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PROJECT CODE: _DRB I-2_ _DSP (I-2)_

AUTHOR: _R. D. WAYSON_

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☐ envelopes ☐ No. 10 ☐ 9" x 12" ☐ 10" x 13" ☐ Blank ☐ 1st class ☐ Bulk

Thank you

ADM 400/03 7/92

Code	Company	DRB.C-RP
RA05-20	AMDAHL CORPORATION, Middlebrook, Edward	1
RA05-21	AMDAHL CORPORATION, Kilgore, Dan	1
RA34-3	ACXIOM CORPORATION, Wilson, David	2
RB29-1A	BELLSOUTH CORPORATION, Resource Center,	2
RB29-6	BELLSOUTH CORPORATION, Cobb, Tim	1
RC73-1	COMPUTER APPLICATIONS CO., LTD, Yamuchi,	2
RD01-17	DIGITAL EQUIPMENT CORPORATION, Sharp, Do	1
RD01-2	DIGITAL EQUIPMENT CORPORATION, Finn, Jac	2
RD01-22	DIGITAL EQUIPMENT CORPORATION, Sharma, N	1
RD01-75B	DIGITAL EQUIPMENT CORPORATION, Whitehous	1
RD76-1	DATASERV/BELLSOUTH, Galascione, Catherin	1
RF17-1	FIRST DATA CORPORATION, Walsh, Donna	4
RG19-1	GSI, Brechignec, Beatrice	2
RH03-21	HITACHI SOFTWARE ENGINEERING, Hashimoto,	2
RH03-27	HITACHI INFORMATION SYSTEMS, Shioda,	2
RH03-28	HITACHI RESEARCH INSTITUTE, Nagano, Taka	2
RI01-11	IBM CANADA LABORATORY, Yeardye, Richard	1
RI01-15	IBM CORPORATION, Ruckert, Ilse	2
RI01-15Z	IBM CANADA, LTD, Coulter, Robert	1
RI01-17B	IBM CORPORATION, Adams, Greg	1
RI01-37	IBM CORPORATION, Fuller, Oscar P.	1
RI01-37Y	IBM CORPORATION - ISSC, Lintner, W. D.	1
RI01-40B	IBM JAPAN, Ishigaki, Yoshinobu	1
RI01-88	IBM CORPORATION, Nelson, Ruth Ann	1
RJ12-17A	JAPAN INFORMATION PROCESSING, Enomoto, A	2
RM22-1	MOBIL CORPORATION, Thornton, Darryl	2
RM36-1	MITSUBISHI ELECTRIC CORP., Yamada, Ikuo	4
RN14-3	NEC CORPORATION, Matsuoka, Tadashi	5
RN19-2	NOMURA RESEARCH INSTITUTE LTD, Sasaki, Y	2
RN24-57	NCR CORPORATION, Heisey, Chuck	1
RN24-74	NCR CORPORATION, Gaughenbaugh, Sue	1
RN29-7	NTT DATA COMMUNICATION SYSTEMS, Makino,	2
RT01-3	TEXAS INSTRUMENTS, Wilkerson, Jack	1
RT01-5	TEXAS INSTRUMENTS, Brittian, Ron	1
RU08-3	UNIVERSITY OF CALIFORNIA, West, Richard	2
ZINTERCOA	Z..CALIFORNIA INTERNAL, Wayson, Denny	1
ZINTERCOB	Z..CALIFORNIA INTERNAL, Sales/Mkt Librar	4
ZINTERCOF	Z..CALIFORNIA LIBRARY, Library,	1
ZINTERCOG	Z..INPUT FRANCE, Field Salesperson,	1
ZINTERCOH	Z..INPUT NJ LIBRARY & SALES, , Library 1	23
ZINTERCOJ	Z..LONDON, Library/Stock,	2
ZINTERCOK	Z..WASHINGTON, 1 Rpt Library, Jean/Offic	23
ZINTERCOO	Z..JAPAN INTERNAL, Imai, Tetsuo	2
ZINTERCOP	Z.., Smith, G. Chris	1
ZINTERCOQ	Z..GRAPHICS, Andrea,	1
ZINTERCOU	THE ELECTRONIC TIMES, Kum, Gi-Hyun	1
ZINTERCOV	Z..FUTURETECH, Min, Kyung-Soo	1
ZINTERCOW	Z..INPUT GERMANY, Solbach, Frank	2

Code	Company	DRB.C-RP
ZINTERCOZ1	ZCALIFORNIA INTERNAL, Parks, Judy	20
ZINTERCOZ2	ZCALIFORNIA INTERNAL -, CA Field Sales	1
ZINTERCOZ3	ZCALIFORNIA INTERNAL - PETER, Peter,	1
ZINTERCOZ4	ZCALIFORNIA INTERNAL, Johnson, Anne	1
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Data, Information and Knowledge in the Downsizing Revolution

The 3Rs of Downsizing

When INPUT started the research for *Methodologies for IT Downsizing*, the company published a Research Bulletin that included the "ABCs of Downsizing". Now we will describe the 3Rs of downsizing because it has become necessary to "rethink research during the revolution." What this means is that research focus will shift from the IS department toward end users. While this shift seems simple and obvious, the ramifications are profound and far-reaching. It will require a major change of mind-set among everyone associated with the traditional information technology and services industries!

Lets take a closer look at the 3Rs by using the "besieged castle" metaphor.

- Revolutions are not orderly—especially when viewed from the parapets of the castle built by the IS department with the support of IT vendors. It is difficult for the resident aristocracy of the castle to understand the chaos created by the rabble assaulting the walls. The whole structure of life within the castle is predicated on "top-down design" and the divine rights of logic and lengthy analysis. "Quick and dirty" solutions offend the sensibilities of those accustomed to the courtly procedures and protocols associated

with even minor innovations in the existing hierarchy of data or in the flow of information.

- Research among IS royalty, and its appointed vendors, becomes distorted by a "let them eat cake" mentality, which seems to be based on an imperial and patronizing view of what is going on outside the castle walls. This is perhaps best summed up by a leading figure in the development of personal computer software who shall remain anonymous. In the mid-1980s, he stated: "All of the smart people already own personal computers, users now are really dumb (sic)." This is precisely the type of thinking that has led to concerns about "computer literacy" and the desire to transfer the culture of the castle (along with its discipline) to the masses.

- Rethinking basic assumptions about the downsizing revolution (and the revolutionaries) is necessary because those within the castle and those who are storming (or have breached) the walls, don't communicate very well, frequently resulting in conflicting objectives masked by the use of ill-defined computer jargon.

In fact, even the revolutionaries are having a difficult time communicating effectively. Though they share in common the intent to bring down the current power structure, there

is little agreement among them as to the "methodology" that will be employed, or, more importantly, what type of order they expect to arise after the chaos.

What this all means is that "researching" the downsizing revolution requires a different approach than has customarily been taken. Even though corporate IS executives of "leading edge" firms remain a valuable source of information, it will become increasingly necessary to broaden our research base to include user departments as well as to develop an accurate picture. Just as IT vendors have been forced to adopt new distribution channels due to the downsizing revolution, so must market research and consulting organizations adopt new "research channels."

INPUT has learned the 3Rs of downsizing, and we have expanded our research approach.

Information, Information Everywhere, and Unsupported by Analytical Data

In the mid-1980s, INPUT found it necessary to differentiate between data, information and knowledge. Essentially, the definitions adopted were:

- Data are anything stored in a computer—text, graphics, programs, full motion video, etc.

- Information is one person "telling" another (or others) something—in person, in writing, by telephone, by broadcast or teleconferencing media, etc.

- Knowledge is the store of human experience, research, experimentation and thought—it is accepted at any given point-in-time as being reality or truth. Knowledge may be generally accepted among groups, or it may be highly personal, based on one's own unique experience. It may be recorded on the walls of caves or in libraries, but most of it remains in the heads of humans.

There is nothing in these definitions that implies information has a certain quality or value. In fact, advertising, propaganda, and even outright lies all fall conveniently under the general definition of "being told." The receiver of the information has the responsibility to evaluate the information to determine whether it contributes to her/his personal knowledge base, and this is a highly personalized process. Give scientists or executives the exact same set of facts or information, and you can get entirely different conclusions or decisions.

Scientists can't seem to agree among themselves about either the nature of the universe or what is, or is not, good for ones health; executives can find data to support any decision, and receive more information than they have time to "process." However, it is important to note that information is increasingly being transformed into data—it originates and is stored in computers where it is available for processing. The problem is that facts and knowledge are being lost among the "noise" being generated by the enormous volume of published information that is indiscriminately being transformed into data.

Data, Data Everywhere and Hardly Time To Think

In INPUT's earlier downsizing research, we asked about the assumptions that are going into cost-benefit analyses of downsizing. One interviewee stated that executives based their assumptions on "what they read in the newspaper." With all due respect to the computer industry trade press, INPUT found that frightening. Everyone with a personal computer seems to be turning out articles on information technology these days; unfortunately, too many of them are being published. No one can keep up with (read) all of the opinions being expressed by "experts" whose only computer experience has been with a word processor and graphical-user interface.

However, as this published information becomes data, the very technology that created the information overload problem in the first place has the potential of mitigating it. The Computer Select data base on CD ROM has 613,630,977 bytes of data (9/92), representing a substantial portion of the recently published

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articles on computer technology. This is the equivalent of over 300,000 pages or a stack of paper over 51 feet high—all on a single disk. That is downsizing on a grand scale!

This is more information than the average person reads in a lifetime. However, because these data are in machineable form, it is possible for the computer to "read" them for us. In seconds, people are able to determine that "only" 912 of over 75,000 documents make any mention of downsizing. Even reading and understanding the abstracts of over 912 articles can be a formidable task, and analysis of over 900 articles is more desk research than can be justified for any single research project. More importantly, even preliminary analysis will disclose the scientist's and executive's dilemma—there are data to support any conclusion that one might like to reach on either technological or organizational downsizing.
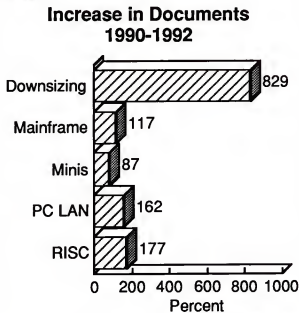
The information content of these data varies considerably in terms of its quality. Some of the documents are from respected professional journals, and some are thinly disguised puff pieces sponsored by vendors. There are data, data everywhere and hardly time to think—especially if one starts wandering through the mass of information in search of knowledge.

It is not surprising that executives and latter day "experts" seldom understand that data are not facts, that information is only as good as its source, and that knowledge is hard to identify and very ephemeral in the information technology industry. Access to extensive data bases and enormous processing power does not automatically mean that research and analysis of these data will yield a quality result. That is evident by the quality of what is being published about information technology itself. However, it is still INPUT's belief that information technology is the only hope of solving the problems that information technology is creating. Utilizing a personal computer, coupled with a CD ROM and applying some knowledge of the subject area, it is possible to identify some key trends.

Extracting Meaning from Data

Anyone can determine that downsizing is a popular subject by reading the trade press, and it is possible to quantify that popularity over time by making a few simple queries to perform a "content analysis" of the computer periodicals data base (Exhibit 1). The information in the exhibit comes from Ziff Communications "Computer Select," utilizing the built-in search tools provided by Lotus Development.

Exhibit 1

Increase in Documents 1990-1992

| Category	Percent
Downsizing	829
Mainframe	117
Minis	87
PC LAN	162
RISC	177

0   200   400   600   800   1000
Percent

Source: INPUT

After utilizing "Computer Select," it does not take too long to determine that the number of documents concerning downsizing increased more than 8 fold (from 110 to over 900) between 1990 and 1992, while the references to major platforms remained essentially stable and the number of documents about minicomputers actually declined. There isn't any question that downsizing has become a hot topic in the last two years.

It is also possible to identify the trends associated with downsizing. For example, references to IBM's SAA in downsizing documents are decreasing and references to open systems are sharply increasing (Exhibit 2).

Exhibit 2

References in
Downsizing Documents
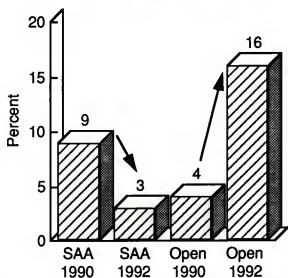
Source: INPUT

Taken at face value, this would seem to indicate that SAA will soon have no role in downsizing, and that open systems are becoming a reality. Only experience and knowledge based on primary research can provide the expertise necessary to refine these simple queries and extract valuable analytical data from this massive data base of published information.

For example, past research indicates that the very term "open systems" means different things to different people, and our "expert system" must be smart enough to reread the 900 downsizing documents many times to determine what is really going on out there. INPUT's report, *Methodologies for IT Downsizing*, will be the first to make extensive use of computer-aided "content analysis". However, even a wealth of analytical data is not enough—the key to valuable information is the knowledge source behind it.

Beyond Information to Knowledge

Though we believe that INPUT has built a substantial knowledge base by doing our "homework" and constantly improving our staff of experienced analysts and consultants, we recognize that our knowledge base has been developed primarily by experience and research in the IT industry itself. While it is only natural that we seek knowledge about information technology among those familiar with it, the downsizing revolution is changing all of that.

The "rabble" outside the castle walls includes professional and management personnel who have the knowledge necessary to make effective use of personal computers, and they are questioning the complexity of the systems that they have been "given" by the IS department. Not only are they saying that there must be a better way, they are taking the initiative in acquiring (and even developing) the tools and applications that they want and need. End users are the only source of knowledge for the products and services that the IT industry (and IS department) should be providing in the downsized world of the 1990s and beyond.

INPUT will place increased emphasis on primary research among end users of information technology starting with *Methodologies for IT Downsizing*.

During a recent COMDEX, it was deplored that the home market for IT products and services had not developed nearly as rapidly as futurists had anticipated and vendors had hoped. INPUT believes that this has occurred because the end users (in this case consumers) have not been asked intelligent questions about what they want and what they will buy and use. INPUT hopes to help correct that situation from a business perspective by expanding our coverage of the downsizing revolution, from the lofty walls of the IS castle, right down among the revolutionaries.

The real knowledge and opportunities are to be found outside of the castle walls!

This Research Bulletin is issued as part of INPUT's Downsizing Information Systems Program.
If you have questions or comments on this bulletin, please call your local INPUT organization or
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