data analysis and its applications in business.

7. Finally, the document offers contact information for the authors and a link to the full report, which is available for download on the organization's website.

IS Organization in the 1990s

Not Centralized

Not Decentralized

Federated

Brought together "by agreement of each party to sublimate its power to the central authority in common affairs." - Webster

INPUT

NOTES:

JJ88-DW1-7



Federated IS Organization

Federal
Government

Defense
Treaties
Regulation
National Programs
National Policies

Corporate IS

Competition
Partnerships
Standards
Corporate Systems
Corporate Policies

INPUT

NOTES:

JJ88-DW1-8



Federated IS Organization

State Government

Unit IS

Citizens

Customers

Local Issues

Business Support

Operating Programs

Operating Systems

Policy
Implementation

Policy
Implementation

INPUT

NOTES:

JJ88-DW1-9



IS Responsibilities—1990s

- Treat "Users" as Customers
- Analyze "Make" or "Buy" Decisions
- Consult on Strategy and Direction
- Support Organizational Units at All Levels in Use of:
 - Information
 - Information Systems and Services
 - Information Technology

INPUT

NOTES:

JJ88-DW1-10A,B

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the integrity of the financial system and for the ability to detect and prevent fraud. The text notes that without reliable records, it would be difficult to track the flow of funds and identify any irregularities.

2. The second part of the document outlines the specific procedures for recording transactions. It details the steps involved in the accounting process, from the initial recording of a transaction to the final posting to the general ledger. The text stresses the need for consistency and accuracy in these procedures to ensure that the financial statements are reliable and comparable over time.

3. The third part of the document discusses the role of internal controls in the accounting process. It explains how internal controls are designed to prevent errors and fraud, and to ensure that all transactions are properly recorded and reported. The text highlights the importance of a strong internal control system in maintaining the integrity of the financial system.

4. The fourth part of the document discusses the importance of transparency and accountability in the financial system. It notes that transparency is essential for building trust and confidence among investors and other stakeholders. The text emphasizes the need for clear and concise financial reporting, and for the timely disclosure of all material information.

5. The fifth part of the document discusses the role of the auditor in the financial system. It explains that the auditor's primary responsibility is to provide an independent and objective opinion on the fairness and accuracy of the financial statements. The text notes that the auditor's role is crucial in ensuring the integrity of the financial system and in protecting the interests of investors and other stakeholders.

Information Services Industry Trends

INPUT

NOTES:

JJ88-DW1-11



Key Trends for the 1990s

- Products & Services Markets Blurring
- Changing Market Structure
- Internationalization
- Standards
- Vendor Reactions

INPUT

NOTES:

JJ88-DW1-12



Products & Services Blurring

Traditional Competitors Are Changing:

- Traditional Product Companies Adding Services
- Traditional Service Companies Adding Products
(Arthur Andersen, Peat Marwick)

New Competitors Emerge with "Solution Services"

- McKesson
- AMR

INPUT

NOTES:

JJ88-DW1-13A,B



"Blurring" of Offerings Reflects *Changing Market Structure/Demand*

- Systems Integration Continues to Emerge
- EDI Incorporates Multiple Products/Services
- New Technologies Will Spawn Additional Change
 - Image
 - Integrated Voice/Data
 - High-Performance Digital Communications

INPUT

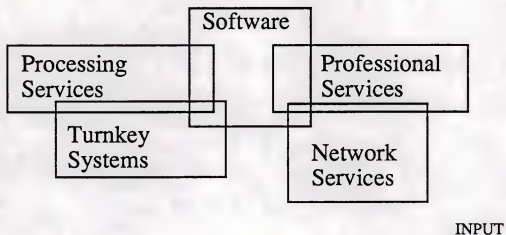
NOTES:

JJ88-DW1-15A,B



IS Market Structure—1980s

INPUT's View



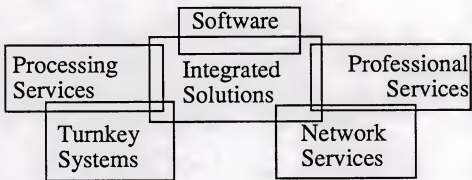
NOTES:

JJ88-DW1-16



IS Market Structure—1990s

A Different View



INPUT

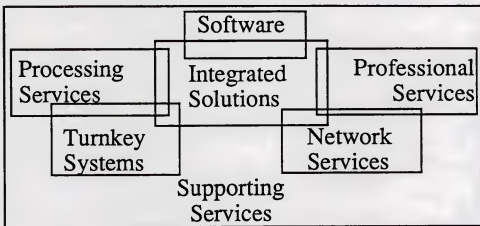
NOTES:

JJ88-DW1-17

Date	Description	Amount
1890	Jan 1	100.00
1891	Feb 1	150.00
1892	Mar 1	200.00
1893	Apr 1	250.00
1894	May 1	300.00
1895	Jun 1	350.00
1896	Jul 1	400.00
1897	Aug 1	450.00
1898	Sep 1	500.00
1899	Oct 1	550.00
1900	Nov 1	600.00
1901	Dec 1	650.00
1902	Jan 1	700.00
1903	Feb 1	750.00
1904	Mar 1	800.00
1905	Apr 1	850.00
1906	May 1	900.00
1907	Jun 1	950.00
1908	Jul 1	1000.00
1909	Aug 1	1050.00
1910	Sep 1	1100.00
1911	Oct 1	1150.00
1912	Nov 1	1200.00
1913	Dec 1	1250.00
1914	Jan 1	1300.00
1915	Feb 1	1350.00
1916	Mar 1	1400.00
1917	Apr 1	1450.00
1918	May 1	1500.00
1919	Jun 1	1550.00
1920	Jul 1	1600.00

IS Market Structure—1990s

Emphasis on Supporting Services



INPUT

NOTES:

JJ88-DW1-18



Internationalization

A Dominant Trend in the '90s

- Collapsing Market Barriers
 - Europe
 - North America
- Growing Market Interest/Participation
 - Pacific Rim
- Internationalization of Buyer Requirements

INPUT

NOTES:

JJ88-DW1-19



Internationalization

- Computer Manufacturers Ahead Now
- Information Services Companies Falling Behind
- Competition Coming:
 - Cap Gemini
 - Sema - Cap
 - SDL Scicon

INPUT

NOTES:

JJ88-DW1-20



Standards

Driven by:

- Internationalization
- Buyer's Integration Requirements
- Dominant Providers/Coalitions

Focused on:

- Bridging the Technical Interface
- Rationalizing the Human Interface

HUMATICS™

INPUT

NOTES:

JJ88-DW1-21



Standards in the 1990s

Rationalization — Not Unification

Software — Not Hardware Driven

INPUT

NOTES:

JJ88-DW1-22

THE UNIVERSITY OF CHICAGO
LIBRARY

1215 EAST 58TH STREET
CHICAGO, ILL. 60637

UNIVERSITY OF CHICAGO PRESS
50 EAST LAKE STREET
CHICAGO, ILL. 60601

UNIVERSITY OF CHICAGO PRESS
50 EAST LAKE STREET
CHICAGO, ILL. 60601

Vendor Reactions

INPUT

NOTES:

JJ88-DW1-23



Summing It Up

- Broadening Product Strategies
- Emphasis on "Solution" Niches
- Focus on Quality & Service

Accomplished through:

- Self-Funded Expansion
- Consolidation—Partnering/Acquisitions

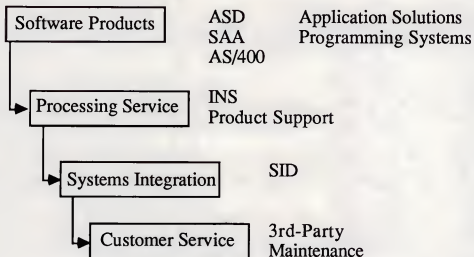
INPUT

NOTES:

JJ88-DW1-24



IBM as an Example



INPUT

NOTES:

JJ88-DW1-25A,B



Current Examples Portend 1990s Trends

- IBM
- Oracle
- Arthur Andersen
- Computer Associates
- Digital Equipment

INPUT

NOTES:

JJ88-DW1-25

1870

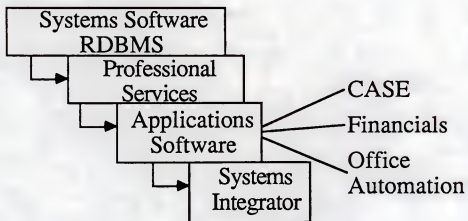
Received of the
Hon. Secy of the Navy
the sum of \$1000
for the purchase of
the land at
Washington D.C.
for the use of the
Navy

1871

Received of the
Hon. Secy of the Navy
the sum of \$1000
for the purchase of
the land at
Washington D.C.
for the use of the
Navy

1872

Oracle as an Example



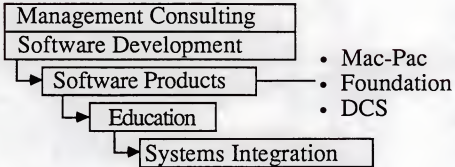
INPUT

NOTES:

IJ88-DW1-26



Arthur Andersen



\$1.4 Billion
13,000 Professionals

INPUT

NOTES:

IJ88-DW1-27



Computer Associates

- Largest Software Merger - UCCEL
- Pursued Cullinet
- Made Offer for MSA
- Strategy—Growth by Acquisition
- Porting Products to DEC and Others
- Alliance with UNISYS

INPUT

NOTES:

JJ88-DW1-28



Digital Equipment

Software Products

Professional
Services

Systems
Integration
Enterprise
Services

Alliances (Apple & CIM)
Network Systems
Architecture

INPUT

NOTES:

JJ88-DW1-29



Consolidation in the Industry

A Dominant Industry Phenomenon in the 1990s:

- A Smaller Number of Larger Vendors
- Providing a Broader Range of Integrated Offerings
- Supported by Smaller Niche Vendors
- Targeted at Providing Solutions

INPUT

NOTES:

JJ88-DW1-30

[Faint, illegible text, possibly bleed-through from the reverse side]

Merger/Acquisition

Delivery Mode	Vendors
Processing	TRW/Chilton EDS/MTECH D&B/Interactive Data D&B/IMS International
Software	IBM/Spectrum Informix/Innovative Software Apple/Network Innovations Apple/Orion Network

INPUT

NOTES:

JJ88-DW1-31A,B



Merger/Acquisition

Delivery Mode	Vendors
Professional Services	Ford Aerospace/BDM Intl NYNEX/AGS Emhart/Advanced Technology
Turnkey	UNISYS/Convergent

INPUT

NOTES:

JJ88-DW1-32



Alliances

- Digital/Apple
- Ashton-Tate/Microsoft/SYBASE
- Relational Technology/
Computer Task Group
- CAI/UNISYS
- IBM/Metaphor (Equity)
- CASE (Numerous)

INPUT

NOTES:

JJ88-DW1-33



Conclusions

- End-Users Will Control the Major Purchase Decisions
- Systems Integration Expands as Solutions Grow in Complexity
- Internationalism Is Here
- Technology Continues to Create Opportunities

INPUT

NOTES:

JJ88-DW1-34

Handwritten text in a rectangular box, likely bleed-through from the reverse side of the page. The text is illegible due to extreme blurriness.

Handwritten text in a rectangular box, likely bleed-through from the reverse side of the page. The text is illegible due to extreme blurriness.

Conclusions

- Shorter Lifecycle Calls for Fast Response
- Vendor Versatility a Key to Growth
- Everybody Needs Strategic Partners
- Services (People) Will Be the Key
 - Recruiting
 - Motivation
 - Compensation
 - Training

INPUT

NOTES:

JJ88-DW1-35



~~Keynote:~~ ✓

Trends for the 1990s

Dennis Wayson
Vice President, Research

INPUT

.. always it

.. and in the end

.. and in the end

.. and in the end

.. and



OVERVIEW

- Fundamental Driving Forces
- *IS* Organizational Change
- Information Services Industry Trends
- What Does It All Mean?
- Conclusions





FUNDAMENTAL DRIVING FORCES

KEY BUSINESS TRENDS:

- Shorter Product Life Cycles
- More Customization/Specialization
- Narrower Market Segments
- Higher Impact Of Technology
- More Competition





FUNDAMENTAL DRIVING FORCES

Apply To The Information Services Industry

Are Restructuring The Role Of IS

- Reactive To Proactive
- Technology Driven To User Driven
- Centralized To "Federated"

And Changing The Formula For Success



INFORMATION SYSTEMS - MAJOR ISSUES

- Rising Management Expectations
- User Demands For Increasingly Complex Solutions
- Managing The Technology Investment
- Integration of Data/Technology/Applications
- Delivery of "Mission Critical" Systems

5A1B





BLOCKING FACTORS

- Infrastructure Gridlock
- Lack of Qualified In-House Personnel
- Existing Applications Portfolio
- Organizational Response Time

Create Opportunities For The Information Services Industry





IS ORGANIZATION IN THE 1990'S

NOT CENTRALIZED

NOT DECENTRALIZED

FEDERATED!

Brought together *"by agreement of each party to subliminate it's power to the central authority in common affairs."* - Webster





FEDERATED IS ORGANIZATION

FEDERAL GOVERNMENT	CORPORATE <u>IS</u>
<ul style="list-style-type: none">- Defense- Treaties- Regulation- National Programs- National Policies	<ul style="list-style-type: none">- Competition- Partnerships- Standards- Corporate Systems- Corporate Policies



FEDERATED IS ORGANIZATION

STATE GOVERNMENT	UNIT <u>IS</u>
<ul style="list-style-type: none">- Citizens- Local Issues- Operating Programs- Policy Implementation	<ul style="list-style-type: none">- Customers- Business Support- Operating Systems- Policy Implementation

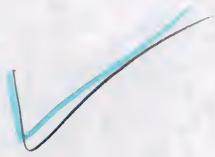


IS RESPONSIBILITIES - 1990'S

- Treat "Users" As Customers
- Analyze "Make" or "Buy" Decisions
- Consult On Strategy And Direction
- Support Organizational Units At All Levels In Use Of
 - * Information
 - * Information Systems And Services
 - * Information Technology

10A/B





~~INFORMATION SYSTEMS~~ SERVICES
INDUSTRY TRENDS



KEY TRENDS FOR THE 1990'S

- Products & Services Markets Blurring
- Changing Market Structure
- Internationalization
- Standards
- Vendor Reactions







PRODUCTS & SERVICES BLURRING

TRADITIONAL COMPETITORS ARE CHANGING: ^{106:}

- Traditional **Product** Companies Adding Services
- Traditional **Service** Companies Adding Products
(Arthur Andersen, Peat Marwick)

NEW COMPETITORS EMERGE WITH "SOLUTION SERVICES"

- * McKesson
- * AMR

13 A 13





**"BLURRING" OF OFFERINGS REFLECTS
CHANGING MARKET STRUCTURE/DEMAND**

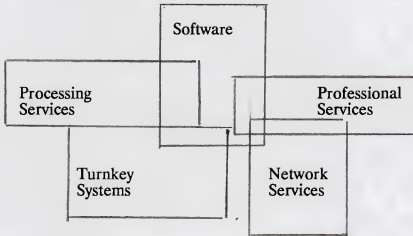
- **SYSTEMS INTEGRATION** Continues To Emerge
- **EDI** Incorporates Multiple Products/Services
- **New Technologies** Will Spawn Additional Change
 - * **Image**
 - * **Integrated Voice/Data**
 - * **High Performance Digital Communications**

15A/B



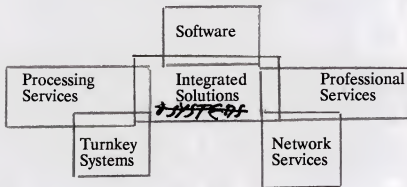


IS MARKET STRUCTURE - 1980'S
INPUT'S VIEW



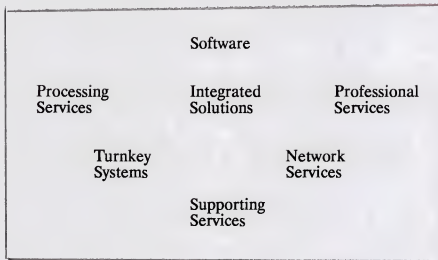


IS MARKET STRUCTURE - 1990'S
A DIFFERENT VIEW





IS MARKET STRUCTURE - 1990'S
EMPHASIS ON SUPPORTING SERVICES



SAME AS PREVIOUS SLIDE WITH
BORDER TO SHOW SUPPORTING
SERVICES





INTERNATIONALIZATION
A DOMINANT TREND IN THE 90'S

- Collapsing Market Barriers
 - * Europe
 - * North America
- Growing Market Interest/Participation
 - * Pacific Rim
- Internationalization Of Buyer Requirements





INTERNATIONALIZATION

- Computer Manufacturers Ahead Now
- Information Services Companies Falling Behind

COMPETITION COMING:

- * Cap Gemini
- * Sema - Cap
- * SDL Scicon





STANDARDS

DRIVEN BY:

- Internationalization
- Buyer's Integration Requirements
- Dominant Providers/Coalitions

FOCUSED ON:

- Bridging The Technical Interface
- Rationalizing The Human Interface

HUMATICS™





STANDARDS IN THE 1990'S

RATIONALIZATION - NOT - UNIFICATION

SOFTWARE - NOT - HARDWARE DRIVEN





VENDOR REACTIONS

[Bd. read several samples]

ORACLE
DEC
AA
[unclear]



SUMMING IT UP

- Broadening Product Strategies
- Emphasis On "Solution" Niches
- Focus On Quality & Service

ACCOMPLISHED THROUGH:

- Self Funded Expansion
- Consolidation - Partnering/Acquisitions



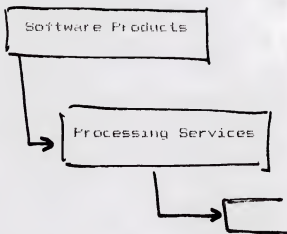
Current Examples Portend 1990's Trends

- * IBM
- * Oracle
- * Arthur Anderson
- * Computer Associates
- * Digital Equipment





IBM As An Example



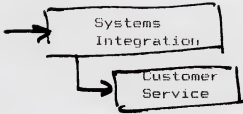
ASD
SAA
AS/400
Application Solutions
Programming Systems

INS
Product Support

25a



IBM As An Example

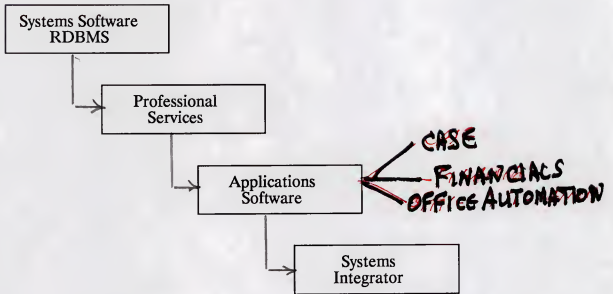


~~IBM~~ SID

3rd party
Maintenance

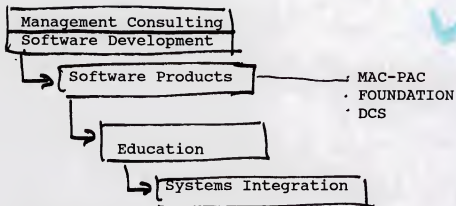




ORACLE AS AN EXAMPLE

1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1920
1921
1922
1923
1924
1925
1926
1927
1928
1929
1930
1931
1932
1933
1934
1935
1936
1937
1938
1939
1940
1941
1942
1943
1944
1945
1946
1947
1948
1949
1950
1951
1952
1953
1954
1955
1956
1957
1958
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025

Arthur Anderson



\$1.4 Billion
13,000 Professionals

27 *[Handwritten signature]*

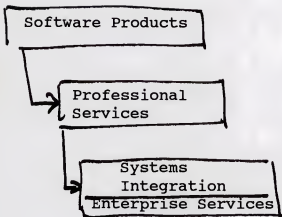


Computer Associates

- * Largest Software Merger - UCCEL
- * Pursued Cullinet
- * Made Offer for MSA
- * Strategy - Growth by Acquisition
- * Porting Products to DEC and Others
- * Alliance with UNISYS
- ~~* Sensitivity to Support Concerns - Merged Products~~




Digital Equipment



Alliances (Apple & CIM)
Network Systems
Architecture



Consolidation In the Industry



A Dominant Industry Phenomena in the 1990's:

- A Smaller Number of Larger Vendors
- Providing A Broader Range of Integrated Offerings
- Supported by Smaller Niche Vendors
- Targeted At Providing Solutions



Merger/Acquisition



<u>Delivery Mode</u>	<u>Vendors</u>
Processing	TRW/Chilton EDS/MTECH D&B/Interactive Data D&B/IMS International
Software	IBM/Spectrum Informix/Innovative Software Apple/Network Innovations Apple/Orion Network

31 A, B



Merger/Acquisition



<u>Delivery Mode</u>	<u>Vendors</u>
Professional Services	Ford Aerospace/BDM Intl NYNEX/AGS Emhart/Advanced Technology
Turnkey	UNISYS/Convergent




Alliances

- * Digital/Apple
- * Ashton-Tate/Microsoft/SYBASE
- * Relational Technology/Computer Task Group
- * CAI/UNISYS
- * IBM/Metaphor (Equity)
- * CASE (Numerous)



Conclusions

- * End-Users will Control the Major Purchase Decisions
 - * Systems Integration Expands as Solutions Grow in Complexity
 - * Internationalism is Here
 - * Technology Continues to Create Opportunities
- 



Conclusions

- * Shorter Life Cycle Calls for Fast Response
- * Vendor Versatility a Key to Growth
- * Everybody Needs Strategic partners
- * People(as always) Are the Key
 - Recruiting - Motivation
 - Compensation - Training



35

