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Competitive Analysis

Sample

SAIC verses the ABCD Company

September 1995

This study was done for the ABCD company in preparation for a large muli-Billion dollar bid proposal.

Call Jim Pettit 703-447-7755

Information Sources

The purpose of this page is to provide information on where the backup materials and information for this write up were obtained.

1. The source of the financial data was obtained from both the SAIC annual report and the Price Waterhouse report.

2. Details on the employees and educational demographics were obtained from a brochure called SAIC TEAM, a brochure describing SAIC, its people, and projects.

3. Details on the Health Care product line were obtained from data gleaned from people debriefed after a job interview and the "hand-out" literature obtained from SAIC HR.

4. Details on the contracts were obtained from a consultant's report - all public information.

5. Details on employment levels in Fairfax County were obtained from the Fairfax Economic Development Department.

6. Information on the strategies employed by SAIC were surmised from the literature on SAIC.

7. Information was also obtained from the Internet and America On-Line.

For additional information contact the team members or Jim Pettit at Strategic Services.

SAIC COMPETITIVE ANALYSIS

Competitor Intelligence Series
Science Applications International Corporation (SAIC)
For 1994:
Revenue ..... $1,671 million
Income Before Tax..... $69.8 million
Employees..... 16,400

Outline

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Implications for ABCD

Overview

[1] SAIC is a diversified high technology service company with over 88 percent (88%) of its revenue derived from US government contracts.

[2] SAIC is engaged in the following major business areas:

National Defense
Environmental
Energy
Transportation
Health Care
Products (custom workstations, medical equipment)

SAIC is the largest employee owned company in the US with revenues approaching $1.7 billion.

[3] SAIC has grown to ABCD's size in 17 years. SAIC has added the equivalent of ABCD's revenue in the last 3 years. **SAIC has grown from ABCD's size to a billion dollars in revenue in 4 years.** SAIC continues to grow.

[4] SAIC has shown consistent growth in employment, revenue, profit and earnings per share. Some fall-off in profitability is noted and explained in terms of doing more lower tech work as ABCD does.

[5] SAIC has a clear growth strategy and the ability to take action and get results. SAIC makes acquisitions and creates companies where necessary to gain entry into strategically important markets. SAIC is an impressive industry model for growth in a declining defense, government contracts market.

[6] SAIC's key customers are identified in the Market Sectors.

[7] SAIC is widely diversified by geography and markets. Locations are listed under Locations and Facilities. We are primarily concerned about the Washington area and have focused accordingly.

[8] SAIC has not been a traditional ABCD competitor, but does possess the talent and skills to propose a credible alternative to the way business is done today at NASA. SAIC could gain a large share by re-engineering NASA's way of doing business. SAIC could use its impressive scientific and engineering skills to promise large productivity gains through automation, world class computer systems, and the like as part of a breakthrough re-engineering effort.

[9] SAIC is a more technically capable company than ABCD with substantially more resources. Historically, ABCD's educational levels and strategic thinking have been less developed than SAIC's. SAIC's founder is a scientist (physicist) and is still very active in directing the business. SAIC projects a top of the line quality image.

History

[1] SAIC was founded in 1969 by Robert Beyster the current CEO. Dr. Beyster was a researcher at Los Alamos laboratories prior to starting SAIC. Reportedly Dr. Beyster started the firm with $10,000. SAIC beginning contracts started in southern California engaged in nuclear work.

[2] Diversification

SAIC's early work started in the nuclear weapons area, and today has evolved to environmental engineering, information systems, medical technology, transportation technology, health care, and other areas where technology -- particularly, computer related technology -- can provide a benefit. Many of these diversification projects translate into little revenue to the bottom line, but establish SAIC as a leader and innovator in the field. Reportedly, SAIC spends heavily to support the diversification and new business initiatives (From Personal Interviews).

[3] Acquisition Program

SAIC makes acquisitions that it considers strategic to gain entry into key markets. We note the acquisition of several small players doing business at NASA and GSFC which will have no measurable impact upon SAIC's earnings, but will allow SAIC daily access to the NASA customer. Similar acquisitions have been made to gain entry into the "transportation business" similar to the IVHS program at ABCD. SAIC is a big player in the health care business. SAIC claims to be number four (4) in Health Care.

Company	Line of Business	Revenue Boost
Ideas	NASA, NSA Contractor	est $20 M
SSI	NSA Contractor	est $15 M
General Sciences	NASA Contractor	est $16 M
JHK Associates	Transportation Contractor	unknown
Syntronic	Transportation Contractor	unknown
Chemonics	AID Contractor	unknown
Open Systems Interonmection	FAA Contractor	unknown
Callow Associates	Transportation	unknown

Hick & Co	DOA / CIA Contractor	unknown
Logistics Sys Arch	AF Contractor	unknown
Megatek Gov Systems	Workstations	unknown

Subsidiaries
American Systems Engineering Corp.
Bull Inc.
Carl T. Jones Corp.
Falcon Assoc. Ltd.
SAIC Architects
SAIC Range Systems
SAIC Canada
SAIC Virgin Islands

[4] Growth Phases

SAIC continues to show an impressive growth even in the midst of declining defense and government spending. Between 1977 and 1987, the growth rate typically exceeded 20 % and sometimes 30%. 1993 saw a 17% growth rate. SAIC knows how to grow a business. The revenue increases are shown below:

Beginning	Revenue	End	Revenue
1977	$60 Million	1980	$151 Million
1980	$151 Million	1990	$1,022 Million
1990	$1,022 Million	1994	$1,671 Million

[5] Milestones

SAIC broke the $1 billion revenue barrier in 1990.

[6] NASA Breakthroughs:

SAIC won a 150 million dollar contract for climate modeling at NASA Langley. SAIC is at the GSFC (along side ABCD) reducing meteorological data. SAIC must be aware of the large ABCD NMOS contract. It is possible SAIC may look at a creative means to participate in the NMOS recompete coming up in 1996. SAIC provides space station support at Johnson Space Center.

[7] Revenue

Commercial Work. SAIC has not made serious inroads into the commercial world. Over 88 percent (88%) of its work remains in government. The revenue breakout is as follows:

Market Segment	Revenue
National Security Services	$830 Million
Environmental Services	$254 Million
Energy	$157 Million
Others Services	$288 Million
Products	$141 Million

By Agency

Army	$304 Million
Air Force	$190 Million
Navy	$155 Million
Energy	$93 Million
Environmental Protect Agency	$49 Million
Nuclear Defense Agency	$48 Million
Defense Office of Secretary	$45 Million
Department of Veterans Affairs	$32 Million
NASA	$30 Million

[8] Vision

SAIC has detailed its goals and potential problems in the annual report. Clearly, SAIC moves into technology markets and uses its technology where it sees an application.

Slogan: SAIC puts technology to work.

[9] Reorganizations

SAIC appears to be a relatively stable organization with the founder still at the helm guiding the corporation.

[10] Business Redefinition

SAIC has periodic management council meetings where the company's structure is compared to the markets SAIC serves. Adjustments are infrequent but occur as deemed necessary. SAIC reports it must refocus its marketing and has a cost reduction program in progress.

[11] Teaming

SAIC does team and we have worked with them on occasion. Our technical people were impressed with the professionalism and capability of SAIC personnel. The SAIC people have been "top drawer". We have used SAIC as a subcontractor for technology not available at ABCD.

[12} Political Connections

SAIC directors are heavy hitter from the defense department and government.
Melvin Laird is a director and former DoD head. Bobby Inman, John Deutch, William Perry, are or have been SAIC directors.

Analysis

[1] SAIC has a clear vision of the markets it serves and an impressive repertoire of technical capabilities. SAIC finds the money to do what it wants to do and does take action to grow the business.

[2] Surfing Industry Trends

SAIC is very proactive in tracking and probing emerging technologies. SAIC stays ahead of technological development. SAIC scans technology for new developments and areas to develop. SAIC performs many studies of high technology issues which fuel SAIC expertise. SAIC has targeted the Health Care business, is reported to be number 4, and has just won several contracts. Value unknown today. They have a $1 billion Health Care Data Systems contract with the Department of Veterans Affairs.

[3] SAIC Corporate Structure

Organization charts are provided that details SAIC corporate structure for both 1993 and 1995. The organization charts are attached. The founders still exercise substantial control over the organization. SAIC tries to maintain a flat as possible corporate pyramid with only four levels between employees and CEO. Reportedly SAIC works to reduce bureaucracy. SAIC claims not to have two classes, one a manager class and one a technical class. Everyone is an owner and a marketer.

[4] Contract Focus

SAIC has noted market shifts in government contracting and has focused on changes in its marketing techniques, and instituted cost reductions to improve competitiveness in lower skill markets. SAIC has just won several big health care contracts. The Health Care group is located in Falls Church, Va. They are doing an excellent job focusing on health care and are achieving success in this field. The Military (VA) Health Care contract is worth billions and provides leverage to propel SAIC in the health care information business.

SAIC is active in a variety of financially insignificant contracts. These contracts appear to help SAIC gain technical leadership and provide the bases for biding on larger contracts. These contracts support SAIC's drive to develop core competency.

[5] Strategic Focus

SAIC recognizes shifts in government spending for technology and appears to be making adjustments in market thrusts to accommodate the new environment. We think health care is one area they have focused on as a growth area. SAIC is very capable of identifying growth areas and is reported to be heavily spending to develop these areas (such as health care, medical instrumentation, simulation, imaging, etc.).

[6] Political Influence

SAIC employs top government officials to provide "insight" on the government contracting scene. These government officials include ex Department of Defense heads and undersecretaries.

Locations and Facilities

[1] SAIC has numerous facilities throughout the US. SAIC has major facilities in Northern Virginia. The major sites are as follows:

SAIC
11251 Roger Bacon Drive
Reston, VA 22090
703-318-4500
General Wash Operations
Robert Rosenberg

SAIC (Corporate East)
1710 Goodridge Drive
Mc Lean, VA 22102
703-821-4300
Robert Rosenberg

SAIC
8619 Westwood Center Drive
Vienna, VA 22182
703-734-9000
Group Manager
Nickolas Delvecchio

SAIC
Arlington Virginia Offices
7 offices throughout Arlington

SAIC
Falls Church , VA
Health Care Business Location

The Reston, Virginia facility is primarily working on classified National Security projects. The McLean, Virginia facility is advertised as "providing systems engineering and integration, energy production, environmental and transportation consulting". Coincidentally, the CIA headquarters is located in McLean, Va. (Langley) 3 miles away. The Vienna facility is described as doing "Government Contracting".

SAIC has approximately 7 local offices in Arlington County, VA. The Arlington offices are primarily engaged in DoD work supporting DRPA and the Secretary of Defense.

We understand that they are currently in a growth mode and have had a series of recent successes. The Falls Church facilities are engaged in the health care business. They are currently hiring and report they are having trouble finding enough good people. Employment ads are appearing in the Washington area newspapers.

Organization, Management, Staff

Descriptions

[1] Organization

Segments

SAIC appears to have 3 major segments. However, all sector heads (below segments) report to SAIC corporate, not three distinct segment heads. The three major segments are:

Science and Technology
Technology Systems
Commercial and International

Sectors

SAIC has 12 sectors. (See the organization chart).
The sectors apply related technology to markets and customers.

Groups

SAIC has 35 Groups. (See organization chart).
The groups in the related technology report to the sector heads.

Washington Area Organization

The Washington area operations are shown in the organization chart.

[2] Management

Robert Rosenberg heads SAIC's Washington Operations. Robert Rosenberg is shown on the 93 organization chart as Communications Information and Space Sector Head, reporting to the Science and Technology segment headed by the CEO Dr. J.R. Beyster. Nickolos Delvecchio is shown as Government Communications Group Head. Today his title is Group Manager.
Judging from the title and proximity to the CIA and NRO, a good guess may be these people are engaged in military satellite work of some sort. Presumably, the knowledge and technology of the DoD satellite systems could be transferred to NASA projects; thus representing a threat to ABCD.

[3] Staff

We believe the Washington area staff assignments breakdown as follows:

Reston, VA	300 employees
Mc Lean Greensboro Drive	500 employees
Mc Lean Goodridge Drive	1800 employees
Vienna, VA	100 employees
Arlington, VA offices	500 employees

Total Washington, DC, area staff is approximately 3,200 employees.
The total SAIC staff has grown as follows:

Year	**1980**	**1985**	**1990**	**1995**
Population	3,500	5,800	11,400	16,400

[4] Management Corporate / Local

SAIC Executive Management Council appears to be stable and headed by the Founder , Dr. J. R. Beyster.

[5] Corporate Groups

The organization chart shows 35 different corporate groups and 12 sectors. The organization chart has changed significantly in three years, but it is not obvious whether the names just change or there is significant reorganization. The appearance of new groups is common, and this is interpreted as thrusts into new markets and to serve new customers. The organization chart identifies all the groups and sector heads.

[6] Contract-Capture Manager

Bonuses are given at the director and above levels, and it is rumored that winning proposal managers receive bonuses. Losing proposals are formally reviewed for lessons learned.

Analysis

[1] Management Dominance

The Founder , Dr. J.R. Beyster, is still running the company as CEO, and the local Washington Operations manager reports directly to Dr. Beyster. It appears Beyster takes a proactive roll in running the business.

[2] Technical Staff

SAIC appears to go out of its way to keep and strengthen its staff. SAIC emphasizes it is an employee owned organization and tries to care for its people. On the other hand, the competitive nature of business is stressed and if outside talent is best suited to achieve corporate goals, then that talent will win out over internal resources.

[3] Company Organization

SAIC is organized to service its markets and customers. Again, see the organization chart provided.

Market Sectors

Description

[1] SAIC is active in all major market sectors: DoD, NASA, Civil Agencies, State local government, some commercial and medical instrumentation.

Marketing is pushed deep into the line and strategic marketing at the group level is performed by "senior engineer types", self-proclaimed entrepreneurs. They have achieved impressive business growth.

[2] Revenue: Percent Revenue breakout by agency is as follows:

Army	30
Air force	18
Navy	15
Energy	9
Environmental	5
Defense Nuclear Agency	5
Defense Office of the Secretary	5
Department of Veterans Affairs	3

NASA	3
Others	7

[3] Diversity of Business

SAIC is widely diversified throughout government agencies and presumably tracks opportunities at NASA, including work currently being performed by ABCD. However, SAIC is not an O&M company. We discuss SAIC as a potential competitor elsewhere. SAIC is very decentralized.

Service Lines

Description

The following major service lines are emphasized by SAIC:

[1] National Security
- Advanced Simulation Techniques
- Command and Control
- Support of US Strategy in Global Environments
- Demilitarization
- Aerospace and Space
- Naval Range Systems
- Test and Evaluation
- Defense Conversion

[2] Health Care
- Medical Test Equipment (Pap Test Automation)
- Health Care Information Systems
- Medical Studies Treatment (gaining core competency leadership)
- Medical Instrumentation

[3] Environmental
- Pollution Prevention
- Environmental Restoration
- Waste Management & Environment
- Air Quality Services
- Marine Monitoring
- Global Change Modeling
- EPA Information Systems

[4] Energy

- Nuclear Energy
- Facility Transition
- Fossil Fuel Technology
- Alternate Energy

[5] Transportation

- Transportation Management Systems
- Clean Vehicles
- Planning for Future Transportation Needs
- Inspection Systems

[6] Information Technology

- Emerging Information Technology
- Out Sourcing
- Mobile Computing
- Security Engineering
- Multi Media

Confrontation with ABCD

See implications for ABCD below. Generally, ABCD is doing the same type of O&M business BFEC had been pursuing for the last 30 years. SAIC is positioned in the information technology, high tech fields where ABCD does not compete as prime. ABCD generally pursues an O&M line of work, whereas SAIC is more systems oriented. SAIC is number four (4) in the Health Care field (and growing), and we expect <u>they are serious competition for any ABCD bids in this field.</u> Likewise, SAIC is formidable in transportation and could be a serious threat to the IVHS work that ABCD is undertaking.

Analysis

Strengths

[1] SAIC has had an impressive growth rate driven by a strong position in sciences and technology. We believe SAIC is a core competency leader.

[2] SAIC is diversified across 12 business sectors. SAIC is well positioned in the information sciences, energy, environmental, and space markets. SAIC is developing strengths in transportation technology, health care and medical equipment, and medical data processing areas. We believe SAIC knows how to market its technologies to new areas, primarily by presenting "state-of-the-art" solutions to enhance productivity.

[3] SAIC maintains a highly educated work force capable of understanding customers problems and formulating "state of the art" solutions. SAIC's management establishes groups to penetrate emerging markets. These new groups are not initially self-supporting but are sponsored by SAIC.

[4] SAIC does develop technology with its own money thus gaining a foothold into markets. The climate modeling area is one such area. Competitors will have difficulty competing with SAIC in these areas where SAIC owns the proprietary technology.

[5] SAIC is approximately 16,400 employees with revenue about 3 times ABCD's. SAIC is a large powerful competitor with deep pockets.

[6] Software Leveraging.

Software leveraging is used to create a competitive advantage in the information technology and NASA arenas. SAIC has a big software development effort underway to improve productivity. Presumable leveraging via software is used universally where advantageous.

[7] SAIC is attempting to capitalize on the technology developed in the National Security arena for medical imaging and the like.

[8] SAIC has several propriety technologies under development, notably in the climate modeling areas: A technology of interest to NASA and NOAA.

[9] SAIC has patented technology in the non-invasive diagnostic market which provides leverage in the health care business.

[10] SAIC has breadth and depth to bid (virtually any) technical service jobs without subcontractors.

Weaknesses

Shift to Commercial Markets

A major weakness we see is SAIC's failure to do more commercialization of its technology. They are almost entirely dependent upon government contracts, and therefore, government funding of programs. SAIC reports 50 percent (50%) of its business is in national security which implies an exposure to government budget cuts.

Other weaknesses include reported replication of efforts at various locations and a perception of lack of central control. Rumors exist about different SAIC groups responding to the same RFP.

Apparent Strategies

SAIC uses technology to leverage itself into new markets and grow within its existing markets.

SAIC does develop proprietary tools, thus having a competitive advantage over competitors.

SAIC does fund internal technology development which gives SAIC a significant competitive advantage when competing in these technologies: A strategy of raising the entry barriers.

ABCD Competitive Response

Competitive Outlook

SAIC is focused in a different market segment than ABCD. Generally, we do not expect to meet SAIC in the market place since most of ABCD's work is lower tech than the traditional SAIC business. However, a scenario depicting a SAIC attack on ABCD's traditional NASA business is presented in a supplement. We view SAIC to be a more powerful competitor in the transportation and health care areas based on their approach of using technology as their competitive advantage verses being low cost, as is ABCD's competitive advantage.

Competitive Response

Having reviewed a series of successful companies in the service business and high tech business, one overriding truth is woven throughout all the cases and that is:

Core technology leadership precedes product line leadership. Based on ABCD's lesser technical capability vis-a-vis the competitors, ABCD needs to atone for this deficiency. ABCD must strengthen its technical capabilities and identity with customers.

Implications for ABCD

SAIC uses technology for large productivity gains and is generally a leader in instituting "solutions to problems" as opposed to O&M activities. The implications for ABCD is that SAIC can offer a "full service" response to a

problem, such as designing a systems solution, implement the solution, and operating the installation, whereas ABCD's identity is in the O&M of the facility.

SAIC has formed a transportation sector and has made several acquisitions to support this sector, notably JHK Associates and Syntonic. SAIC likewise is very aggressive in the medical and health Care areas. SAIC is active in the medical instrumentation area as well, supporting SAIC's health care business.

SAIC has a large presence in the Washington area primarily supporting the DoD. They are hard at work developing other businesses and present a formidable challenge in any area they choose to compete where technology is important.

SAIC's management will be looking for business outside the traditional R&D, high tech areas. SAIC is actively following NASA opportunities, one of which may be NASA work currently held by ABCD. If the current ABCD work remains structured as it has traditionally been around the maintenance and operations arena with emphasis on low cost, SAIC will not be a threat. If NASA uses the NMOS rebid as an opportunity to re-engineer and restructure the way business is done at NASA (perhaps using a giant SETA), then SAIC could be a player.

Attachments:
Organization charts
Scenario

ABCD Current Situation

Competitive Analysis Series

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- Skills

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- Suggested Core Competencies
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7.0 Risks to ABCD's O&M Business

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Summary

Over the years, ABCD has limited its potential growth through under investment, limited strategic thrusts and a narrow definition of itself compared to SAIC, CSC, and other high growth companies in government contracting. Historically, ABCD has failed to recognize the importance of accumulating core competencies in selected technologies to maintain a leadership position. This legacy today undermines ABCD's ability to compete and grow.

Why has SAIC and CSC grown so much faster than ABCD?

Overview of the Business

Core Business

ABCD's core business has been in the Operations and Maintenance (O&M) of government facilities, primarily in work related to satellite tracking stations and their associated facilities. That is to say, the bulk of ABCD's revenues comes from large O&M contracts.

The top five contracts are listed below:

Contract	Customer	Percent of Business
1. NMOS	NASA	35
2. STSOC	NASA / Rockwell	12
3. DSN	JPL / NASA	8
4. MPF	NAVY	5
5. NETS	NAVY	4
6. White Sands	NASA	4

Management

Over the years ABCD has had non-degreed people in VP and ADO positions. By and large these people have done an excellent job. However, we believe these positions would be better served with people having more technical depth and more experience in strategic thinking and execution, particularly, for the development of emerging markets and new business areas.

ABCD Growth Phase and Focus

ABCD has traditionally had a focus on low cost with a minimum investment to achieve maximum ROI (little investment beyond salaries). Historically, ABCD has focused on the O&M business of NASA, NAVY, and NASA related customers. Most of these businesses followed from the experience ABCD (then BFEC) gained operating the NASA Global Satellite Tracking Stations. BFEC migrated into similar O&M roles at other agencies. Some of the equipment (at other agencies) was once part of the NASA network (JPL, BP, NOAA) and is similar in technology and design. Hence, the transition to these agencies was relatively easy. There are notable exceptions to this experience specifically, the Saudi jobs of the 80's and the NASA Houston work, health care related contracts, and now IVHS. The NASA tracking station experience provided opportunities to meet other customers and grow additional business. Nevertheless, NASA remains the principle customer of ABCD as it did when BFEC was formed (over 60 percent of business).

Staff

Educational Levels

Before we discuss the core competency and skills issue, first a few words on the educational level of ABCD's staff. We have found the educational level of the work force supports the O&M line of work very well. We believe the skills available from a technical viewpoint are substantially below our major competitors. At a major military ground station that ABCD operates, for example, approximately 10 percent (10%) of the work force have degrees and none have an EE degree. About 5 percent (5%) have computer science degrees. In a directorate that builds small satellites reportedly there were no EE degrees. However, the work force in that technical area had about 30 percent (30%) degrees. There is no engineering department to support these contracts beyond the people that are assigned to the contract. The point of noting these issues is not to bash the organization, but to point out the resources available to do battle against SAIC, TRW, Loral, Martin Lockheed, and others.

Skills

ABCD primarily organizes skills around specific contracts. Core competencies that exist, exist primarily to support those contracts. There does not appear to be a corporate strategy to develop core competencies with the exception of considerable development of the management staff primarily by replacements.

The company's emphasis on O&M contracts has resulted in a skill mix suited to the lower end of the technical spectrum. There has consistently been many 1 to 4 million dollar jobs of technical merit. These jobs have been primarily spear-headed by engineers working within the large O&M contracts. They are often an individual effort rather than a corporate effort or part of a strategic thrust to gain competency in a technology. Often when the engineer leaves or the contract terminates the skills are lost. Breaking out to the larger technical jobs, and winning competitions against better technically positioned firms has been difficult. A recent exception has been the win of ROCSAT at a substantially lower cost than the competitors. Technical skills were critical to this win. ABCD won over very formidable competitors, such as Loral and Martin. We think with a better technical identity ABCD could command higher prices and higher margins.

Core Competency Competition

SAIC has a complement of core competencies that far exceeds ABCD's. ABCD will have difficulty competing against SAIC on the basis of core competency.

We believe today's and tomorrow's competition for business growth will be fundamentally a competition of core competency portfolios. We sense that ABCD's technical position has been eroded, vis-a-vis competitors, over the last 15 years. This is primarily the result of better positioned technical companies pursuing ABCD's traditional business and ABCD's non emphasis on technical capabilities. We expect this trend of increased competition to continue. An additional environmental change is the general escalation of technology required to participate in the industry. There is an inexorable trend toward more automation and computer control of ground stations, data processing, archiving, and the like. This is a move away from traditionally, manually operated (labor intensive) facilities. Should this trend toward higher technology accelerate, ABCD will be forced into more subcontracting roles depending on the size of the associated engineering effort. Regarding SAIC, the point is that SAIC is a far stronger company technically, and can develop more credibility in a proposal "shoot out" involving technical content. However, ABCD will be far cheaper. SAIC's rate structure is substantially higher than ABCD's. We don't believe a cost strategy alone will win out. We have seen recent heavy contract losses where ABCD was low bidder.

Suggested Core Competencies

The following core competencies key with the existing line of business and are suggested for development.

1. Ground Station Technology
2. Associated Software for Ground Stations
3. Monitor and Control (M&C) (technology used everywhere supporting automation)
4. Data Storage and Retrieval (relates to satellite data storage and retrieval)
5. Build on Portfolio of Skills Developed for ROCSAT
6. PM Skills (built into the other core competencies) Government Contracting Skills. Maintaining the paper work, etc. to Government requirements

Competency Improvements

ABCD has witnessed improvements in the core competencies in the engineering department at Columbia over the last 6 years. We believe the recent win of the ROCSAT contract is a direct result of the improved strength of the engineering group. We believe these actions are positive developments.

Risks to ABCD's O&M Contracts

A risk to ABCD's business is that "the rules of the game" may change from the government requiring a support contractor to now wanting a mega end-to- end mission contractor handling all phases of the system. There can be many variations to this theme (Privatization giant SETAs, etc.). ABCD is also at risk of being bypasses by technology. Automation and other initiatives will hurt ABCD's labor base.

Concerning SAIC competition, SAIC is a larger company, richer in technical resources, and could propose, finance, and execute sweeping changes mentioned above, breakthrough changes as the scenario suggests, (see Scenarios Section) that would upset the traditional way of doing business. The second point is, perhaps NASA is ready for a higher tech approach to business given Daniel Goldin proclamations of directing NASA toward world class work only. We can expect major changes over the traditional way business has been done. The non traditional approach works against ABCD, a long time incumbent at NASA.

ABCD Competitive Position

We are concerned about ABCD's competitive position primarily because of the following incremental changes we perceive in the market place.

1. Higher technology required than in the past
2. Traditionally higher tech firms (full service) going after O&M work

3. Firm making investments aimed at creating a position in the market. SAIC claims to invest heavily (22%).
4. ABCD's core competency portfolio is less than SAIC, TRW, Martin, Lockheed, et al. (competency gap)
5. The competition appears to be able to create better proposals
6. Quest for breakthrough improvements (technology driven, not labor intensive but technology intensive)
7. Trend toward full service contractors
8. Lower margins for O&M work.

Future Trends

We believe that a trend exists for more automation and productivity improvement in the environment ABCD works in. Is ABCD ready to be a trend setter in this area? Productivity will come from applying technology. ABCD will need more strength in technology to remain a prime contractor on larger contracts. Perhaps more synergy from other ASA divisions could quickly gain technology, specifically from the microelectronics laboratory and the communications division.

ABCD may need to develop new strategies to project bold breakthrough proposals to combat the SAIC's, CSC's, and TRW's of the world.

We believe only through developing and maintaining superior technical capabilities (in the core businesses) will ABCD have the competitive advantage needed to retain prime contractor status in traditional areas over the long term.

Weaknesses

ABCD's lack of strategic planning and execution has impeded the company's growth outside of ABCD's traditional customers and markets. We believe this has been ABCD's historic weakness combined with an excessive focus on cost. The excess focus on cost has occurred at the expense of capabilities. ABCD's core competency now lags behind competitors.

ABCD has had little proprietary technology to leverage itself for a competitive advantage over stronger competitors. ABCD's competitors (SAIC, CSC, TRW) do have proprietary software and other discriminators over ABCD.

Strengths

Primarily, we have focused on issues and problems. However, we would like to point out that ABCD has many considerable strengths. Some are listed below:

- Long term trusted relationships with customers
- Financial strength
- Corporate resources
- An infrastructure that supports government contracting
- Generally, superior customer relations
- One of the largest O&M contractors in the world

Scenario
of
Market Conditions and Competition

The following scenario presents a case for SAIC to attack ABCD on the basis of superior core competency in computers, information systems data archiving and communications. The attack takes place against ABCD's core NASA markets. (SAIC is also 3 times ABCD's size). A second aspect of the scenario relies upon NASA's intent to support major changes in the way business is currently done. (Especially, the way the new contracts are written and the contract intent). The scenario concerns NASA work at GSFC since this work is so critical to ABCD. The scenario is as follows:

Given that Dan Goldin, NASA administrator, is seeking breakthrough improvement at NASA and not incremental improvement, perhaps NASA would except radical re-engineering at GSFC. If so, SAIC could propose sweeping changes in the way GSFC operates. For example, they could promise to bring standardization to all software and processes. They could promise to root out and eliminate all duplication of effort. They could make all spacecraft share a commonality of ground processing equipment, where possible. They could promise to archive and process all satellite data in a massive electronic media library with access to the world wide scientific community via internet. They could promise to leverage technology to achieve massive productivity increases.

They could point out that their large size and technology base along with "outsider" status could effectively reengineer GSFC for the 21st century. This strategy would direct SAIC's considerable technical capabilities against ABCD and others contracting at NASA. They could promise to help sell NASA's products to offset the cost of operating the facilities.

This approach, is a global approach (cradle to grave) from strategic architecture to delivering the end products to users and perhaps making a profit for NASA. They could promise economies of scale. They could operate GSFC "acting as a giant SETA".

Along with the scenario, we point out the fact that SAIC is very well connected, at least in the military world. The full extent of SAIC's connections to the NASA world is not known, however, in the military world they employ ex-Department of Defense secretaries and undersecretaries as SAIC directors. The industry's heavy hitters. We believe that they are capable of operating at the Dan Goldin level.

Strategies

SAIC Business Development

The following is a assessment of the strategies SAIC employs to develop markets and grow business.

1.0 Acquisitions

SAIC does considerable acquisitions of small companies to gain access to markets. These companies being small provide very little revenue to SAIC but provide considerable customer contact and up-to-date details on the markets.

2.0 Proprietary Technology

A second step in the SAIC strategy is to develop proprietary technology creating a distinctive core competency. Examples of proprietary technology in the medical arena are:

- SAIC's positron emission tomography
- SAIC's proton beam therapy
- SAIC's blood vapor diagnostic instrumentation
- SAIC's PAP test microscope technology
- SAIC focus on medical studies will provide much technology
- SAIC's electronic medical workstations

This technique is carried on throughout SAIC. The point is SAIC has an impressive array of core competencies to write about in any Health care proposal. The same comments apply to proposals for other markets.

3.0 Market Focus

SAIC forms companies devoted to a target market. This technique focuses all the attention and resources of that organization against the target market.

4.0 Raising Entry Levels for competitors

SAIC's proprietary technologies have the effect of raising the entry barriers for would be competitors.

5.0 Core Competency Accumulations

SAIC develops and accumulates core competency in markets it defines as strategic. Historic analysis indicates those firms with core competency leadership will develop product line leadership.

Core Competency Issues

The reason for presenting core competency issues is because core competency is central to building competitiveness. In fact, core competency leadership precedes product leadership.

Three questions have emerged from this competitive study they are:

1. What core competencies do we have now?

2. What core competencies will we need in the future?

3. Will our current core competencies be relevant in 5 years?

We have provided a template to record opinions on the current core competency. We have made statements that we think it is necessary to have some outstanding technical core competencies to maintain the core O&M business.
We have also made statements elsewhere in this study that our major competitors have superior technology--and thus a competitive advantage over us.

The question of future core competencies, we are not going to answer directly, but propose the answers are to be found in the following questions.

Where will NASA be in 5 years--more specially what will NASA value as core competencies needed to carry NASA into the 21 century? This same question regarding other customers future needs applies. The correct answer to these questions will define the required core competencies of the future.

We will attempt to partially answered these questions (provide guidance) by assuming the following:

- More automation will be sought
- More productivity through technology will be sought
- More "bang for the buck" will be required for "projects"
- Higher Standards of technology will prevail
- Perhaps more autonomous contracting will prevail
- Perhaps GSFC will be redefined in reality as the Goldin white paper suggests into more of a space craft engineering center. The could change the nature of the work currently performed by ABCD.
- Software certification and ISO certification

Actually we think the above questions require serious thought by many familiar with ABCD customers. Hopefully our analysis will be thought provoking.

A View from Today

Based on what we know today, we believe ABCD should proceed to develop superior technology in the following areas:

System Engineering
Software Technology
Hardware technology in conjunction with the Microelectronics Laboratory
Satellite ranging, and ground segment hardware
High data rate satellite data collection systems
Data archiving and retrieval
Small Sat satellite technology particularly the ground segment

We are not suggesting that ABCD become a manufacturer, but are suggesting that ABCD become a respected and recognized source of knowledge in these areas. There is a large content of image and identity building associated with becoming a center of excellence for these technologies.

			1=poor 5=good	10 =Excellent
Item	**Competitive Issues**	**WF**	**SAIC**	**ABCD**
			1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
	Leadership qualities (Management)		Good growth & profitability	
	Decisiveness demonstrated speed		7	
	Prone to Bold Moves		7	
	Direct Experience in Industry		OM 4	
	Implementation abilities		7	
	Degree of Independence		8	
	Strategic Thinking		8	
	Ability to craft Co identify & Co		8	
	to meet market expectations			
	Marketing Qualities (Company)		Refocused	Redirected
	Ability to Identify new Opportunities		7	7
	Ability to completely scope out opportuntities		7	7
	Ability to craft company Image		8	4
	Ability to grow business		8	5
	Sales (Company)		Growing	Stagnate
	Ability to create first class Proposals		8	6
	Quickly develops relationships		7	5
	with customers			
	Degree to which sale force is consulted			
	by management about customers			
	Ability to grow sales		7	

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Item	**Competitive Issues**	**WF**	**SAIC**	**ABCD**
			1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
	Financial Systems (Company)			
	Controls		7	9
	Degree of Automation		7	4
	Accreditation		7	5
	Degree of Real time response		7	2
	Circa 19xx			
	Touchie feelie Quality issues (Company)		Quality Image High Tech	Excellent O&M
	Competency Image		8	5
	Advertising Positioning		6	1
	Symbols of quality / Slogans		SAIC puts science to work 7	Anytime and Place 5
	Brochures		SAIC team 7	Variable brochures 5
	Facilities		7	4
	Strategies			
	Better strategies can offset superior resources			
	Acquisitions for Growth and Market entry		7	0
	Forming Companies for Market focus		7	3
	Partnering		?	7
	Developing Leadership in Technology		7	3
	Internal Funding to gain entry into Markets		7	4
	Buying into Markets		7	7
	Core Technologies			
	System Engineering		9	2

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Item	**Competitive Issues**	**WF**	**SAIC**	**ABCD**
			1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
	Software Engineering		8	3
	Hardware Engineering		7	5
	Project Management		8	7
	Propriety Technology Development		9	4