Portia Isaacson Wright, Ph.D.

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FUTURE THINKER

The newsletter for users of published market information in the computer, telecommunications, electronics and office products industries.

Future Thinker is dedicated to executives who plan the future using the best information they can buy.

A FEW WORDS Almost

This Issue Is Almost as Planned

We like the way it turned out. Please let us know if there is some way we can be more useful to you

So far we have a perfect record — no issue has turned out exactly as we had planned. ***Future Thinker*** #3's deviations are —

- Instead of reviewing the report, ***IBM's Telecommunications Strategy*** (from which I learned a great deal) in this issue, we decided that a later review of Architecture Technology's newsletter, ***LocalNetter***, a favorite of mine for years, would be more representative of their work and, of course, easier for me.
- We changed the Summit Strategies report from the planned ***OS/2 Presentation Manager: Competitive Strategies in the New Graphical World*** to ***Managing the Merger of PCs and Engineering Workstations*** because it is more representative of Summit's future directions in subject matter.
- We decided to review ***The Yankee Service*** in an upcoming issue rather than the report ***The Future of Transaction Processing*** since Yankee does not sell its reports separate from its services.
- We're trying new column types in each issue. In this issue we have ***Tracking*** with brief news items on people and companies in the market information publishing business.

Future Think Companies Is Complete — Well Almost

We think it's a gem

It's a square, perfect-bound book — 7 in. x 7 in. — nice cover. Market information publishing companies (150 of them) are described one per page. On each company's page is its name, parent company, address, phone, number of employees, who its information is for, subjects tracked, types of information products and an example leading product with title, description and price.

Judi Ray has done a terrific job of pulling it together

This directory starts with an introduction giving a few vital statistics about the companies inside and ends with that most useful feature — the subject index.

And then we'll go to work on the next edition to which we will add non-U.S. companies and U.S. companies found too late for the First Edition. And, of course, we have lots of work to do on ***Resources****, our directory of market information products — 2000 entries — available December*

Our schedule
We'll be mailing proofs to market information publishing companies by the time you read this, and expect to have the final copy to the printer by the end of October. You'll get yours a few weeks later.

It's free to subscribers
The First Edition of ***Future Think Companies*** is included with ***Future Thinker*** subscriptions which are $395/year. To non-subscribers ***Future Think Companies*** is $195.

EDITORIAL

Numbers Is Numbers? -- Part 1

*Our trade and business press is outstanding, but perfect it's not. Yes, I mean you — **Wall Street Journal, Business Week, Computerworld, Computer Reseller News, Electronic Business** and every other publication I've studied. . . . And here I've named the best. Show me a publication that consistently treats market researchers any better, and I'll eat my words, be their fan forever and give them the number one slot in the award program I'm conceiving which will rank the trustworthiness of publications in their re-publication of market information. In addition to some very positive contributions, in my opinion the press makes two major negative contributions to market information publishing —*
First, a trade or business publication almost never gives the complete definition of a market with those beautiful charts showing market researchers' numbers. If you don't know exactly how the researcher segmented the product area — e.g. is it software or just mainframe software? Or the customer-base — e.g. what exactly is included in large corporations? Or even geographically — e.g. is it U.S. only or worldwide? How can the numbers mean anything except be a pretty picture to take up space between ads?
Second, more often than not, neither the location nor the phone number of the research company is given, so you can't even find them to ask a question or buy the research.
Sometimes I wonder why researchers waste their time with the press.
OK, I know. The few times the press treats 'em right, the business rolls in

This is Part 1 of a 27-part (or some large finite number) series on the subject of ***Numbers*** — specifically why one market researcher's numbers are so different from another's.
Or perhaps, more importantly, why they are ever the same.

Numbers — Why and What We Need

Numbers. You need numbers because they are measures of where you are (like instrument readings on an airplane). If your goal is to become a leading supplier of _____[1], you need quite an array of numbers to define your present position relative to today's market characteristics and chart your course into the future. You usually need several number flavors — market size, market share, shipments, sales, installed base, billings, book-to-bill ratios, street price, average selling price, manufacturing cost, U.S. only, worldwide, shipments by U.S. vendors, units sold to U.S. customers, vertical market data, planned purchases, bookings, ad pages, sell-through, inventory, constant U.S. dollars, five-year history, last year, last month, five-year forecast. . . . And these are just the beginning.

How Did You Define That Market?

The most basic number is market size. Or at least you would think it's basic. Basic, perhaps — easy to get, no. Even last year's market size would be helpful, you say. That should be easy — after all, it's history, not a forecast. But alas, rarely do market researchers agree even on the size of last year's market.

In fact, they rarely agree on the definition of the market of interest to you. That's the first place to start reconciling two sources of numbers. For example, is the personal computer market as defined by Gartner Group, the same as the microsystems market as defined by InfoCorp, the same as the microcomputer market as defined by Datapro?[2] At least these companies give you enough information to decide. Do others?

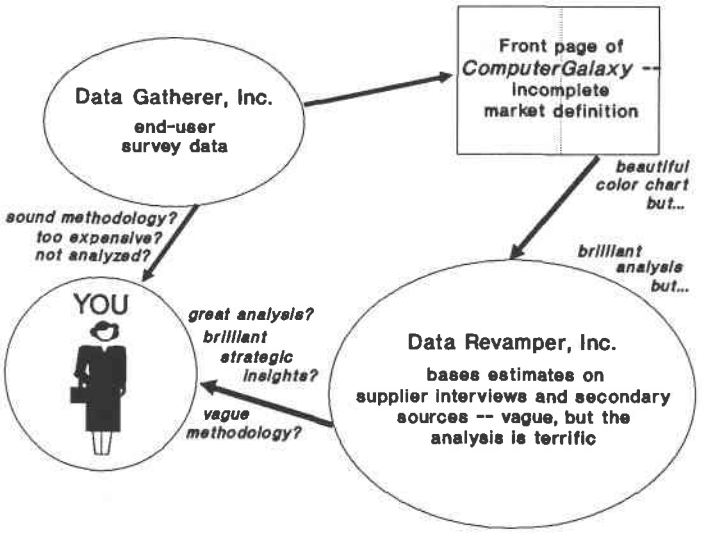
The Numbers Go Round and Round

When two researchers' numbers do agree, don't get too excited — they may not be independent verification of each other. Similar numbers may represent a consensus arrived at, not through direct interaction of the sources such as research companies and government trade organizations, but rather through the recirculation of numbers through the press and, in a few cases, direct usage of one organization's numbers by another. I wish I could tell you that the source is always given.

You may need information that is more qualitative and strategic than quantitative. But if you really crave sound market numbers, you should trace them back to the best primary data and greatest expertise in a particular area.

The Numbers Go Round and Round Weaving a Sticky Web as Errors Abound

All researchers' numbers are not alike



You must decide what type of information offers you the best value. Be sure you understand what each source of information really is. If the market information publishing company is vague, keep asking. As you get smarter they will communicate their methodology more openly and precisely

Numbers aren't everything. Impeccable numbers that answer the wrong question are worse than useless — they can distract you, amuse you and pacify you 'til you have no energy or time to allow that brilliant flash of strategic insight that makes all the numbers passé

Dream info — the best of both survey data and analysis, supervised and presented by an analyst who understands your business and has an impeccable track record for guessing them right year after year

Sometimes market size estimates or other measures are independently arrived at through primary research, such as end-user surveys, by a single organization. However, nationally projectable end-user surveys are very costly, and sometimes not justified by subscriber purchases of the information in a given market. In this case, market sizes and other measures may be based on non-projectable survey data, distribution channel information, supplier information, or even be educated guesses based on secondary sources (the press or other researchers). These may be the best you can get in a given market. And even guesses may be better than survey data run amuck. Know what you're buying.

Next *Numbers Is Numbers?*

Next in this ***Numbers*** Series we will explore some of the pitfalls in gathering the primary data used in our industry.

1. You fill it in. The problem is basically the same for any segment of our high-tech world, be it mainframe software, semiconductors, personal computers, copiers or telecommunications services.
2. Answer left as an exercise for the student. Hint — ask what each includes and what each excludes. I'll bet you that one or more will define the market in a way that is not easily reconcilable with other definitions; e.g. are computers with an average selling price under $10,000 the same set as those whose CPU is a microprocessor? Does the distribution channels in which they are sold matter? The customer set? The applications? Is a computer priced at under $10,000 with a microprocessor CPU sold as a part of a factory automation system counted? At times I've thought various market information publishers (not especially the ones used as the examples here) define markets differently just so their numbers can't be compared with anyone else's. Surely not.

REVIEW

Software Management Strategies Service -- Gartner Group

"We have changed the way the world thinks of software. And we may have changed the way IBM does their software planning and presentations. . . . There are 200 users out there who frequently do not make a decision without consulting us, and another 100 who look at it and don't like it, but have to take it into account."

— Mike Braude, Vice President and Director, ***Software Management Strategies Service*** *Gartner Group*

The users of which Mike speaks are among the largest computer installations on the planet — Fidelity Systems, Mobil, Exxon, Hartford Insurance, Aetna and Dupont — nearly 400 of them. Plus 70-80 software vendors whose future is influenced almost beyond reason by this one source of opinion and information

Decidedly for Users

It's a big, big responsibility — Mike's team has even withheld an opinion for a time while a company is being sold until they can be doubly sure of their information

The content of ***Software Management Strategies Service*** is all grist for users' decision making about the software they buy for use within their organizations. It answers the question, "What does the decision you make now mean to you five years in the future?" Examples —

- What is IBM's strategy for DB2[1]?
- Why is DB2 in my future?
- Will IBM deliver system-managed storage?
- Why users should be concerned about SAA[2].
- What strategies should users adopt to remove operations-oriented constraints?
- What productivity strategies are powerful now and appropriate for the 1990s?
- What can independent software vendors do to survive through 1995? Can they?
- Is distributed database smoke or real?
- When should users move their IMS[3] applications over to DB2?

First, Gartner Group determines the questions large software users should be asking, assists those who don't already know the questions, then answers them decisively for everyone

It's not shipment data (although there are some), not forecasts (although there are some) and not the usual vendor-oriented competitive analyses (although there are some)

The questions are posed and answered by those famous Gartner Group, one-page (front and back) ***Research Notes****. Some are dissected by hefty* ***Strategic Analysis Reports***

The ***Software Management Strategies Service*** planning horizon is long-term (5 to 10 years). The assumptions are that the user wants pain-free transitions now and in the future from generation to generation of hardware and the myriad layers of software (operating systems, compilers, database engines, and so on). The criteria for software selection are the strategic implications for the user, not the features of the software. Mike calls this "choosing software by strategic evaluation versus spreadsheet evaluation."

I can just see those software vendors (including IBM) wince at times

Mike says "Do not evaluate software via spreadsheets. Don't make piecemeal software decisions. Decide on an overall architecture then buy software components to fill in the pieces. For example, you don't need a database strategy, you need an SQL strategy[4]. We try to get them thinking in terms of architectures, interfaces and long-term investment as opposed to plugging specific holes with specific products. IBM has changed the way they present software to people and we take some credit for that. They now give people a more explicit statement of what's going to happen over the long-term stressing the interfaces. We had some effect on flushing this SAA thing out. And some people in Gartner Group give us credit for the DB2 success but we tend to think it had more to do with the 10,000 IBM salesmen out there." Mike chuckled, then continued. "Some people here think we did accelerate it. We work with the software decision makers at the Fortune 200 and that's half of IBM's revenue."

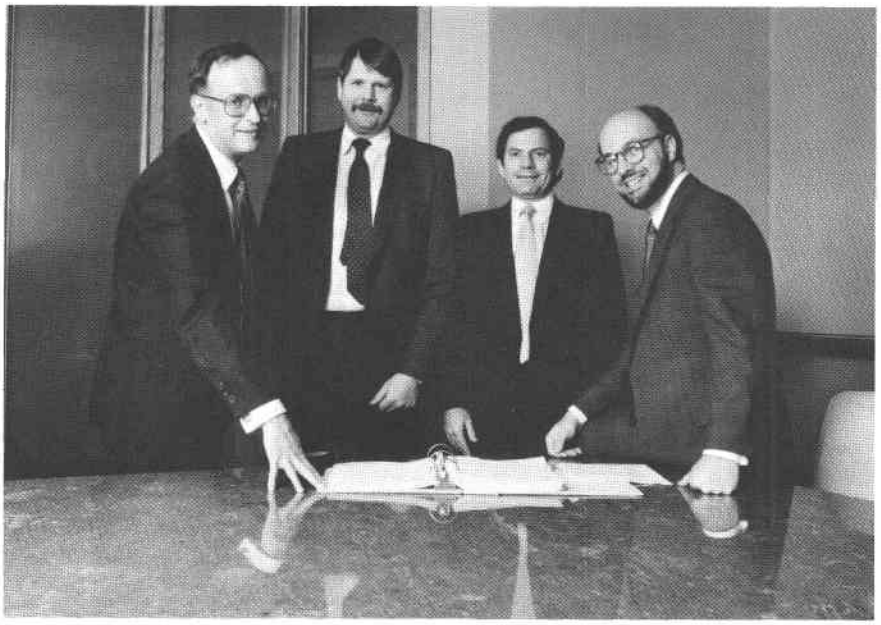
Spreadsheets were used for a feature-wise analysis of the software. Now users choose software based on what it's going to mean to be in bed with a software vendor for five to ten years. ***Software Management Strategies Service*** provides its opinion of each software product's 5-10 year evolution. It critiques the vendor's claims and plans against the competitive environment and the vendor's resources and unstated motivations. There is always a bottom-line recommendation to the user.

The feedback loop between Mike's group and those big-league computer users is tight. Mike talks to 20-25 of them per day. They influence his thinking and he theirs. There's no doubt that things happen faster than they did before ***Software Management Strategies Service*** and Mike Braude's crew.

The Gurus of Software Management

Mike's from userland. He was VP of Technical Services at Morgan Stanley and Assistant VP at Metropolitan Life. Peter Levine, his partner in the service from the beginning, was VP of Data Processing for Scudder, Stevens & Clark and prior to that at IBM for 17 years. Mike and Peter understood the user's software decision-making process. ***Software Management Strategies Service*** was built solidly on their goal of providing the advice necessary to lessen user FUD[5] in the big-buck, high-impact world of software decision-making.

Mike Braude, Peter Levine and Crew at Work



*The **Software Management Strategies Service** team includes — (left to right) Mike Braude, Chris Bird, Peter Levine, Jeff Schulman and Tony Percy (not in photo). A typical day for a team member includes 3 hours on the phone with users and vendors, an hour in discussions, 1/2 hour in a vendor meeting in addition to frequent meetings with the Gartner sales staff and company management. Somehow they still find time to write for the **Software Management Strategies Service***

What keeps Mike Braude at Gartner Group? He loves the work, the environment and that nifty set of golden handcuffs

Mike Braude is also Director of Research at Gartner — leading by example, rather than by direction. He selects four analysts to give presentations at the Friday lunch research meeting attended by 80 Gartner-folk from Research, Sales and Management. The goal — to hone the analysts' ability to analyze and communicate, to inform and to trigger debates on industry events among all those at the meeting.

There's Magic in the Medium

"Advisory" is a key differentiator. The content of the service is focused on advising the client, not just providing valuable descriptive information about a business environment . . . part of Gartner's Wall Street roots perhaps

What our industry calls a service differs from one service provider to the next. Gartner's implementation is even more differentiated than it may appear at first glance. Gartner Services are called ***Research, Advisory and Strategic Planning Services — RAS Services*** in Gartner-speak. Each $16,500 subscription is for a period of one year and provides for two client Interfaces. Each Interface receives:

- The starter material in two 3-inch binders which includes —
  - about 40 ***Research Notes*** (3 back months),
  - ***2-3 Strategic Planning Reports*** (about 80 pages each), most recently — ***DB2: The Catalyst for the "IBM Software Co."***, August 18, 1988; ***Systems Application Architecture: A Critical Analysis***, October 26, 1987; and ***IBM's Software Strategies - Part I***, February 13, 1987,
  - the ***Software Management Strategies Scenario*** (25 pages) which provides: the scope of the service, the key issues, strategic planning assumptions and a summary of major software directions during the period 1987-1992,
  - other research documents such as the recent ***Storage Management Kit*** (a collection of ***Research Notes*** on Storage Management, including Strategic Planning Assumptions),
  - an index (both chronological and by subject) of ***Strategic Analysis Reports*** and ***Research Notes*** back to 1985,
  - the Conference Calendar, and
  - instructions on using the service.
- Regular ***Research Notes*** (4-7 every two weeks) .
- ***Strategic Analysis Reports*** (typically 4-6 per year).
- Updates to the ***Strategic Planning Scenario***.
- Telephone Consultation — unlimited telephone inquiry privileges for a client Interface.
- A ticket to attend the annual ***Software Management Strategies Service*** or other Gartner conference.
- Index updates.

A prospective subscriber can obtain an index from their Gartner Group sales rep — very helpful in really understanding the scope of the service prior to purchasing

The *Research Note* is the basic unit of information

*See **Future Thinker** past (September 1) for observations on Gartner Group's research process*

Each ***Note*** is a one-sheet (both sides packed) summary of a research result. On the front top of the sheet is the filing information, date, title and summary. Sometimes the title and summary is all one needs — a great time saver for the busy manager. A July note titled ***User Exposures When Choosing Not to Install DB2*** was summarized "Exposures due to DB2 resistance center around career jeopardy and avoidance of the SQL strategy issue." Another titled ***dBase IV Must Fly*** was summarized "The dBase IV-based renewal of Ashton-Tate's technical virility, if seasoned with some *glasnost*, could fuel an impressive corporate launch into the 1990s."

*You're just going to have to see a Gartner **Research Note** to understand how much is packed into it. Usually your Gartner sales rep will provide a few samples from the service of interest*

The body of each ***Research Note*** is a two-column format much like ***Future Thinker***. The wider right column is usually text. The narrow left column is charts, graphs, drawings, tables and a most wonderful glossary of mnemonics used. As many as 6 figures occupy the left column of the two pages.

Believe it or not, even I can read the figures (remember me — thick glasses or glasses over contacts)

Each ***Research Note*** concludes with the signature of the person who wrote it.

Thank you! Thank you!

Software Management Strategies Service notes tend to be mostly Key Issues with all the other types of notes sprinkled in

***Research Notes* of several flavors**
Gartner Group ***Research Notes*** come in several flavors: Strategic Planning Assumptions, Key Issues, Events, Product Forecasts, Technology Trends, Intelligence, Companies and Markets. It's a very usable framework for both the researcher and user.

*My mouth watered for a PC-based version. Look up a subject, pick a **Research Note** title, then to the Summary and, if needed, to the notebooks for the **Research Note**. Not a very big database even for several years back. Very useful. Wonder if there's a market?*

***Research Notes* make for a dream index**
The Gartner Group indices are very thorough, largely because the one-page ***Research Notes*** are perfect for indexing to the exact location of the needed information. The bad news — the indices do run as much as six months behind; however, each packet of ***Research Notes*** does come with a cover Table of Contents so it is easy to scan the past six months.

And More Magic in the Message

The message in ***Software Management Strategies Service*** is aimed dead center at what the user needs to know to make decisions about software. I like the predictions with a Gartner-assigned probability (P = probability) following each.

"Major Software Directions: 1987-1992

It would be interesting to hear what Gartner Group thinks might be likely alternatives for each of these futures since it views none of them as certain (P = 1.0).
Remember, Herman Kahn told us that "The most unlikely future is the surprise-free future." . . . . What will those surprises be?
Let's check this list in 1992 . . .

1. *IBM will not dominate the tools arena (P = .8)*
2. *The 'Big Five'[6], which could become a 'Big Seven'[7], will be the broad conduits of high-powered technology (P = .3)*
3. *Exotic technologies will only be helpful through embedding in Software Engineering and Systems Management discipline (P = .8)*
4. *SAA may become very dirty, but still effective (P = .8)*
5. *Commercial shops will differentiate themselves by effective software engineering (P = .7)*
6. *By 1990, over 70% of applications logic being written will generate SQL[8] statements (P = .9)*
7. *Strategic applications will fetch data across environments and often be rewritten in several pieces (P = .8)*
8. *Distributed relational technology will dominate OLTP[9] (P = .9)*
9. *IBM will unfold the Repository[10] as a base for Systems Management, but will not unveil a complete solution to either Systems Management or Software Development (P = .9)*
10. *Revolutionary alternatives for software development and applications must surface through the 'Big Five/Seven' (P = .6)*
11. *Software arena will tend toward a two-tiered structure (P = .9)"*

— Software Management Strategies Scenario Summary

This service embodies the powerful combination of strategic business smarts atop profound technical depth. These ain't no amateurs you're dealing with — or recent MBAs either (no offense meant). Mike's education — back when — was in mathematics. Peter's was in mechanical engineering. It's obvious that both have advanced degrees from the School of Hard Knocks, emphasis — big computer software, thesis — its management and strategic impact on big organizations

An Amazing Story

*In one month, August 1985, **Software Management Strategies Service** did $825,000 in NCVI[11]. — a record in Gartner Group. They had sent the material for a free look to Gartner's **IBM Large Computer Market Service** subscribers. The sales force followed up*

Started in 1985, this $16,500 annual subscription service now has nearly 400 subscribers. Most of them are MIS Vice Presidents or systems programming managers at large companies whose computer systems are awesome collections of mainframes, minis and personal computers with everything above, between and below. They have untold investment in internally developed applications software that runs their gargantuan enterprises. Software that must be maintained, renewed, replaced and greatly expanded as the business of the enterprise inevitably changes. This application software is rooted in a churning swamp[12] of systems software purchased from IBM and other software vendors. The trick — to build a galactic fleet of lashed-together houseboats — a fleet that will carry a big burly user slowly but safely atop the swamp into the future. Gartner provides the blueprints and points the way to safe passage.

Today

That's nearly 500 subscribers x $16,500, then increasing for add-on modules and decreasing for discounts to multiple service subscribers. But would you believe this is not Gartner Group's largest service?

Software Management Strategies Service is a $6 million business today. That is $6 million per year for a service produced by a small team of very competent analysts — without a doubt one of the few most profitable services in our industry. And ***Software Management Strategies Service*** has accounted for one-third of all Gartner Group's growth since 1985 (see ***Future Thinker*** September 1, 1988).

Tomorrow

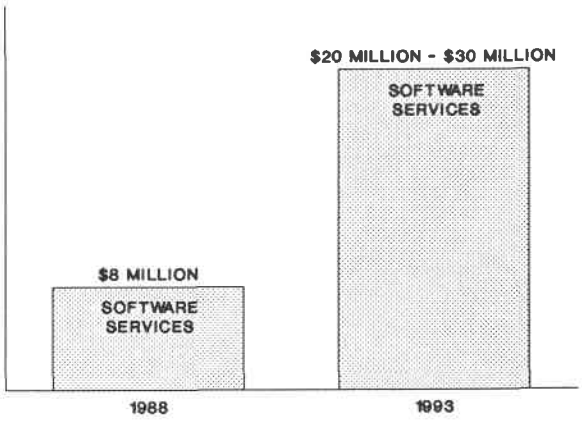
Two-thirds of the large software users make whatever decision that IBM tells them. Smaller shops don't think strategically

The market potential for ***Software Management Strategies Service***, according to Mike, is the 600-700 users who think for themselves and who think strategically. The software vendor side is a shrinking universe and most subscribe today.

In addition to growth in subscribers to the base service, other opportunities are in spin-off vertical software services — e.g. personal computer software, communications software or financial applications software.

Mike Braude's Vision for Gartner Group's Software Services

*Mike thinks the **Software Management Strategies Service** and new software services can grow from today's $8 million to $20 million - $30 million in 5-6 years. Listening, I was totally convinced. But Mike pointed out the delicate balancing act that all service suppliers must navigate — too much specialization of an area like software can alienate those users who were happy with the depth and price of a single software service. But, the need for software information is so great that it will require more depth and specialization*



REVIEW

Home Automation 88: A Market Overview -- Parks Associates

Before you read this article I want to make one thing very, very clear. I have not one single objective bone in my body when it comes to Tricia Parks or the subject of home automation[1].

Read the footnote, please. . . . Thanks.

Now I feel better, let's proceed.

The Form

It would win my designer award for notebooks

The binder
As soon as you pick it up, you know it's something special. The notebook has a cushy, black cover with blue-grey lettering identifying the company — Parks Associates.

Decidedly understated in both form and title

Inside the binder — cover page and text
The 1-inch notebook is packed with 346 pages of the future. The cover sheet of heavy blue-grey identifies the report title — ***Home Automation 88: A Market Overview***. The text is laser-printer[2] produced with a just-right density factor.

It will be so tempting, but remember — you must have permission from the author to make overheads or slides

Inside the binder — pictures, pictures, pictures!
The pictures, charts and tables in this report are as important as the text. There are 129 of them in 346 pages — that's over one-third. The figures are all sideways — a full landscape page with a pleasing to the eye, consistent line border. Produced on an Apple Mac with laser printer in large type, they are very readable. They are in perfect slide aspect ratio and would make quite professional overhead transparencies. If you turn the notebook sideways and open the front to the top, the figures are all readable as you flip the pages up. So the entire book of figures can be read without turning the notebook — a very interesting exercise since the most significant summary information in the report was captured in pictures.

We'll talk more about the forecast methodology later. In Tricia's words, "We tried to take a sane approach to the world at large. I tried to meet the test — could any reasonable human being look at this and say 'that could be true'?" Hmmm. Would that more forecasts were constructed this way

Inside the binder — the forecast model diskette
The accompanying IBM PC diskette contains the Lotus 1-2-3 forecast model. The nearly 750-line printout in an appendix shows the results of the forecast calculations. The model has embedded in it the formula and relationships between various beginning data used to arrive at the forecasts.

A 750-line meticulously prepared forecast model is worth more than a few bucks

Someday, when market information users become more knowledgeable and have more sources of quality market information, they will not buy a forecast that gives only the end results without the methodology in its electronic embodiment

There is something very comforting about having a forecast diskette even if you don't use it. It tells you that the author is willing to share with you all the details and assumptions used in calculating the forecast — that the author lays the complete methodology open for your inspection. If you will use it, you can adjust any assumptions you wish to explore the effect on the forecast. Or even add to the forecast a few lines to show the projected business activity of your company (e.g. market share within a given forecasted category year by year). Then as you fiddle with the assumptions, the forecast for your projected business will change. You will be amazed at the additional intuitive understanding you will gain of a market if you'll spend some time with this type of model. And for us business futurists, it is fun. Essential.

The Price

Put your eyeballs back in. If your firm is even remotely considering involvement in home automation, it is worth every penny. If you're convinced it's not for you, you'd better be sure. It's a big, big market and it's probably not what you think. There are also some really good defensive reasons for being in. Read on

The price of this report is $3,500. Second copies are $500. This is not the most expensive report I've ever seen, but close. I needn't tell you that all things called reports are not created equal. This one is more unequal than most any I've seen — It could have been called a multiclient study and the price could have been higher and not out of line. That will become clear as we explore the background of the author and the content of the report.

The Author — Tricia Parks, with a Little Help

I've studied Tricia studying consumers for years. Her insights are fascinating. Frequently, I've said "Now, why didn't I think of that." It's so obvious after she explains it

Tricia Parks is eminently qualified to author this study. First, she is a consumer . . . like in capital letters she can put herself in the consumer's shoes with right-on perceptions. She is also an educated, experienced high-technology market analyst and a very busy consultant and writer — a career she gracefully and sometimes frantically weaves among her roles as wife, mother and gardener. She even manages a week at Martha's Vineyard now and then. She has been researching consumers and technology for ages. A ***Future Thinker*** subscriber who had read ***Home Automation 88: A Market Overview*** recently said thoughtfully to me, "You know . . . Tricia is a really good analyst." I said, "Yes, I know."[1]

A Little Expert Help

Helping Tricia on the forecast was Dr. John Hoper, President of OmniMark, a peripherals market research firm in Dallas. John is very well versed in forecasting methodologies, especially for emerging (read not yet existent) high-technology markets. He is also possibly the most meticulous person I've ever known. He was head of Future Computing's Peripherals Division before OmniMark, and prior to that in market analysis and planning at Texas Instruments.

The Content — Home Automation

"It (this report) will allow the strategic planner to take a point of view that is bigger than the single product he is developing and look at where it might fit in a very large picture."

— Tricia Parks

Home Automation 88: A Market Overview will impact your thinking in such a way that it will be very difficult to go back to a component-centered view of the world. You will ***Think System***[3].

By the way, in spite of all those studies to yawn to, markets rarely evolve smoothly or as we expect

All market studies talk about the future. Usually the future they discuss is evolutionary. Not so here.

"Home automation is the integrating of residential systems and electronic products through the addition of microprocessor-based intelligence and interproduct communications capabilities. *. . . Includes security, communication equipment, heat, ventilation, and air-conditiong (HVAC), entertainment, lighting, and appliance products."*

— Executive Summary
Home Automation 88: A Market Overview

"Home automation is an embryonic industry, and its definition must be elastic. As the industry evolves, this definition may broaden or narrow depending on both manufacturer and market activity" — from the report

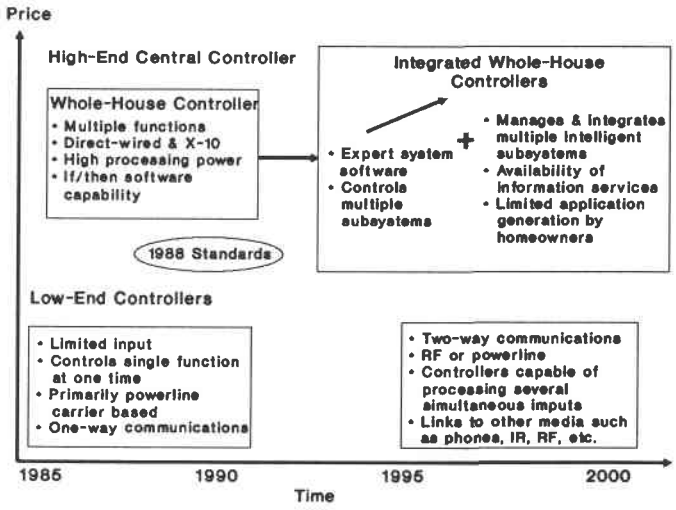
Home automation may sound like an evolution but it is not. The big reasons everyone will want it haven't been imagined yet. But we have enough reasons for a beginning. And the future is built one day at a time.

Home automation is a gigantic step-function. It is warp drive. It is not components — ***it is System****. It is* ***Superconnectivity***

If you're skeptical about home automation, this report will change your mind. There are all the right consumer perceptions. All the big guns are involved, like the Japanese and the phone companies and . . . Only the computer companies are asleep. This report provides detail about what's going on now with profiles of the participating companies and their products. It explains the technology. You'll understand the benefits home automation will provide. The ***Scenarios for Development*** Chapter explores how the industry may evolve.

Can the EIA, the National Association of Home Builders, The Electronic Industry Association Japan, and a host of companies like AT&T and Mitsubishi and X-10 (USA) all be wrong? And these are just a few of the pioneers. Wait 'til you see who's comin'

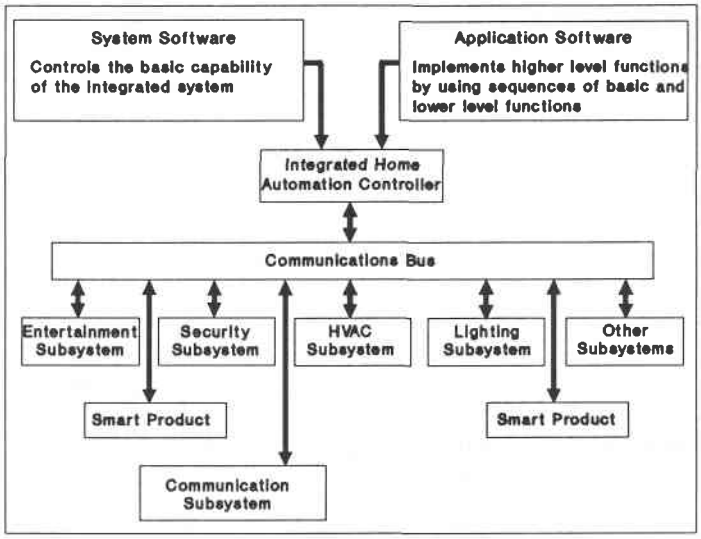
Home Automation System Levels & Evolution
Source: Parks Associates



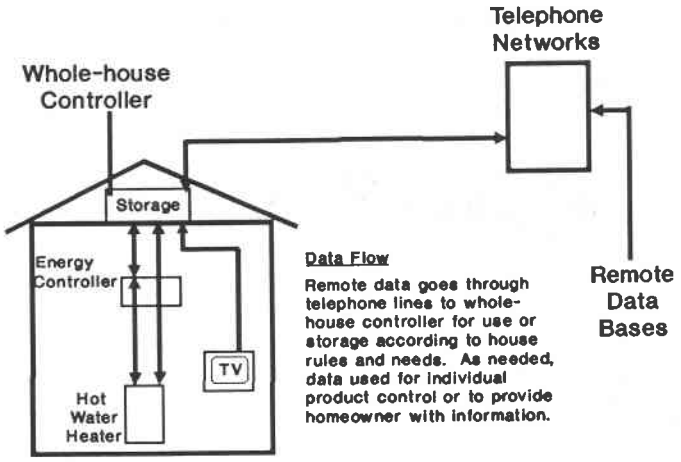
Home automation systems will have different levels of capability, and all levels will substantially increase in their ability to act intelligently on combinations of the homeowner instructions, external inputs and new internal conditions. I can hardly wait — I want my house to all but read my mind. I want it to learn my habits and optimize my comfort, security and pleasure at all times. And it had better save me time and money. And, for heaven's sake, it should stay out of my way. After all, what's a good house for?

The basic home automation system structure is well understood. But Tricia says the secret in really comprehending it is to ***"Think System. Home automation is the System, not a collection of individual parts."*** *The trouble is standards, of course. And would you believe, nearly every subsystem is built by a different manufacturer and sold and supported through different distribution channels?* ***Home Automation 88: A Market Overview*** *gives a good discussion of standards progress and distribution challenges as well as explaining the technology*

Integrated Home Automation System Structure
Source: Parks Associates

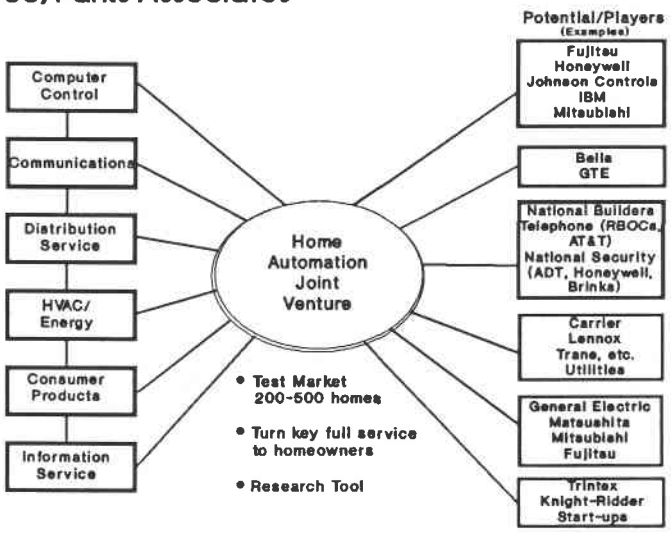


Home Information Services Picture
Source: Parks Associates



If you have real intelligence in the home, adding outside information and intelligence communicating directly with the home gives you much more than the sum of the parts. For example, I would like to select from a menu the types of television programs I enjoy, then have an outside information service feed my home automation system the appropriate schedules so that my system will tape the shows, tell me when something I am interested in is on, or perform whatever script I have chosen for that particular subject

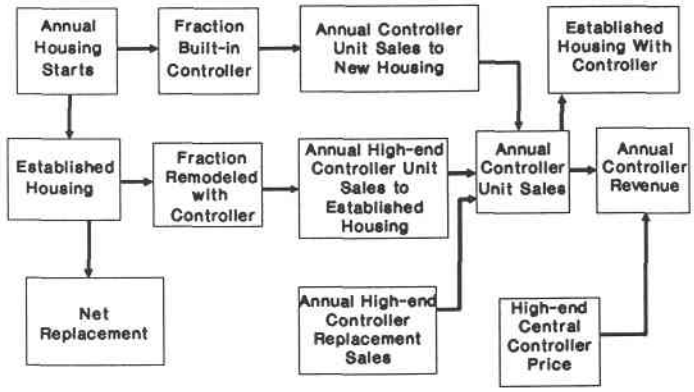
Home Automation Joint Venture Participant Possibilities
Source; Parks Associates



Home automation will make some interesting bedfellows. Years ago in my speeches about personal computers everyone loved my joke about Sears selling IBM computers. I know, you don't see why it was funny. Well, back then IBM didn't make small computers and Sears certainly didn't sell them nor did either take the ideas seriously. Home Automation may make even more unexpected alliances. Tricia's examples are very imaginative — and each has a grain of truth

US Market Forecast Model -- High-End Controller Market
Source: Parks Associates

This drawing shows the methodology for constructing the forecast. After studying several potentially comparable rates of technology diffusion, e.g. electricity, telephones, air-conditioning, television, and VCRs; air conditioning was chosen as the best model for home automation intelligent controllers. Why? Tricia believes home automation will be a benefit market — your Aunt in Kansas may not have wanted an air-conditioning system, but she definitely wanted to be cool



Parks Associates forecasts nearly a million units of high-end central controllers and intelligent subsystem controllers by 1996 and over 2.4 million by 2000. Low-end controllers are forecasted separately.

Other Parks Associates Products

I'll be there, too. Although I've become a homebody, I couldn't say no to Tricia. I think I am on a panel of people who have learned about home automation the hard way

Forum 88: Intelligent Products, Systems, and Services for the Home is coming up December 1 & 2, 1988 at the Sheraton Park Central, Dallas. Everyone in home automation will be there — that's apparent from the speaker list.

Tricia will be releasing another report that builds on this one next year, and selling it — and this one — separately, and as companion products. This one, released in March 1988, will be a landmark for some time. I've also heard rumors of a journal or a newsletter or something. . .

The Beginning, I Expect

*44 companies have already purchased **Home Automation 88: A Market Overview**. They include the telephone equipment companies, AT&T, all the Bell Operating Companies, security companies, air-conditioning companies, home entertainment companies, power distribution companies, semiconductor companies, pioneers in home automation and a couple who may surprise us. The response from the purchasers has been skewed toward the rave review end of the scale. The ones who haven't purchased — computer companies. . . . Guess they've lost their vision*

This report is both a culmination and a beginning. It is not the result of a good analyst's one year study, as many quality reports are. The taking-off place for Tricia's research was the years she had spent analyzing the home computer market, the consumer electronics market, the market for consumer information services and the potential for home automation. On top of that background she did the specific research for ***Home Automation 88: A Market Overview*** — and it shows. The depth of understanding she brings to this subject could only be through years of first-hand experience — hers and the experiences of many others who have shared theirs with her. Tricia knows everyone. The report is a beginning — in that home automation is at the beginning. I hope Tricia continues her role as a participant, catalyst and analyst because her work will surely hasten the development of this important technology that promises to enrich our daily lives.

For Additional Information about *Home Automation 88: A market Overview* Contact:

Parks Associates
13227 Hughes Lane
Dallas, TX 75249

214/392-9855 Fax: 214/392-9856

1. I first met Tricia in 1982. It was on an American Airlines flight to Atlantic City (or Philadelphia maybe). She was going to COMDEX.[4] So was I.

It was the early days of Future Computing. We had just released our first (first by anyone, in fact) computer retail survey. That was the good news. The bad news was if we didn't sell several within just a few weeks we would not be able to make the payroll for our little 15 person company. So I had done the only logical thing. I took the money we had and paid Mr. Adelson for a 10x10 booth and bought a few airline tickets. Mine was First Class — broke or not

As the door to the plane was closed, Tricia was moved from coach to the seat beside me. But I was the lucky one that day. We talked all the way to Atlantic City. About writing and marketing and consulting and money and market research.

A line formed of people waiting to talk to us about the exploding personal computer market. They wanted to impress us with their product or plan (word was we influenced Sears' buying decisions and probably other retailers' plans too)

From our table top booth on the main (read only) COMDEX floor with our crystal-ball logo framed and hanging at the back of the booth on the curtain, we sold more than enough reports to make the payroll. We were the only market research firm there. Seemed everyone wanted to know about computer retailers. And they were impressed. The industry had rarely seen a market research firm rich enough to afford a booth at a trade show.

Tricia's first act was to retain David Fiegenschue to design a look for Future Computing. I needn't tell you our crystal ball went away. David's been doing my design ever since — and Tricia's. He did Future Think's look and he did Tricia's designer notebook. . . . No wonder I like it

Back in Dallas I thought Egil was going to croak when I told him that I wanted to hire a marketing consultant for $6,000/month — part-time. But I can be persuasive. Soon afterwards Tricia became Future Computing's Marketing Vice President. She was always our ace salesperson no matter what we called her. In 1983 she chose to become the head of Future Computing's new Home Computer Group, launching an annual subscription service in the heyday of the home computer business. I recall 300 people once at one of our Home Computer Forums.

A large part of what Future Computing became was Tricia's handiwork. Other than Egil, there was no person in my years of Future Computing that I relied on more than I did Tricia. I loved to listen to her on the phone. And I remember our first million dollar month . . .

Tricia and I are alike in many ways. But she had talents and characteristics that I didn't — and that I admired so much in her — for example, she could write. I mean really pound out the words — words that I wished I had said. That was before I had confidence in my ability to communicate on paper. I could talk (there are many witnesses to that phenomenon), but a piece of blank paper stumped me. I conquered it by having Lorene O'Neil, my ace assistant for years, transcribe my speeches. Eventually I learned to write like I talk (of course, I must publish my own stuff). You're welcome.

We were about 140 employees when McGraw-Hill bought Future Computing in 1984. In 1985 Tricia left to strike out on her own again. In late 1985 I left also — I wasn't planning to strike out anywhere. . . . I was just tired. Future Computing's rapid growth followed by the great computer industry slump of 1985 had done me in.

I had no active role in Intellisys other than a lot of opinions about what an automated home should be. I was too busy with my midlife crisis — doing fun things like working on my autobiography and studying the ancient forecasting arts, e.g. astrology

But I had been designing and building a house which had become more and more electronic, then integrated, until it wound up a business concept for Intellisys — a company Egil and I created. The plan was to build the first software and a few hardware widgets for a totally integrated electronic home and use the house we were building as the prototype. Tricia came as Marketing VP. Don Bynum, former head of TI's Home Computer Group, was President. Egil was Chairman.

*For the entire time I lived in the Intellisys house, it was being developed and experimented with — as it should have been. I called the programmers my closet people. No matter what I was doing at any time of the day or night I was likely to find them in the oddest places. If it wasn't the closet people, it was the press. They loved that house. **ABC Network News, Lifestyles of the Rich and Famous, Beyond 2000, and Good Morning America** to name a few*

I did live in the house, alone after Egil and I were divorced — like a mouse in a laboratory. Beautiful, but a lab nonetheless. 6,000 square feet of magnificent white cubic stucco, black granite floors, and glass and mirrors everywhere. Backed up to a creek in the heart of Dallas. 21 televisions, 3 media centers, 11 computers, fanciest phones you've ever seen. With the phone or the light gun I could control anything in the house from anywhere in the house — security, televisions, audio and video devices, doors, telephones, spa, pool, lights, heating & air conditioning — that is, when it worked. Remember it was a lab. We experimented with scripted control. With voice control through the phone. With light pen control at any video screen. And the house talked back, volunteering information like tornado warnings or answering inquiries from outside the house over the phone.

The computer software necessary to accomplish all this was something to behold. However, I did grow weary of living in an pre-alpha-test computer system.

In that trailer I had to move Snuffles, my Shar-Pei pup, to put away my bed, to use the table to put my computer on so I could write during the day. I've wondered if there were more electronics per square foot in that trailer than in the Intellisys house

I bet it's easy for you to understand why I moved to Manitou Springs, Colorado with my dog and computer into a 16 ft. long, 7 ft. wide trailer. In that little trailer by a river under the trees, I had my Compaq III, an HP LaserJet, a cellular phone, a cassette player and CD player with terrific little battery-powered speakers, and a color video camera which also played video tapes on my TV. None of it was integrated but it was in close quarters. I wanted to do my writing outside under the trees by the river and as the Compaq III screen is not usable in light, I decided to buy a Zenith 181 with that wonderful backlit LCD screen. My husband, Dexter, first saw me sitting yoga-style on the sidewalk in front of Colorado Software, a systems house in which he is a partner, in the bright Colorado sun testing the Zenith 181 which was sitting on the sidewalk in front of me. I bought it and was married six months later. Eventually I moved into my Colorado Springs home after the remodeling was finished — complete with a security system I can't use — no light pen.

The few million we had dumped into that house and Intellisys was approaching the few million we had been paid for Future Computing by McGraw-Hill

Meanwhile back in Dallas . . . It had became clear that venture funding was not to be had for such a long-term plan, so Egil and I decided to liquidate Intellisys. We had sure learned a lot. Much of it was first hand, but we had also gathered much information from would-be home automation participants and consumers. For example, we had done quite a number of focus groups with consumers at the house to determine their interest in the various features of an automated home. Tricia was the brains behind the focus groups. We also held a successful forum for companies interested in home automation. The attendees were who's who in the infant industry. Again, Tricia's work.

When Intellisys folded, Tricia gave birth to Parks Associates. I would bet on its long-term contribution and success.

*We removed the integrated electronic functionality from the house although it is still packed with "ordinary" electronics like fancy lighting control and three media centers. And it is beautiful. It is also for sale for just a little over a million — a steal for anyone who can afford a really gorgeous house in Dallas. In fact, if we sell enough **Future Thinker** subscriptions, I just might keep that house*

Through the years Tricia became a friend. We even had the same taste in clothes. At first we marveled to discover that we actually owned some identical clothes, later we learned to check with the other. Our birthday is on the same day (September 7). She is 6 years younger for those of you who count. On one's birthday, it was a Future Computing policy that after 5:00 PM you could go barefoot (if you weren't already) and drink Chivas to your heart's content. We did. I have a sister whom I love very much, but if I had another I would want her to be Tricia.

So how could I possibly be more biased?

2. I think I recognize that laser printer. It's Lorene O'Neil's. Lorene was my assistant for years. She started a secretarial service when I moved to Colorado. I traded her that Mac and printer to continue doing some work for me. If you could use some help, she's the best.

*His words, but the idea is popping out all over. See **Future Thinker** past*

3. "Gentlemen, Gentlemen, Gentlemen. **Think System! Stop with the bits and the components! Think System!**" Tricia attributes these words to Gene Lubchenko, Director of Research at Philips.
4. Shhh! Mr Adelson would prefer that we all forget that COMDEX was once in Atlantic City. I'll <u>never</u> forget!

REVIEW

MID-TERM 1988 --
Integrated Circuit Engineering Corporation

*Priced at $345 U.S., released in July each year, **MID-TERM** is sold to about 1,000 future thinking executives in our industry. Of these, about 400 are distributed at one-day seminars of the same name. But the report stands alone — beautifully. **STATUS** is released in January, is $350, and also has a companion one-day seminar*

MID-TERM 1988 is short for ***MID-TERM 1988, Status and Forecast of the Integrated Circuit Industry.***[1] The title is the only place where this annual report is short. It is the mid-year companion to ***STATUS, A Report on the Integrated Circuit Industry***. Since 1967 these reports have found wide readership among semiconductor manufacturers, semiconductor company suppliers and semiconductor users.

Each ***MID-TERM*** and ***STATUS*** are complete updates of a thorough integrated circuit industry overview. ***MID-TERM 1988*** contains 251 pages and has 255 beautifully produced exhibits sprinkled among the comprehensive and easy to follow narrative.

Let's see . . . 600 purchasers (not counting 400 seminar attendees) x $345 each is $207,000 for each edition — that's twice the revenue of a successful report in our industry. No doubt about it — ICE (Integrated Circuit Engineering Corporation's nickname, pronounced I-See-E) has a winner. They've had 21 years to get it right and they did!

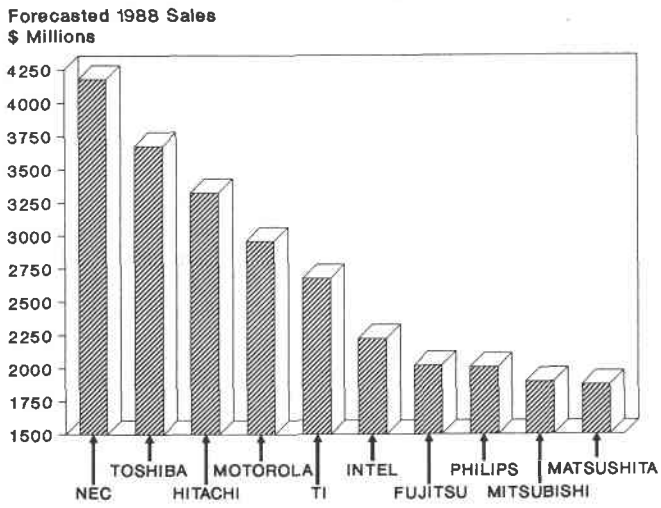
Although 1,000 purchasers is an awesome number, there could be even more. Every executive in the computer, telecommunications, electronics and office products industries makes assumptions dependent on our base semiconductor industry as a major force for price-performance improvements. Tracking that many-headed, fast-footed monster shouldn't be left to reading bits and pieces between advertisements. Now and then one needs an expert, thorough, tutorial look at what it's all about. Both ***MID-TERM*** and ***STATUS*** provide that.

The Integrated Circuit Industry

The integrated circuit industry's top ten companies change more rapidly than some of them wish.

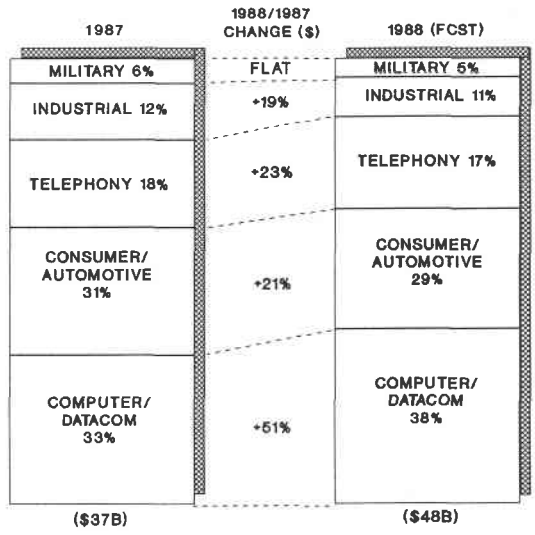
Worldwide Top Ten Merchant Semiconductor Companies
Forecasted 1988 Sales
Source: Integrated Circuit Engineering Corporation

ICE forecasts one European, three American, and six Japanese companies among the top ten in merchant semiconductor sales in 1988. Intel, riding the boom in microprocessor sales, is the fastest growing, moving from not being on the chart in 1986, to 8th place last year, and to 6th this year



Worldwide Merchant Semiconductor Consumption
1987 and Forecasted 1988
Source: Integrated Circuit Engineering Corporation

Semiconductor companies sell into five market segments. Computers and data communications is the largest and most rapidly growing segment. ICE expects this segment to grow 51% in 1988, thereby comprising 38% of the worldwide semiconductor market

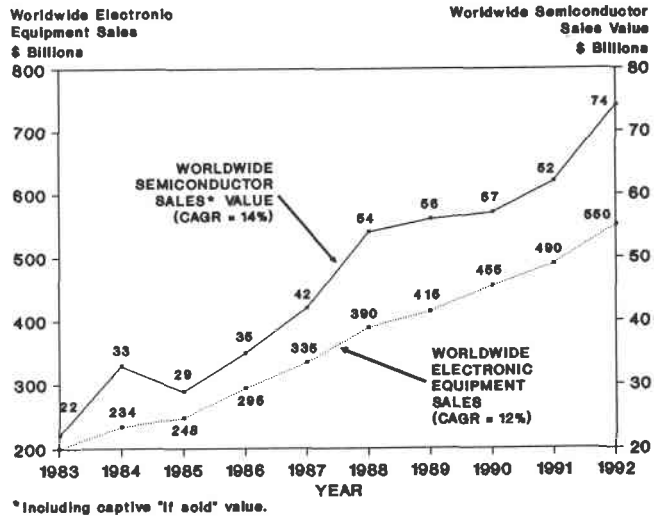


See the figure below

Semiconductor sales track the sales of the electronic equipment in which they are incorporated. According to ICE, the higher semiconductor annual growth rate has been caused by the increasing semiconductor content of electronic equipment.

Electronic Equipment and Semiconductor Sales Trends
1983 - 1992
Source: Integrated Circuit Engineering Corporation

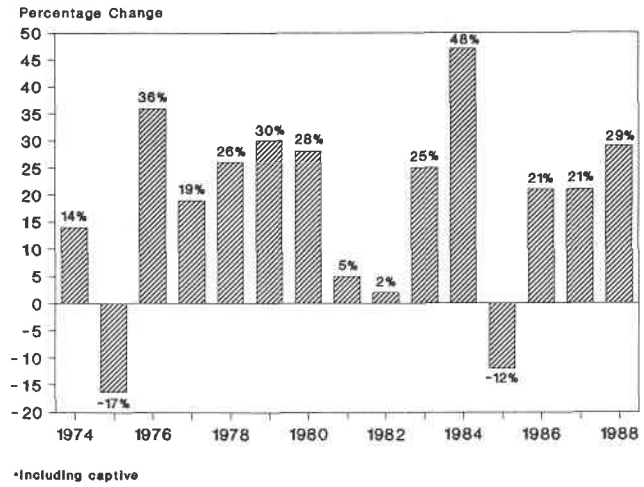
Integrated Circuit Engineering Corporation says semiconductor sales range between 11% and 14% of electronic equipment sales. Sales are in the 11%-12% range when an oversupply of integrated circuits has forced down the average selling price; they are in the 13%-14% range during periods when supply and demand are more evenly matched



See the figure on the next page

It's not a smooth ride. Semiconductor production growth rates[2] have been a complex function of semiconductor production capacity, semiconductor users' (OEMs') planned production of end-use equipment, OEMs' semiconductor inventory, bookings (orders counted at the time of the order), billings (orders counted at the time they are shipped and billed), and currency anomalies. Boom and bust cycles in OEM industries have a whiplash effect on the semiconductor industry.

Worldwide* Semiconductor Production Growth Rates ($)
1974 1988
Source: Integrated Circuit Engineering Corporation



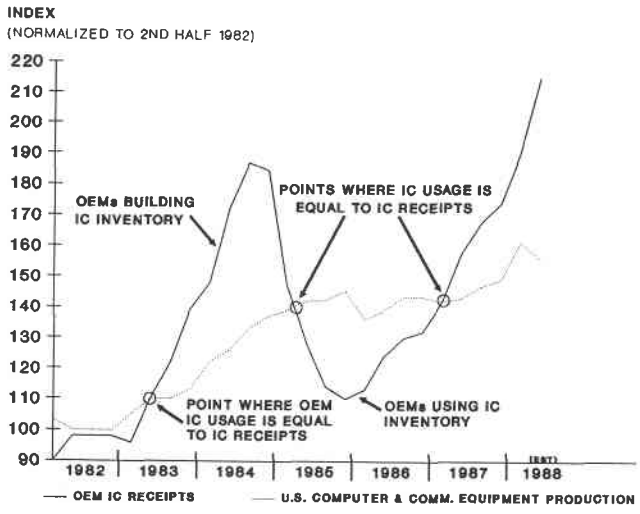
*Including captive

Overly optimistic ordering by too many companies caused excess production and inventory in 1984, which in turn caused the contraction in 1985. ICE notes that the high growth rates of 21% in 1986 and 1987 would have been less than 15%, had it not been for currency anomalies. ICE does an excellent job of making these complex issues easy to understand

The solution — well, we really don't have one yet

Bookings, billings and inventory of each OEM are dependent on the OEM's plan and performance against the plan in the end-use market. If his plan is overly optimistic or if he is pessimistic about getting all the parts he orders, the OEM may order too large a quantity or place duplicate orders with different companies. And when there are too many companies even in a growing market, e.g. personal computer manufacturers in 1984, their combined optimistic orders (bookings) are far beyond what will actually be absorbed by the end use market. A shake-out of OEMs occurs, the semiconductor parts inventory of the survivors increases, and the semiconductor companies are left holding the bag — bad news.

OEM IC Usage versus Computer and Communications Equipment Production (U.S.): 1982 - 1988
Source: Integrated Circuit Engineering Corporation



Since the woes of 1985, there have been U.S. accusations of dumping by Japanese companies, quotas by Japan, Inc. (MITI), attempts to set fair-market values (FMVs) by the U.S., screaming by OEMs about the lack of parts and price increases — and even plans by some OEMs, who had formerly used only merchant market semiconductor parts, to build their own semiconductor manufacturing capability. So generally we have taken the constraints off now and free-enterprise is back at work. . . . Stay tuned

Even if your mission does not require knowledge of day-to-day semiconductor industry trends, I recommend buying this report or ***STATUS*** *every year or so just to be sure about your basics. And at $345, it's a steal*

Its completeness is what makes this report unique — one place to look for what many executives in the semiconductor and related industries need to know about the semiconductor business. In addition to the economic update and analyses of both merchant and captive IC manufacturers, ***MID-TERM 1988*** covers developments in application-specific integrated circuits, process technology trends, hot IC products, IC manufacturing costs, and IC manufacturing quality trends. It concludes with a directory of companies offering services in the semiconductor field.

About Integrated Circuit Engineering Corporation

ICE grew up with the industry it serves

Integrated Circuit Engineering Corporation was founded in 1964 by Chairman Glen R. Madland to provide management consulting and technical services to the microelectronics industry. ICE, with 50 employees, is now the leader in its field.

ICE features the authors and graphic designers on the cover page. Terrific!

Helen's extensive background in technical and advertising art really shows. Thanks

The Makers of *MID-TERM 1988*

MID-TERM 1988 was edited by William J. (Bill) McClean who is ICE's Manager of Market Research. Contributors included Scott Hudson, Research Analyst; Richard Skinner, ICE's President; and Nancy Voorhaar, Research Analyst.

Graphic Design for ***MID-TERM 1988*** was done by Helen Pitcher, ICE's Manager Graphics Communication Division.

Other Products and Services

ICE offers other reports and seminars in addition to a full range of support services for the integrated circuit industry including: business consulting, acquisitions and divestitures, technical and market assistance in legal matters, technology planning, market research, laboratory services, manufacturing effectiveness analysis, manufacturing facility planning and in-house training of both management and technical staff.

For Additional Information about *Mid-Term 1988* Contact:

Integrated Circuit Engineering Corporation
15022 N. 75th Street
Scottsdale, AZ 85260

602/998-9780 Fax: 602/948-1925

1. Integrated circuit industry versus semiconductor industry. These terms are used almost interchangeably — not quite. Semiconductors includes discrete devices (single function, one-transistor devices) and integrated circuits (two or more functions per chip). So the integrated circuit industry, strictly speaking, excludes discrete devices.
2. Semiconductor production growth rate is calculated thus: the sales in dollars at the beginning of the year is subtracted from the sales at the end of the year, then the result is divided by the sales at the beginning. To obtain worldwide sales in dollars, foreign currencies must be converted. If the exchange rate is different at the end of the year from the rate at the beginning, the growth rate reflects the currency anomaly.

REVIEW

Managing the Merger of PCs and Engineering Workstations
Summit Strategies
and The S. Klein Library Series on Computer Graphics

It's for computer and software vendors. Priced at $1,495, its perfect-bound 254 pages (36 figures) are a pragmatic analysis of the changing facets of competition as the boundary fades between PCs and workstations. What's the difference? Roots. Personal computer vendors have their roots in the PC business. The roots of workstation vendors are in the workstation business. Today with the new generation of each coming off the line, a family tree is needed to tell who's who

After reading ***Managing the Merger of PCs and Engineering Workstations*** it's clear that the title may be wishful thinking. Can this clash be managed? Merger sounds too smooth. But there's no doubt that PCs and engineering workstations are squaring off on several fronts. The reason is simple — the relentless year-by-year decline in price for a given computer performance level, and its companion year-by-year increase in performance at a given price point. Simply put — personal computers are becoming enormously more powerful and workstations are on a steep price decline especially as they enter the upper limits of PC-dom. The storms of competition in PC-dom have a way of shrinking prices at a sometimes alarming rate.

Personal Computers and Workstations
Performance and Selected List Prices - Updated 9/20/88
Source: Workstation Labs (214/644-1733) and Summit Strategies

Platform	Khornerstones[1]	CPU	Price[2]
IBM PC/XT	321	8088	
IBM PC/AT (8 MHz)	814	80286	
IBM PS/2 Mod 50	958	80286	
Compaq Deskpro 386	1,941	80386	
Sun 3/52	2,200	68020	
IBM PS/2 Mod 80 (16 MHz)	2,265	80386	$13,945
Apple Macintosh II	2,400	68020	$10,794
Apollo DN 3000	2,582	68020	$12,400
Sun 3/160	3,017	68020	$12,900
Compaq Deskpro 386/20/DOS	3,927	80386	$12,313
Compaq Deskpro 386/20/UNIX	4,674	80386	
Apollo DN 4000	5,200	68020	
Sun 386i (25 MHz)	5,317	80386	
IBM RT PC	5,771	IBM RISC	
Sun 3/260	6,767	68020	
Sun 4/260	11,440	SPARC	
MIPS M120-5	23,218	R2000	

1. Khornerstones is a benchmark rating developed by Workstation Labs. It is based on a weighted average of 22 separate tests of I/O, CPU, and floating point performance. Measurements are linear.
2. Prices are list prices of configurations as near as possible to 4 Mbytes of memory, 70 Mbytes of hard disk, 16-inch high-resolution color display and 32-bit floating point coprocessor.

Summit Strategies gets good marks for its references to other researchers' material it used with permission. Even when Summit's presentation is a derivative of another researcher's information, the reference is given. Tom says his strength is analysis, not numbers, so he features numbers from other firms where needed. My only suggested improvement would be to set a good example for the press by giving the city or phone number of the referenced firm

These applications are characterized by the need for fantastic graphics and high-performance processors

Computer stores from below, specialized systems houses from above — from both directions they ride the price/performance curve of CAD/CAM/CAE and publishing platforms into the fray. Over a hundred interviews with distribution channel participants were done as background for this report. The goal — understanding, not quantitative results

Summit forecasts major shifts in market share between PCs and workstations in those application areas traditionally dominated by workstations. This chart shows changes between 1986 and 1990 by units shipped into each of five primary applications. The major reason given for expected gains by personal computers is their present and future dominance in third-party distribution. What's a workstation vendor to do? Summit says RISC will provide better price-performance in a fully scaled product line and workstation vendors have always had better integration and communication. . . . But that's another report (see next page)

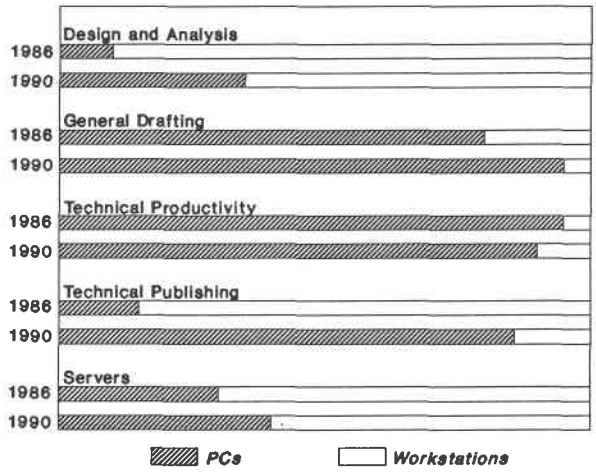
Summit Strategies . . . I didn't ask Tom how he came up with the name, but I can just see him standing atop a nice mountain, not too high, his hand shading his eyes as he scans the horizon of the computer industry for the big issues — the frontiers of change

Managing the Merger of PCs and Engineering Workstations focuses on those areas where the capabilities of PCs and workstations are merging. The battle is for the traditional workstation applications: CAD/CAM/CAE[1] and publishing. This report assesses the battle fronts for software company resources and distribution. It profiles the leading CAD/CAM/CAE and publishing software developers — where they have been and where they're going in terms of which platforms they are likely to support.

The report's major focus is on distribution channels which are pivotal for both software developers and computer vendors.

Will everyone find a niche, or will there be bodies all over before it settles out? This report dissects the players, including computer manufacturers, software publishers, and distribution channels — not just generally by type. Specific profiles of computer vendors, computer retailers and systems houses are presented with a look at their competitive strengths and weaknesses.

The Bottom Line -- Projected Market Share by Application Units Shipped -- PCs and Workstations -- 1986 and 1990 Source: Summit Strategies



The Author

Tom Kucharvy, founder of Summit Strategies, knows how to spot the regions of change in the computer business For a while it's been coming up graphics, graphical interfaces, workstations and PCs, especially the 32-bit arena. He's doing six reports a year right in the heart of the graphical, 32-bit cyclone.

Tom has long been interested in the macroscopic issues. His first degree in philosophy was followed by an MBA in Marketing, an MA in International Business and a J.D. His first career was as a tax attorney. His interest in business spans finance, marketing, distribution and international competition. It's easy to see how he landed in the computer business. He spent three years at The Yankee Group in consulting before he launched Summit Strategies in 1984.

Summit markets its services directly and individual reports are marketed by other companies such as Datek, and this one by Intertec

*I was planning to review **OS/2 Presentation Manager: Competitive Strategies in the New Graphical World**. I liked it. However, **Managing the Merger of PCs and Engineering Workstations** is more representative of Summit's present directions*

Tom recently added a salesperson to Summit Strategies' staff and introduced an annual planning service, which includes six reports and three days consulting ($7,895). The reports in the series are also available separately and include:

- ★ ***OS/2 Presentation Manager: Competitive Strategies in the New Graphical World***
- ★ ***Graphical Windowing Environments: Opportunities and Pitfalls for Graphics Hardware and Software Vendors***
- ★ ***Defining the Next Generation of Graphics Applications: Identifying and Driving New Markets***
- ★ ***The Battle Between CISC and RISC: Competing for Tomorrow's 32-Bit Graphics Market***
- ★ ***The Next Generation of PC Graphics Hardware: Capabilities, Markets and Competition***
- ★ ***Imaging Models: Defining, Assessing, and Implementing***

The Co-Publisher

The ***S. Klein Newsletter on Computer Graphics*** has served its readers since 1978 and now has over 2,000 subscribers. Recently the business was acquired by Intertec Publishing of Kansas City. An adjunct of the newsletter, The S. Klein Library Series on Computer Graphics, publishes reports on computer graphics and is the exclusive publisher of ***Managing the Merger of PCs and Engineering Workstations***.

For More Information on Summit Strategies Contact:

Summit Strategies
P.O. Box 774
Prudential Center Station
Boston, MA 02199

617/266-9050 Fax: 617/437-9655

For More Information about The S. Klein Library Series on Computer Graphics Contact:

The S. Klein Library Series on Computer Graphics
Intertec Publishing Corporation
730 Boston Post Road
Sudbury, MA 01776

508/443-4671 Fax: 508/443-8990

1. CAD/CAM/CAE — Computer-Aided Design/Computer-Aided Manufacturing/Computer-Aided Engineering

REVIEW

The Telecom Strategy Letter
Northern Business Information/Datapro

"Our goal is to identify discontinuities in the market both U.S. and worldwide that people can cash in on. We're looking for breaks, changes in how things work that will create opportunities for our readers."

— Sean White, Co-founder
Northern Business Information/Datapro

And they find 'em. At least often enough to keep subscribers coming back year after year.

Northern Business Information's Flagship

Started in December 1982, ***The Telecom Strategy Letter*** (***TSL***) is Northern Business Information's flagship monthly communication of its position on and analysis of key issues in the world telecom[1] industry. Subscribers are executives in RHCs[2], telecommunications equipment companies and foreign PTTs[3] — 250 of them in all. 40% are outside North America. Most are in marketing, sales and planning, but quite a number are CEOs. Many have been Northern Business Information subscribers and have shared the battle scars of the telecom business for years. They know the value of an early look at Northern Business Information's thinking.

*Each month's subjects are important and timely issues to telecommunications industry executives. **TSL** is done with a style that Northern Business Information has mastered — facts, figures, models, guesses, definitive positions, world perspective and depth of knowledge that could only be acquired through years of analyzing that Medusa we call telecommunications. Northern Business Information has no conflicts of interest — they do no consulting. It shows. They call it like they see it, no matter whose toes they stomp on*

***The Telecom Strategy Letter** is heavy information packed into 12-16 pages per month. At $995 per year, it appears expensive. Even at $995, it is an excellent value. The cost might be better rationalized if one thinks of it as a 160-page report on the critical issues in the world telecom industry, with occasional summary forecasts and strategic insights into major participants. Unlike most reports, it is delivered in monthly sections*

A world view — region by region
The Telecom Strategy Letter takes a world view — required because telecommunications equipment and services is a world industry and a world market. Its players include gigantic companies, governments, states, cities and even consumers. One gets the impression that Northern Business Information can discuss the PTT in Spain or the NTT[4] in Japan with as much depth as they can New York City's telephone system woes or IBM's transition to a telecom company — and they can certainly expound on these subjects.

It's a working document
Positions appear in ***The Telecom Strategy Letter*** as soon as they have started to jell. Several months later when these ideas have grown up, stood the test of even more research and perhaps even changed perspective, many will find their way into a research report, for example ***ATT: A Strategic Analysis*** (See ***Future Thinker*** #1) or ***Transmission Equipment Markets: 1988 Edition***. Subscribers like the insider feeling of participating in Northern Business Information's working ideas.

The Issues in the Issues

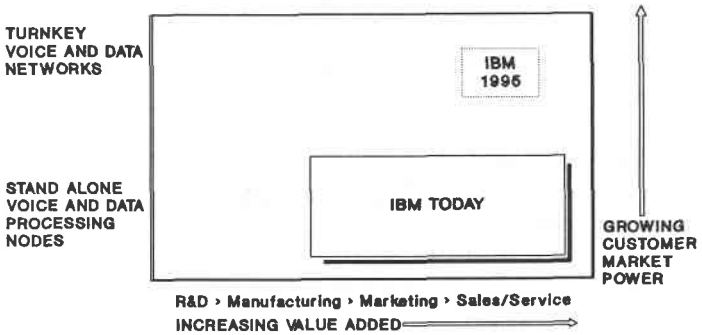
Each issue of ***The Telecom Strategy Letter*** is devoted to two or three subjects. Examples in recent issues include:

- ***The New Model IBM*** — see below.
- ***A New Marketing Framework at Northern Telecom*** — see below.
- ***AT&T and the RHCs*** — see below.
- ***Selling City Networks*** — A fascinating look at how to sell telecom equipment to each of America's nine largest cities.
- ***What the Crash of '87 Means to You*** — Excellent analyses of the historical relationships from 1925 to the present between GNP and telecom carrier revenues, carrier equipment purchases, and "Bell System" construction. The conclusions are for today.
- ***SONET*** — analysis of the next discontinuity in the U.S. public telecom market — Synchronous Optical Network.
- ***World Demand Forecasts*** — Forecasts and historical data 1982-1992 by region of the world, equipment type and supplier.

Here are glimpses of a few Northern Business Information views —

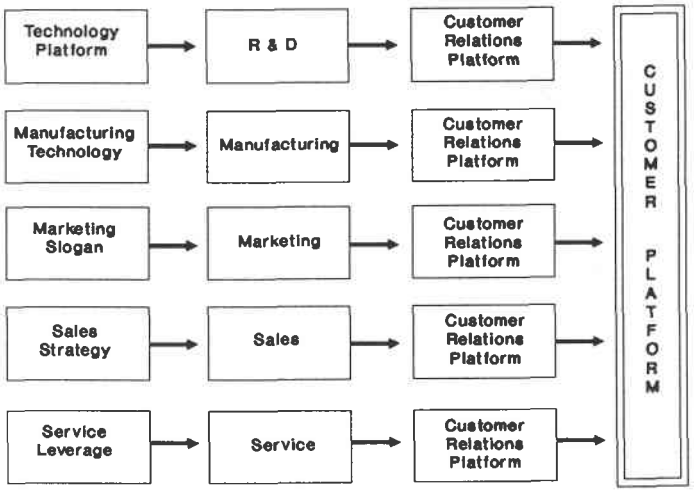
The New Model IBM
"IBM has announced its new mission: network management. During the next decade IBM will transform itself from a hardware-dependent computer vendor to a value-added supplier of network and information management services. . . . Our most important conclusion is this: computers begone — today IBM is a $54 billion telecom company, whose size and capabilities overshadow every other telecom operation in the world. You have been told." — ***TSL***

IBM: Strategic Repositioning 1985-1995
Source: Northern Business Information/Datapro



A New Marketing Framework at Northern Telecom
"Northern Telecom is turning traditional marketing strategy on its head. . . . New methods of integrating customer relations and product development may change forever the way high technology companies do business. . . . A Technical Advisory Council, of 22 of its most important customers and Bellcore[5], suggests, approves, and advises on all new features and functions. . . . in effect the company s virtual design management team." — ***TSL***

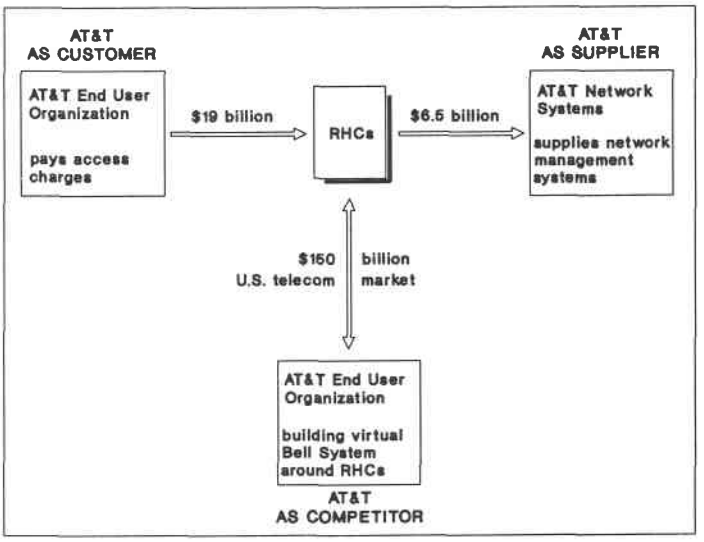
Northern Telecom Marketing Platform
Source: Northern Business Information/Datapro



AT&T and the RHCs

"The RHCs have a problem with AT&T: their former parent is at once their largest supplier, their largest customer, and their largest competitor. Under such circumstances, relations can easily become charged with emotion. And emotion-laden business decisions, needless to say, are usually bad ones. . . . To mature in the post-divestiture environment, the RHCs must compartmentalize their relations with AT&T. The government created the unusual mix of relationships the RHCs must maintain with AT&T; ongoing regulation often exacerbates difficult relationships. However, there is no reason why AT&T and its former operating companies cannot all benefit from the underlying strength of the market." — ***TSL***

AT&T and the RHCs: Points of Conflict
Source: Northern Business Information/Datapro



Regional Holding Companies' Attitudes to AT&T
Source: Northern Business Information/Datapro

Ameritech — Excellent; remains a prime customer of AT&T; AT&T-Network Systems will connect its new test bed facility to Illinois Bell's network.

Bell Atlantic — Excellent; AT&T is the biggest customer in New Jersey, and Bell Atlantic knows it; Bell Atlantic is AT&T's #1 RHC CO[6] switching customer, and #2 transmission customer; Bell Atlantic is increasing CO purchases from Siemens to improve leverage.

BellSouth — Has made a big shift to Northern Telecom for network systems; Southern Bell alone slashed purchases from AT&T by a staggering $150 million in 1987; remains AT&T-NS's largest RHC transmission customer.

NYNEX — Like BellSouth, largely a Northern Telecom shop for CO switching, but AT&T's third-largest RHC transmission customer; will move increasingly to Ericsson for CO switching; is very worried about AT&T's Tariff 12; wants Bell Labs-type relationships with largest suppliers, especially Northern Telecom.

Pacific Telesis — Always a renegade. Pacific Telesis has no special regard for AT&T; increasing purchases from Northern Telecom; will not standardize on AT&T for fiber terminals.

Southwestern Bell — Remains an AT&T ally.

US West — Strong, independent identity; has used new AT&T-NS Feature Interactive Verification Environment and is very impressed; AT&T's largest RHC microwave customer; however, US West dislikes AT&T intensely and will move against the company at the first opportunity.

The People Behind *The Telecom Strategy Letter*

*When I asked Sean White what makes **The Telecom Strategy Letter** successful, he responded candidly, "You know, to tell you the truth, I have no idea." Well, I know. It's the same as what makes Northern Business Information successful — the people are first class and have a deep commitment to serve the industry that is their home*

Bill Rich recently replaced Francis McInerney, Northern Business Information co-founder, as editor of ***The Telecom Strategy Letter***. Francis has more time now for new product development. A seasoned analyst, Bill spends much of his time working with other analysts to help them focus their thinking and hone their views for ***TSL***. ***TSL*** articles are prepared by most Northern Business Information analysts as part of the first phase of each new research project.

Other Northern Business Information Products

All Northern Business Information products are for the telecommunications industry. In addition to its flagship monthly, ***The Telecom Strategy Letter***, Northern Business Information offers ***Dossier: Continuous Information***, a family of annual research services including: ***Private Telecom Networks***, ***Telecom Service Markets***, ***World Telecom Markets***, ***Public Telecom Networks*** and ***Canadian Telecom Markets***. ***Dossier*** services includes reports, databases in both paper and electronic form, newsletters, inquiry services, client briefings and indices. Each service costs $22,500 per year, except ***Canadian Telecom Markets*** which is $13,500.

Northern Business Information also offers standalone reports such as ***Centrex Market Opportunities: 1988 Edition***, ***Transmission Equipment Market: 1988 Edition***, ***Central Office Equipment Market***, and ***IBM Telecom: A Strategic Analysis***. Reports are typically $1,995.

For Additional Information about *The Telecom Strategy Letter* Contact:

Northern Business Information/Datapro
P.O. Box 1051
New York, NY 10008

212/732-0775 Fax: 212/233-6233

1. Telecom — short for telecommunications
2. RHC — Regional Holding Company. Created as part of the AT&T breakup, the seven RHCs operate the local telephone companies throughout the U.S.
3. PTT — Post, Telephone & Telegraph. Each European country has a PTT, typically either a division of the government or government controlled.
4. NTT — The Japanese telephone company.
5. Northern Telecom's customers include all the RHCs as well as many other telephone companies around the world. Bellcore is the RHCs' shared research and development company created during the AT&T breakup.
6. CO — central office, meaning telephone company public network switches.

REVIEW

EDI Yellow Pages
EDI, spread the word!

People don't just become involved in EDI. They believe in EDI. And EDI, spread the word! is fulfilling the promise of its name

According to Bob Payne, Partner at EDI, spread the word!, some companies report savings of as much as $1-$2 per piece of paper replaced, plus a reduction in their fixed costs

Electronic data interchange (EDI) promises to reduce the paperwork of placing orders, shipping and billing, along with the errors introduced by the data entry at each end of the transaction, not to mention improved relationships with customers through better control of this critical interface.

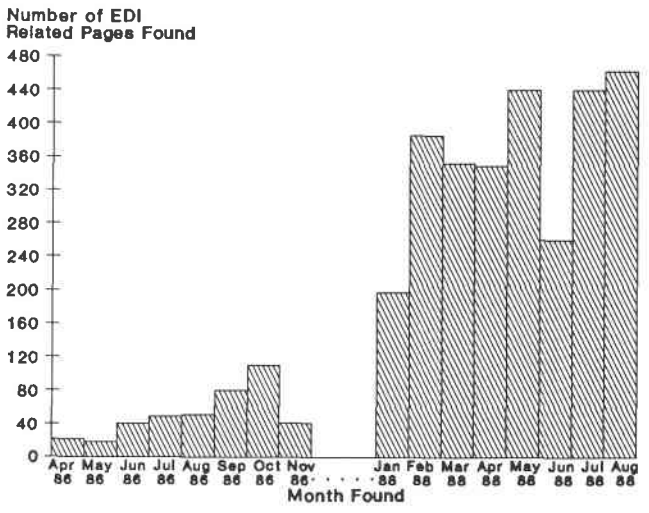
With EDI, the data defining an order are encoded in a standard way and transmitted directly from the computer of the buyer to the computer of the seller. The shipping order and invoice goes back in the same way — computer to computer. No paper! No data entry!

What The World Needed Was an EDI Book — Sorta Like a Phone Book, but . . .

*If you're ready to use EDI, you need trading partners who also use EDI. The **EDI Yellow Pages** is where to find 'em. I can just see those purchasing agents sitting there reading **EDI Yellow Pages** and discovering that some of the companies they do business with are ready to connect with EDI — it must be the same as in the early days of the telephone when one person discovered that someone they wanted to call also had a phone — Eureka!*

The ***EDI Yellow Pages*** is much more than a book in which to look up phone or network numbers of companies with whom you might wish to do business electronically, although it is that also. It is a place to learn about EDI, EDI vendors and the products and services they provide. It is a place to assess the growth of the EDI industry. It is a place to identify companies that are implementing EDI. It is a place to feel the enthusiasm that EDI, spread the word! has for its role in helping create this important new way of doing business without a single piece of paper changing hands. There's even an EDI glossary and a calendar. All that for $22.45.

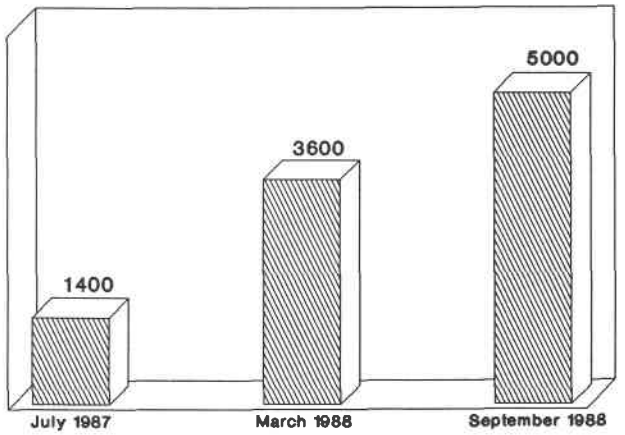
Pages of Press Articles About EDI
April 1986 - August 1988
Source: EDI, spread the word!



*EDI, spread the word! also offers a bibliography, clipping service and library on EDI. Articles on EDI appear in the leading business and computer industry publications, and other interesting places — **Journal of Commerce and Commercial, Journal of Cash Management, Shipping Digest, Modern Paint & Coatings, Modern Purchasing, Material Management & Distribution,** and . . . . You get the idea. EDI, spread the word! also gets great press mention. For example, recently in **Business Week***

There's one free listing per division of a company (EDI user). EDI software, consulting and network companies are charged $96. The growth in listings reflects the growth in EDI activity. The new edition includes European listings in addition to U.S. and Canadian. ***EDI Yellow Pages*** *has also grown in circulation — 5,000 the first edition, 10,000 the second and the third is just out. Several trade associations give it to new members; EDI training companies purchase it for students, and some EDI service suppliers are personalizing* ***EDI Yellow Pages*** *for distribution to their clients and prospects*

Growth in the Number of Listings in EDI Yellow Pages
Source: EDI, spread the word!



In the Beginning

It's one of those classical information business start-ups that are my favorite stories (I'm collecting them for a book)

There was a need understood by an expert in the field. First, it was served by a consulting practice. Then the need for published information became clear to this industry guru long before any one else saw it or was interested. The need was so great that, besides the cash flow from the consulting practice, early advance purchases of the information product (in this case, ***EDI Yellow Pages***) funded it. ***EDI Yellow Pages*** had advertisers in the first edition that paid the printer bills. And they've been on a roll ever since. Someday they will have the opportunity to decide whether they want to keep the business or sell to one of those big information conglomerates who missed the EDI boat.

The People Behind the Pages

Bob and Anna Lee are husband and wife now, but not so when they started EDI, spread the word! I wonder what we can learn from that . . .

Anna Lee Payne and Bob Payne are partners in EDI, spread the word! Anna Lee spends most of her time with ***EDI Yellow Pages*** and ***EDI Clipping Service*** when she is not championing the cause of EDI at trade shows, professional society meetings and wherever else there is interest. Bob does his share of EDI championing, also. He is one of the EDI industry's leading consultants. His daily fare is EDI vendor strategies and EDI user implementations. Prior to starting EDI, spread the word!, Bob was with GE Information Services as Senior EDI Consultant — he's been in EDI since before it was called EDI.

For More Information About *EDI Yellow Pages* Contact:

EDI, spread the word!
13805 Wooded Creek Drive, Suite 100
Dallas, TX 75244-4754

214/243-3456

PROFILE VLSI Research, Inc.

It's an American dream — the successful family-owned business. Jerry Hutcheson (pop) brought topnotch technical and market expertise in semiconductor manufacturing equipment. G. Dan Hutcheson (son) brought economic and business perspectives. Lynda Hutcheson (mom) brought administrative ability. A CPA daughter does the year end books. But this old-fashioned idea has a very modern twist — they sell information to companies who manufacture equipment used in making semiconductors, which are the fundamental building blocks of information technology, which is enabling the explosion of the information age. Thanks

It's as unlikely a business as you'll ever find. But there they are — firmly rooted in a market that most would say is much too fragmented, and populated by companies much too small to support an eighteen-person market research firm. But support them it has since 1975 — first as a one-man technical consulting business started by Jerry Hutcheson, a veteran of early Silicon Valley institutions such as Motorola, Fairchild and Signetics. In 1979 Dan joined to apply his knowledge of economics to the market for semiconductor equipment, an interest that had been foreshadowed by his earlier analysis of electronics as a market for gold. The plan was to publish information for the companies that had been Jerry's clients for years. In 1980 they launched ***The VLSI Manufacturing Outlook***, a subscription service for semiconductor equipment manufacturers.

They have fared well. Sales for the year ending September 30 will be a little over a million. Through the turmoil of the semiconductor industry, even the 1985 downturn, they have given employee bonuses. They have survived competitors who have never quite gotten hold of VLSI Research's primary market — semiconductor equipment manufacturers.

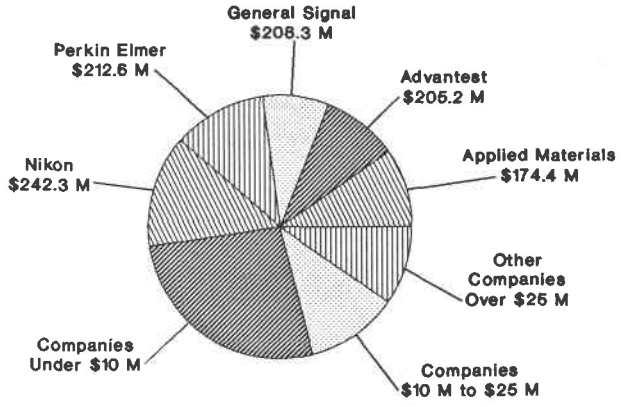
Semiconductor Equipment Manufacturers

Each semiconductor equipment manufacturer is like a little Ferrari S.A. — it builds a very-high-performance machine for a few customers. Typically it sells 200 pieces of equipment per year, grosses $11 million in sales and has 120 employees

Semiconductor Equipment Manufacturers design and build the equipment used in the manufacturing of semiconductors — equipment like projection aligners, E-beam direct-write systems, probers, steppers, diffusion furnaces and ion implanters. The nearly 600 semiconductor equipment manufacturers include such companies as Perkin-Elmer, Hitachi, LAM Research, Nikon, Megatest, Kulicke & Soffa, and Teradyne.

Only 50 are above $25 million in semiconductor equipment sales. Only 88 are above $10 million. How many companies have you known below $10M who buy much market information? The founder knows the business cold and at that size the whole company can be very close to its customers. A sanity check would be nice, but is frequently considered too costly. VLSI Research is in a tough market. But in it they are — others have tried, and most appear to have faded away

Semiconductor Equipment Manufacturers



600 Companies • $5.4 Billion in 1987

Few of these companies compete head-to-head. Segments encompass widely diverse technologies including electronic, mechanical, optical, thermal and plasma (vacuum). VLSI Research divides the market into three major segments:

Questor Systems[1] comprise 35% of the semiconductor equipment market. Questor Systems are further segmented by VLSI Research into nearly 100 equipment types. 225 companies participate

- Questor Systems[1] — Design Affirmation Systems (e.g. CAD interface tools), CIM Systems (e.g. global CAM), Process Diagnostics (e.g.mask inspection), Automated Test Systems (e.g. logic ATE) and Materials Handling (e.g. IC handlers & laser repair).

Wafer Fabrication Equipment is 50% of the semiconductor equipment market. 215 companies serve needs in nearly 60 different VLSI Research-identified equipment types

- Wafer Fabrication Equipment[2] — Microlithography (e.g. mask making equipment), Diffusion/Oxidation (e.g. diffusion furnaces), Ion Implantation (e.g. high energy), Deposition (e.g. chemical vapor deposition), Etching & Cleaning (e.g. dry etching and cleaning) and Wafer Manufacturing (e.g. crystal growing furnaces).

11% of the market. Nearly 35 equipment types. 140 companies

- Assembly Equipment[3] — Dicing (e.g. sawing), Bonding and Inspection (e.g. die bonding) and Packaging (e.g. mold & seal).

It's like saying that copiers, computers and staplers are the same market because they are all found in offices

Fragmented? It's much worse than fragmented. It includes markets for 200 different types of equipment, with little manufacturer overlap, lumped together because they are all used in fab lines.[5]

Information Needs

Needs of semiconductor equipment manufacturers

Fortunately these disparate businesses have some common information needs —

VLSI Research's information products are packed with technical understanding

- They need a thorough understanding of present and future semiconductor manufacturing technology — both that which they supply and all the adjacent technologies.

VLSI Research profiles 200 equipment segments and the technology and competitors within each

- They need to know about each other — some are competitors, some are co-creators of the next wave of semiconductor manufacturing technology.

VLSI's forecasts for the semiconductor industry are from the point of view of equipment suppliers. They publish their forecasting record. . . . I'm impressed!

- They need to know about their common customer — that seemingly impossible to predict semiconductor industry. They need to forecast periods of expansion and contraction of equipment purchases.[4]

VLSI does not provide detailed information on semiconductor companies as it is available elsewhere. Among what they do offer a database of the 1500 fab lines operated by semiconductor companies

- They need information about specific semiconductor companies from the point of view of a company selling to them. Besides a competitive profile and a supplier-relationship profile, they need detailed information about present and future semiconductor fab lines.

VLSI Research presents original research on the economics of semiconductor manufacturing

- They need to understand the economic foundation for semiconductor equipment purchases by semiconductor companies.

VLSI Research's annual survey of purchasers rates semiconductor equipment suppliers

- They need to know how their customers perceive them *viz-a-viz* their competitors, from an objective source.

VLSI Research gets excellent reviews for its understandable explanations of a market that is astonishingly complex in both its foundations — technology and economics. The appeal is to both the expert and the newcomer. No wonder their competitors have found them difficult to displace

They usually lose a prospective client only when the need is for broader-based semiconductor industry information without the specific focus on equipment

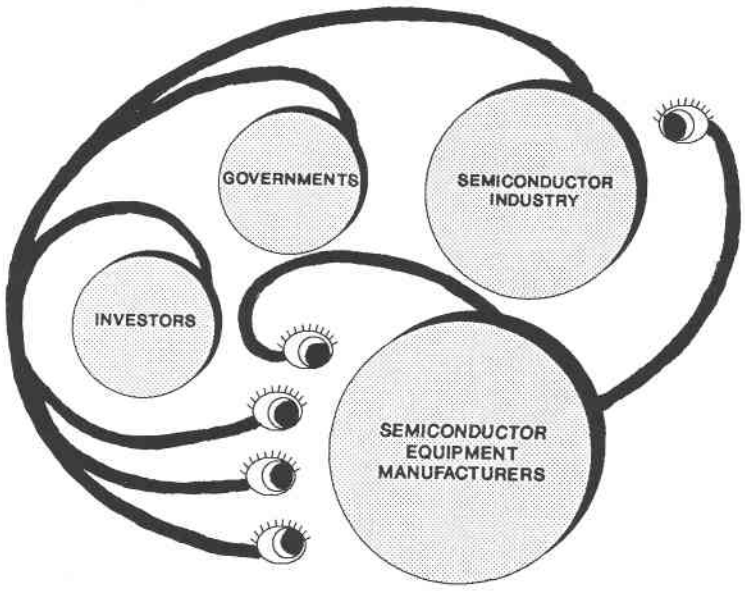
Semiconductor equipment manufacturers do about $750K in business per year with VLSI Research, semiconductor manufacturers another $200K and financial companies $50K. Next year Dan thinks governments' business will be 2% of total.

In this chart each eye (VLSI Research) watches and analyzes one segment of the industry for another which pays for the service. Enjoy!

Of course, semiconductor equipment manufacturers have some of this knowledge and can gather much of the rest themselves. But at what cost? And is it objective? And available year after year from a consistent source? The typical equipment manufacturer plays "bet your company" on its ability to call the next step-function in semiconductor manufacturing technology and create the right product to fill a niche within it. They get one chance. Good market information is basic.

Semiconductor companies and investors buy too
Semiconductor manufacturers like the user perceptions, the manufacturing technology trends and the information about their key suppliers. Investors who need very specific information about equipment manufacturers are also clients.

VLSI Research's Revenue Sources



Semiconductor equipment manufacturing could easily be regarded as a critical national resource

Government organizations are a small but growing market for VLSI Research. For example, MITI[6] and the U.S. Department of Commerce have recently become interested in VLSI Research's economic models.

The Information Products

60%-70% of VLSI Research's business is now in published information products, up from 20%-30% in 1982 and 0% in 1979. The transition from consulting to publishing has been successful

The hub product is ***The VLSI Manufacturing Outlook***, an annual service priced at $14,750 the first year and $11,500 in subsequent years. With over 60 subscribers (over 100 including multiple copies to the same company), it is the largest revenue source. It includes three large binders of initial material, quarterly updates, ***The VLSI Industry Newsletter***, unlimited inquiry privileges, and a 30% discount on consulting.

The VLSI Industry Newsletter ($395/year) and telephone consultation ($125-$140/hour) are available *ala carte*. Other products include: the ***Worldwide Wafer Fab Database*** on diskette ($2,000/year), the semi-annual ***VLSI Manufacturing Forecast*** ($25), the ***VLSI Manufacturing Industry Telephone Directory*** (first year, $500. updates, $150), use of the VLSI Research library, and an occasional report, e.g. ***Cleaning Systems*** ($3,950).

*A review of **The VLSI Manufacturing Outlook** annual service will appear in **Future Thinker** soon*

For Additional Information about *Software Management Strategies Service* Contact:

Gartner Group
56 Top Gallant Road
Stamford, CT 06904-2212

203/964-0096 Fax: 203/324-7901
Telex: 643 528

1. DB2 — IBM's database manager. First shipped in 1984, DB2 is now the database manager of choice for large IBM installations according to Gartner Group.
2. SAA — Systems Application Architecture. According to Gartner, SAA was introduced by IBM as a means to software portability and skill leverage. It is a set of interfaces and protocols that will evolve into what IBM hopes is a universal computing architecture.
3. IMS — Information Management System. According to Gartner, IMS is now IBM's strategic subsystem for only very high-speed database/data-communications applications. DB2 is to be used in normal database applications. IMS will continue to be found for some time in OLTP applications where speed is sacred.
4. Database strategy versus SQL strategy — A database is a specific program product strategy, not suitable for the new age of software in which interfaces are sacred, not particular programs. SQL is an interface. So design to the language, SQL, not a particular database program that implements it.
5. FUD — Fear, Uncertainty and Doubt. We all have experienced it. But some would say that IBM has mastered using FUD to its advantage around the shops of large computer users. When FUD is rampant, the arms of IBM look better and better.
6. Big Five — The Big Five non-IBM software companies: ADR, CCA, Cincom, Culinet and Software AG.
7. Big Seven — Big Five plus Oracle and RTI.
8. SQL — Structured Query Language. According to Gartner, SQL is a relational data language that provides a consistent, English keyword-oriented set of facilities for query, data definition, data manipulation and data control. SQL is rather user vicious (a Braudeism), and its most fruitful position is as a protocol for software-to-software connectivity, rather than for human-to-software access.
9. OLTP — Online Transaction Processing. According to Gartner, OLTP is one of the fastest-growing segments of the computer industry, showing a compound annual growth rate of more than 30 percent. Transaction processing distributes data and puts it online where it can be instantly updated to reflect changes as they occur.
10. Repository — According to Gartner, the Repository is an IBM initiative consisting of a DB2 application that offers a single point of definition for all enterprise (company-wide) objects. Many hope it will stimulate both program and installation management productivity.
11. NCVI — Net Contract Value Increase. The increase in the value of subscriber contracts. It's the basis for the way service heads and sales people at Gartner are measured and paid.
12. Okay. I confess. It's my opinion (not necessarily Gartner Group's) that the layers of system software rumbling around in those big computers remind me of a churning swamp — sometimes even a seething, churning swamp complete with alligators and other swamp varmits. But I do love the Cajun cooking — at least the vegetarian part.

Believe it or not, I once made a living doing software to interface foreign peripherals to IBM S/360 operating systems. Yuck! That was about 1973 for those of you who count. Of course, the world of mainframe software has changed since then. . . . . But not as much as we had hoped

The Organization

There is one. But it's more like a doctor's office than a business. VLSI Research arrived at this understanding of itself the usual way — the School of Hard Knocks

Jerry is CEO. Dan is President. Lynda is Vice President of Administration. The titles don't mean much. Jerry and Dan are the main revenue generators of the company. The rest of the people are there to support them — like a doctor's office.

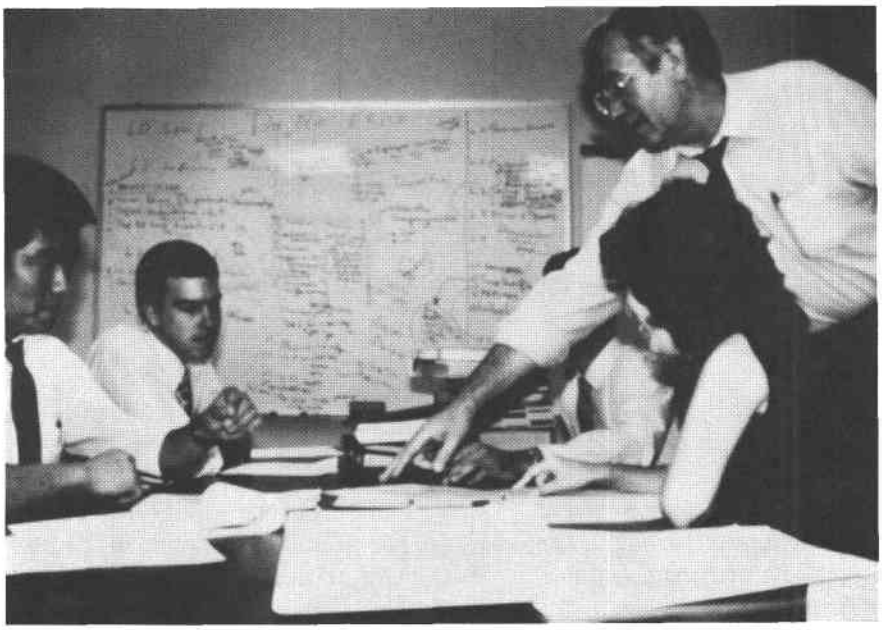
Jerry and Dan share in managing the company. But they take turns doing consulting versus doing the publications. A year or so's a good turn. They switch when they feel like it. In addition to Jerry and Dan, seven people are in research. In addition to Lynda, eight people are in administration.

My opinion — sales is still too much like its consulting business roots. My recommendation — hire a good Dataquest-style salesperson with an incentive plan like Gartner Group. My guess — 20% more business each year

Jerry does most of sales related to consulting. Dan handles the rest of sales, PR and marketing. There are no additional staff dedicated to sales. They get lots of press mention. That brings the leads — even from Japan and Europe (no agents). Jerry or Dan follow up. It's hard to mix sales with research and consulting, but they have certainly been successful.

VLSI Research at Work

VLSI has attracted some good people. Debra Matsuhiro started at VLSI Research when she was a student in business at San Jose State. Now she is Industry Research Manager. This photo shows Jerry, Debra, Larry Lee and Robert Frizzell in a data discrepancy meeting. These meetings are held when there is conflict between information from different sources. They pick one, average them, or whatever else seems appropriate. Oh, the woes of the data fiddler



The Future

Jerry wants to retire someday (10 or so years) and Dan wants a new sports car every now and then (the company just bought him a new Porsche 944)

I can identify with that

They tried their hand at growing an information conglomerate. They added additional information product lines during the 1983-1984 computer industry expansion. But they found they spent too much time managing (not to their liking nor their strongest talent) and not enough time being the semiconductor equipment industry's best analysts.

Now they are back to doing what they do best and loving it. The shot at expansion helped clarify their goals. Rich might have been nice but at what cost? The goals of VLSI Research are now clear — to serve the industry that supports it, to keep America's semiconductor equipment industry the best, to run a good "doctor's office" family business, to take care of its employees and to have fun — not necessarily in that order.

For Additional Information about VLSI Research, Inc.

VLSI Research, Inc.
1754 Technology Drive, Suite 117
San Jose, CA 95110

408/289-9983 Fax: 408/437-0608

"Questor" is derived from the word "Quaestor" which was an ancient Roman judge or official concerned chiefly with financial administration

1. Questor Systems — a term coined by VLSI Research to encompass those types of equipment used in the design, verification, handling, inspection and testing of integrated circuits — that equipment that makes up the nerve center of a factory. Questor Systems are defined by VLSI Research as portions of global factory networks whose purpose is to collect and pipeline data for administrative and control purposes. Questor Systems consist of host computer, small networks, test equipment, inspection equipment and miscellaneous process monitors.
2. Wafer Fabrication Equipment, according to VLSI Research, consists of all those types of equipment used in making and processing raw wafers in forming the finished chips, whether they be discretes or integrated circuits.
3. Assembly Equipment, according to VLSI Research, consists of those types of equipment used to separate the completed wafer into its dice and to assemble each die into its own package.

Lots of luck!

4. Usually even the semiconductor companies cannot predict their own capital equipment buying plans. VLSI Research gives us the reason — new semiconductor capital equipment purchases are proportional to the rate of change of the semiconductor market. Try predicting that!

To set up a fab line today, VLSI Research says, takes $100 million compared to $9 million in 1975

5. Fab line — semiconductor wafer fabrication line — An assembly line for semiconductor devices. Each line produces a particular type of device and uses a different set of equipment depending, in part, on the semiconductor device being manufactured.
6. MITI — Japan's Ministry of International Trade and Industry. If there is such a thing as Japan, Inc., MITI is the Board of Directors.

Future Thought

Bet you didn't know that hyperchronic managers create the future

"Some managements are 'anachronic', habitually behind the times. Others are 'synchronic'. They stay up to date, stay with the times, go with the flow. . . Some are — very few — 'hyperchronic'. The hyperchronics create the future which others have to catch up with. They are determined to always be pace-setters. Determined to be ahead of the times, they live on the cutting edge, breathing the thin air of a high speed life."

— *The Management of Change*
A Newsletter by F. Derm Barrett
Management Concepts Limited
31 Pine Ridge Drive
Scarborough, (Toronto), Ontario
M1M 2X6 Canada

416/264-4361

More Good News

Eighty-eight Market Information Publishing Companies Have Agreed to Cooperate with *Future Thinker* Reviews

The good news — when completed, even our first ***Companies*** *directory will be much more complete than we had hoped. The bad news — we must impose on your patience. We had planned late September. Looks like Early November. Remember* ***Future Thinker*** *subscribers get the First Edition free. In* ***Future Thinker*** *#1, I estimated that there were 150 companies in the U.S. (perhaps another 150 outside the U.S.) providing reports, seminars, conferences, planning services, information services, databases, multiclient studies, directories, newsletters and other forms of non-advertising sponsored information for vendors and users in the computer, telecommunications, electronics and office products industries. Since we have verified 150 of these companies already, it is apparent that my original estimate was low. How low? At our present rate of new finds, there could be another 100 companies*

New since last issue are starred (★)

See ***Future Thinker*** #1

See ***Future Thinker*** this issue

Several readers have asked for more information about companies listed here and for our list of companies who have not yet agreed to cooperate. Subscribers to ***Future Thinker*** will receive both in the 1st Edition of ***Future Think Companies***, our directory of market information publishing companies in the computer, telecommunications, electronics and office products industries. It will be available soon. Our major challenge with its production is that our research staff has recently been loaded with calls from market information publishers who had been either unknown to us, or challenging to locate. Now they are finding us and we are grateful. Several ***Future Thinker*** subscribers have also been very helpful in providing us with the names and complete address of companies not on this list, many of whom we had not known or had not been able to locate.

Our Apologies

We apologize to DATEK and Parks Associates — we published incorrect phone numbers in the last issue — at least we had the city and state correct.

Our Thanks

Every day a few more market information publishers become positive about Future Think's plan. And so they should. I see our role as being an advocate for excellence in market information publishing. Of the 150 market information publishing companies that we have contacted, 88 have agreed to cooperate with ***Future Thinker*** reviews. They are:

✓	Able Communications Milpitas, CA	408/945-1484
✓	Adscope Goldendale, WA	509/773-3701
✓	AIM Consulting & Publications, Inc. Natick, MA	508/653-1622
✓	Architecture Technology Corporation Minneapolis, MN	612/935-2035
✓	Associated Research Services Dallas, TX	214/644-1733
★	R. R. Bowker (Abstracting & Indexing Division) New York, NY	212/645-9700

★ Brooktree Corporation
San Diego, CA 619/452-7580

✓ Business Communications Co. Inc.
Norwalk, CT 203/853-4266

✓ Business Technology Research
Wellesley Hills, MA 617/237-3111

✓ Broadview Associates
Ft Lee, NJ 201/461-7929

★ CAD/CAM Publishing, Inc.
San Diego, CA 619/488-0533

✓ California Technology Stock Letter
San Francisco, CA 415/982-0125

✓ Camarro Research
Fairfield, CT 203/255-4100

★ Cambridge Communications
Arlington, MA 617/643-5700

★ Cambridge Report on SUPERCONDUCTIVITY, The
Cambridge, MA 617/494-6506

See ***Future Thinker*** next issue

✓ CAP International, Inc.
Norwell, MA 617/982-9500

See ***Future Thinker*** next issue

✓ CASE Research Corporation
Bellevue, WA 206/453-9900

✓ CCMI/McGraw-Hill
Ramsey, NJ 201/825-3311

✓ CIMI Corporation
Haddonfield, NJ 609/354-1088

★ Communications Trends, Inc.
Larchmont, NY 914/833-0600

✓ Computer Industry Almanac
Dallas, TX 214/231-8735

✓ Computer Intelligence
La Jolla, CA 619/450-1667

✓ Computer Shoptalk
Millburn, NJ 201/376-8181

★ CorpTech
Wellesley Hills, MA 617/237-2001

✓ Creative Strategies Research International
Santa Clara, CA 408/245-4750

See ***Future Thinker*** #1

✓ Datapro
Delran, NJ 609/764-0100

✓ Dataquest
San Jose, CA 408/437-8000

✓ DATEK Information Services
Newtonville, MA 617/893-9130

★ Digital Consulting, Inc.
Andover, MA 508/470-3880

See ***Future Thinker*** #1

✓ DISK/TREND, Inc.
Mountain View, CA 415/961-6209

See also Langley Publications

✓ Diversified Data Resources
Falls Church, VA 703/237-0682

★ DM Data, Inc.
Scottsdale, AZ 602/945-9620

See ***Future Thinker*** this issue

✓ EDI, spread the word!
Dallas, TX 214/243-3456

✓ EDI Strategies
Marietta, GA 404/973-4683

	✓ EDventure Holdings, Inc./ Release 1.1 New York, NY	212/758-3434
See *Future Thinker* #1	✓ Electronic Trend Publications Saratoga, CA	408/996-7416
	✓ ElectroniCast San Mateo, CA	415/572-1800
See *Future Thinker* next issue	✓ FIND/SVP New York, NY	212/645-4500
	✓ Focus Research Systems West Hartford, CT	203/561-1047
	✓ Forrester Research Cambridge, MA	617/497-7090
See *Future Thinker* #2	✓ Frost & Sullivan New York, NY	212/233-1080
	✓ Future Computing Dallas, TX	214/437-2400
See *Future Thinker* #2	✓ Future Technology Surveys Madison, GA	404/342-9638
See *Future Thinker* #2 & this issue	✓ Gartner Group Stamford, CT	203/964-0096
	★ Industry Market Reports, Inc. Los Altos, CA	415/941-6679
	✓ Infonetics Santa Clara, CA	408/746-2500
	✓ Information Gatekeeper, Inc. Boston, MA	617/738-8088
See *Future Thinker* next issue	✓ Input Mountain View, CA	415/961-3300
See *Future Thinker* #2	✓ In-Stat Scottsdale, AZ	602/860-8515
	✓ Institute for Graphics Communications Boston, MA	617/267-9425
	★ Institute for the Future Menlo Park, CA	415/854-6632
See *Future Thinker* #2 & this issue	✓ Integrated Circuit Engineering Corporation Scottsdale, AZ	602/998-9780
	★ Intelligent Systems Analyst New York, NY	212/645-2066
	✓ International Data Group, CD ROM Continuous Information Service Peterborough, NH	603/924-9471
	✓ International Planning Information, Inc. Redlands, CA	415/364-9040
	✓ International Resource Development, Inc. New Canaan, CT	203/966-2525
	✓ International Technology Group Los Altos, CA	415/941-2433
See *Future Thinker* this issue	★ Intertec Publishing Corporation c/o Computer Graphics Review Sudbury, MA	508/443-4671
	★ Jupiter Communications Company New York, NY	212/941-9252
See *Future Thinker* #2	✓ Langley Publications, Inc./ CD Data Report Falls Church, VA	703/241-2131
	★ Ledgeway Group, The Lexington, MA	617/862-8500

	★ Magnetic Press, Inc. New York, NY	212/219-2831
	★ Market Information Center, Inc., The Marlborough, MA	617/460-0880
	✓ Market Intelligence Research Co. Mountain View, CA	415/961-9000
See *Future Thinker* #1	✓ National Software Testing Laboratories Philadelphia, PA	215/878-9300
	✓ Neal Nelson & Associates Chicago, IL	312/332-3242
See *Future Thinker* next issue	✓ Newton-Evans Research Company Ellicott City, MD	301/465-7316
See *Future Thinker* #1 & this issue	✓ Northern Business Information/Datapro New York, NY	212/732-0775
See *Future Thinker* this issue	✓ Parks Associates Dallas, TX	214/392-9855
See *Future Thinker* #2	✓ Patricia Seybold's Office Computing Group Boston, MA	617/742-5200
	✓ P.C. Letter Redwood City, CA	415/592-9192
	✓ Probe Research Cedar Knolls, NJ	201-285-1500
	★ Schwartz Associates, The Mountain View, CA	415/965-4561
See *Future Thinker #2*	✓ S.E.A.I. Madison, GA	404/342-9638
See *Future Thinker* next issue	✓ Sentry Market Research Westborough, MA	617/366-2031
See *Future Thinker* #2	✓ Soft•Letter Cambridge, MA	617/868-0157
	✓ StoreBoard Dallas, TX	214/231-5964
See *Future Thinker* this issue	✓ Summit Strategies Boston, MA	617/266-9050
	✓ Technology Financial Services Chelmsford, MA	617/458-3974
	★ Technology News of America New York, NY	212/334-9750
	★ Theta Corporation Middlefield, CT	203/349-1054
	✓ Venture Economics Wellesley Hills, MA	617/431-8100
See *Future Thinker* this issue	✓ VLSI Research San Jose, CA	408/289-9983
	✓ The Winters Group Rochester, NY	716/546-7480
	✓ Wohl Associates Bala Cynwyd, PA	215/667-4842
	✓ Workstation Labs Dallas, TX	214/644-1733
See *Future Thinker* next issue	✓ Yankee Group, The Boston, MA	617/367-1000
	★ Zech Tech International San Mateo, CA	415/578-9520

NEW Reports and ....1.

$51 billion in 1987 — that's a lot of service and support. This well done report is also available as a part of a Ledgeway annual service

★ ***Trends and Forecast of the Customer Service Industry***
The Ledgeway Group
Lexington, MA 617/862-8500
Pages: 79 **Price:** $2,500
Exhibits: 29 **Date:** September 1988

Directory of largest 2,000 high-tech manufacturers with stats, people and indices by city and product

★ ***The CorpTech 2000 Marketing Guide 1988***
CorpTech
Wellesley Hills, MA 617/237-2001
Pages: 397 **Price:** $95
Exhibits: none **Date:** September 1988

Who advertises what and where in high-tech. Printout — 501 companies, their products and media mix. See ***Future Thinker #1***

★ ***Adscope 501***
Adscope, Inc.
Goldendale, WA 509/773-3701
Pages: 152 **Price:** $225
Exhibits: none **Date:** August 1988

The book used in the conference. Standalone, it is an entertaining and informative picturebook about the future of software

★ ***Software Futures: An Executive Forum***
Digital Consulting, Inc.
Andover, MA 508/470-3880
Pages: 402 **Price:** $200
Exhibits: 314 **Date:** August 1988

Fascinating and easy to read, the insights are not limited to the Macintosh world. It's a view of a piece of the future

★ **AI on the Macintosh**
Intelligent Systems Analyst
New York, NY 212/645-2066
Pages: 217 **Price:** $154
Exhibits: 52 **Date:** August 1988

Opinions from Public Utility Officials in 32 states — their role in RBOCs' information services initiatives

★ **RBOC Entry into Information Services: A Survey of Public Utility Commissioners**
Jupiter Communications Company
New York, NY 212/941-9252
Pages: 72 **Price:** $595
Exhibits: 17 **Date:** August 1988

The charts help in understanding this complex market with its many faceted facets — excellent insights into segments

★ ***The Midrange Parallel Processing Market***
Technology Financial Services, Inc.
Westford, MA 508/692-2290
Pages: 205 **Price:** $1,695
Exhibits: 67 **Date:** August 1988

Measures where we are in readiness for, and in adopting CASE (Computer-Assisted Software Engineering) technology. Also note — ***CASE Conference, November 2-4, Monterey, CA***

★ ***The CASE Experience***
Annual CASE Survey 1988
CASE Research Corporation
Bellevue, WA 206/453-9900
Pages: 192 **Price:** $150
Exhibits: 124 **Date:** June 1988

U.S. computer companies spent $2 billion worldwide for advertising in 1987. Analysis, forecasts and top 105 advertiser profiles

★ ***Computer Industry Advertising & Marketing Forecast, 1988-1989***
Communications Trends, Inc.
Larchmont, NY 914/833-0600
Pages: 135 **Price:** $995
Exhibits: 25 **Date:** April 1988

*1,747 responses from 9,600 software managers from **Software Magazine**'s database. Great data. Great presentation. Excellent value*

★ ***1988 Software Market Survey***
Sentry Market Research
Westborough, MA 617/366-2031
Pages: 253 **Price:** $397
Exhibits: 186 **Date:** April 1988

A tutorial strategic look at expert systems, PCs, mainframes and knowledge. User oriented. Useful directory of vendors

★ **Expert Systems in a Mainframe Environment**
Intelligent Systems Analyst
New York, NY 212/645-2066
and
The Schwartz Associates
Mountain View, CA 415/965-4561
Pages: 100 **Price:** $197
Exhibits: 3 **Date:** March 1988

"What should I, an MIS manager, do with Digital-Audio Tape (DAT)-based storage devices?" This is the answer

★ ***Data Applications of DAT Technology***
Magnetic Press, Inc.
New York, NY 212/219-2831
Pages: 35 **Price:** $200
Exhibits: 6 **Date:** February 1988

Based on interviews with printer companies and third-party service organizations, this report looks at service for non-impact printers

★ **Laser Printer Service Opportunities & Players**
Technology Financial Services, Inc.
Westford, MA 508/692-2290
and
Ulsch & Ulsch Associates, Inc.
Pages: 138 **Price:** $595
Exhibits: 16 **Date:** Fall 1987

This exhaustively thorough multiclient study forecasts a $2.3 billion dollar market for MMICs by 1997

★ ***Microwave Monolithic Integrated Circuit Forecast***
ElectroniCast
San Mateo, CA 415/572-1800
Pages: 1,329 (3 vol.) **Price:** $18,000
Exhibits: 563 **Date:** 1987

***Attention market information publishing companies!** If you have sent us an item that we should have mentioned, please yell. Last month there was one item sent to us that we have still not received. We're trying to keep track. And I apologize — we have been behind in our correspondence. We're suffering from new company syndrome. It will pass*

1. The reports, directories, databases, multiclient studies and conference notes selected for this section are newly released items that I think are worthy of your consideration. In most cases I have read the item. Some I have only weighed and scanned. A review may or may not be in a future ***Future Thinker*** issue.

   All the items we can identify that were published since 1987 are listed in ***Future Think Resources***, our directory of market information products for the computer, telecommunications, electronics and office products industries.

TRACKING PEOPLE AND COMPANIES

McGraw-Hill in Motion

Northern Business Information acquired by Datapro/McGraw-Hill

Quite a coup!

Northern Business Information has been tracking the telecommunications industry since 1977. Offering newsletters, reports, and annual services, Northern's reputation is first rate among its subscribers which are who's who in the telecom business. Sean White and Francis McInerney, Northern's founders, are enthusiastic about their new parent company. And Datapro couldn't be happier or more ambitious with its new telecommunications research group. The acquisition of Northern was championed in McGraw-Hill by Marty Murphy, Datapro's Vice President for Vendor Information Services.

I worked with Marty at Future Computing. He understands the needs of a newly acquired company in McGraw-Hill as well as how to manage the interface between a little entrepreneurial company and a nice, not-so-entrepreneurial, big one. This very specialized knowledge was acquired through the School of Hard Knocks, of course

Datapro has long had visions of expanding its offerings for vendors with more analysis-intensive products; and they've just acquired one of the best in the business. (See ***Future Thinker*** #1 for a ***Profile*** of Datapro and a review of a ***Northern*** report and this issue of ***Future Thinker*** for a review of Northern's flagship, ***The Telecom Strategy Letter***).

Sean and Francis will now spend more of their time in Northern's research activities and developing new Northern research products. With their new resources, Northern's sales staff has already been expanded. Mark Yarnoff, Northern's new General Manager, reports to Marty Murphy at Datapro.

Datapro's President moves to bigger challenges

You did a great job at Datapro, Jim! We'll miss you

Jim Murray, Datapro's former President, recently became Vice President and General Manager of Dodge Regional Information Services Division — a $130 million business, a whopper by information business standards. Dodge is the leading information services company in the construction industry and the second largest information services company of any type in McGraw-Hill.

New President at Datapro

Congratulations, Bruce!

Bruce Hollows, who has been with Datapro since 1981, most recently in charge of Datapro's domestic loose-leaf service business, is the new President of Datapro. He reports to Ira Herenstein, former President of Standard and Poor's and head of McGraw-Hill's Computer and Communications Information Services Group since July 1, 1988.

1. It is not our intention to cover news in the market information publishing business — at least not now — we don't have enough hours in the day. But sometimes we happen onto something that we can't resist telling you about. We would welcome calls from our readers giving us items of wide interest. If we agree, we'll print 'em — after verification, of course.

Order Form --
U.S. and Canada -- 10/3/88

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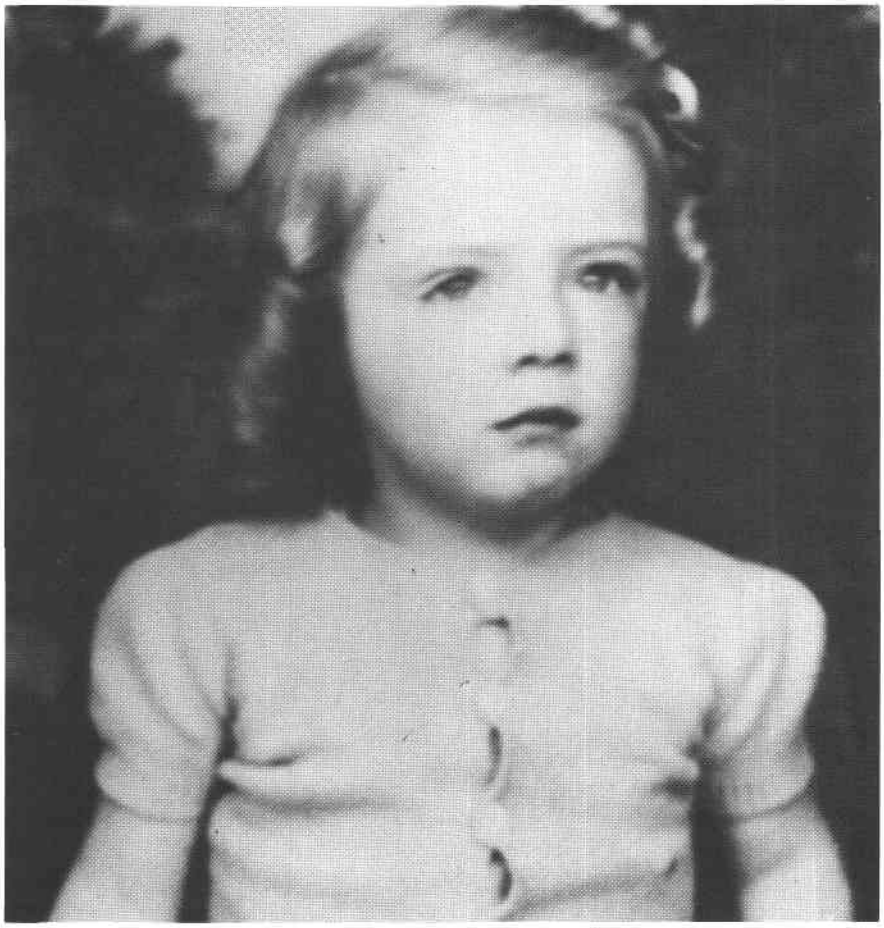
Subscribers will also receive two copies of every ***Future Thinker*** issue. We hope you'll like it so much you will pass it along to someone else who may benefit. Thanks.

A Mug

You asked for it! — It's been a while since I had a picture made so this will have to do for now. There I was, future thinking no doubt. Let's see that was about the time Alan Turing published an article on "Intelligent Machinery" which launched the field of artificial intelligence, and just before IBM introduced the 604 electronic calculator, the EDSAC became operational at Cambridge and John von Neumann built the first stored-program computer — that's probably what was on my mind



Subscriptions (12 issues): U.S. and Canada - $395/year Outside the U.S. and Canada - $495/year (airmail)

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