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Using IT to Support the Business Integration Client-Service Model: Andersen Consulting

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USING IT TO SUPPORT THE BUSINESS INTEGRATION

CLIENT-SERVICE MODEL:

ANDERSEN CONSULTING

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I. INTRODUCTION

Andersen Consulting (AC), which bills itself as the "world's largest management and technology consultancy" is part of the Andersen Worldwide group, which also includes Arthur Andersen. AC was created as a separate company in 1989 to focus on consulting, while Arthur Andersen continued to provide accountancy services. Arthur Andersen has since gone into the consulting business, and has developed a $1 billion business that competes with AC in some areas, particularly IT consulting. This competition has led to dispute between the two companies which is now in the hands of an arbitrator with the International Chamber of Commerce. This ongoing distraction hasn't kept AC from achieving double digit growth rates (sales of $8 billion in FY 1998, up from just $2.8 billion in 1993) and restructuring its own operations globally.

The restructuring of AC's operations has been undertaken in order to better carry out the company's fundamental business strategy, referred to as the "business integration client-service model." This is a model for providing large clients with a full range of services, from executive level strategic consulting to complete system integration and IT outsourcing. The model provides one-stop shopping for clients, and it allows AC to sell a variety of services throughout the client enterprise, rather than having to compete on a project-by-project basis. To more effectively deliver a full range of services, AC has restructured itself on the basis of global optimization, rather than the traditional model in which teams in each geography served clients in their own country or region. Global optimization means that AC theoretically can call on the skills of the entire company to support a client anywhere in the world.

Achieving global optimization required transformation at many levels. This included the creation of a matrix-style organizational structure, built around industry sectors and capabilities. It also included changes in training and human resource management to enable consultants to work in geographically and culturally diverse teams. AC also is increasing its use of Solution Centers in providing client services. These centers focus on specific technology or industry skills, which can be provided remotely, rather than at the client site. Solution Centers are seen by both AC and some of its competitors as providing an important competitive advantage, in that they shorten project cycles, while also allowing AC to better forecast and control project costs.

AC's global organization depends on information systems that put tools and information in the hands of partners, managers and consultants wherever they are located to tap the knowledge and resources of the whole firm. A core system for supporting AC's business model is the Knowledge Xchange system for knowledge management. The Knowledge Xchange and other IT systems are aimed at improving AC's operational effectiveness by increasing its ability to provide a wide range of client services, and enhancing the productivity of its own people.

AC received an unexpected shock in September 1999, when CEO George Shaheen left the company to join a startup Internet grocery service call Webvan.[1] Shaheen, who has led the company since its inception, left behind an organization with enviable strengths, including deep relationships with large clients and the skills of its partners and consultants. AC faces new challenges, however, as some bread-and-butter businesses such as SAP R/3 implementation begin to slow down, and the company shifts to new opportunities such as e-commerce. Also, the loss of Shaheen and some other key partners to Internet companies illustrates the limitations of a partnership organization in retaining the best people at a time when multimillionaires are being created in initial public offerings by startup companies.

II. BUSINESS ENVIRONMENT AND STRATEGY

Competition

AC competes in a crowded market, with major competitors including IT services companies, management consultancies, and accountancies. Its main IT competitors include IBM Global Services, EDS, Computer Sciences Corp., Hewlett-Packard, Unisys and SAIC. It competes with those companies as well as consultancies such as McKinsey and the Boston Group in its more traditional management consulting business. In addition, it competes with the major accountancies such as Deloitte & Touche, PricewaterhouseCoopers, KPMG Peat Marwick, as well as Arthur Andersen, all of whom have developed consulting businesses that include billion dollar IT practices. Figure 1 shows AC's competitors in key markets.

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[1] George Anders and Elizabeth MacDonald, "Shaheen's Webvan Stake Could Hit $100 Million," *The Wall Street Journal*, 9/23/99, Page A3
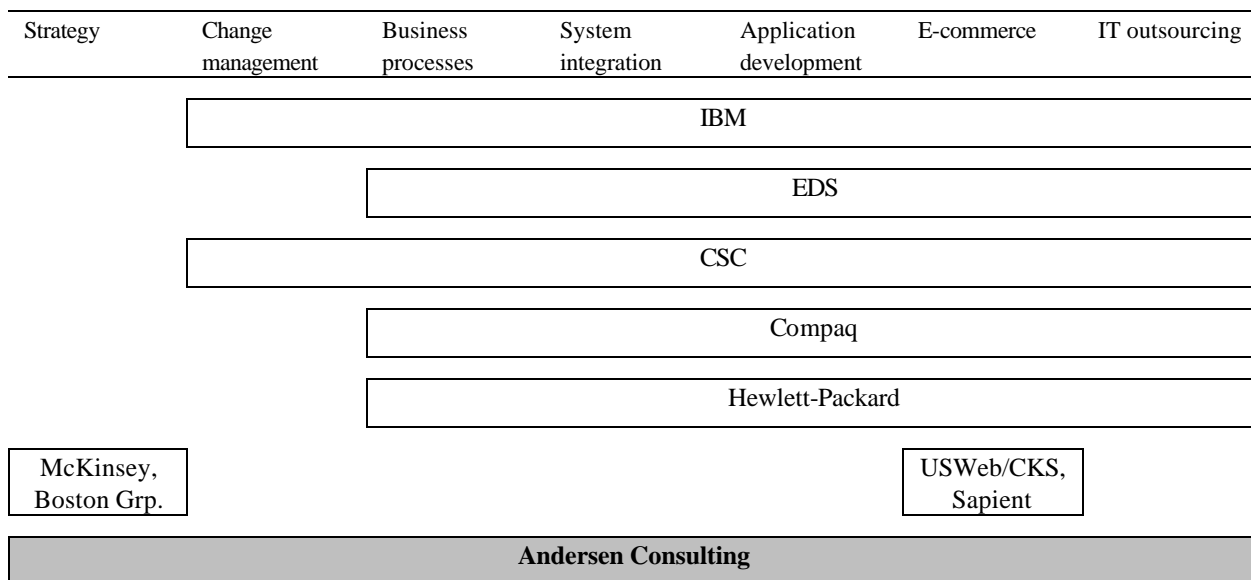
Figure 1. Competitive Landscape in Consulting and IT Services

Strategy	Change management	Business processes	System integration	Application development	E-commerce	IT outsourcing
		IBM				
			EDS			
	CSC					
		Compaq				
		Hewlett-Packard				
McKinsey, Boston Grp.					USWeb/CKS, Sapient	
			Andersen Consulting			

Table 1 shows AC's competition from the Big 6 (now 5) accountancies in the management consulting and IT consulting markets.

Table 1. Big 6 Accountancies' Consulting Revenues (in $ billions)

Firm	1997 Management Consulting Revenues	1997 IT Revenues	IT as share of consulting revenues
Ernst & Young	2680	1608	58%
Deloitte Consulting	2300	1150	50%
KPMG Peat Marwick	2010	1146	57%
Coopers & Lybrand	2400	960	40%
Price Waterhouse	1400	910	65%
Arthur Andersen	953	572	60%

GITC, Kennedy Information, 1998
Note: Price Waterhouse and Coopers & Lybrand merged in 1998.

Table 2 shows AC's position among the top ten professional services and processing services markets worldwide. According to McKinsey, Andersen has 6.3% of the worldwide market for professional IT services and 2.2% of the processing services market.[2] In processing services, AC ranks only sixth, but it was not even in the top ten in 1992. This reflects AC's efforts to compete in the IT outsourcing business in recent years, part of its business integration client-service model. Processing services are the "run" part of AC's "design, build, run" offering for enterprise software and IT systems.

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[2] These figures do not include the full range of Andersen's consulting activities, only those related to IT. As AC points out, it would rank higher on measures that cover the full scope of its business.

Table 2. Top ten companies in professional and processing services

Worldwide professional service market			Worldwide processing services market		
Company	1997 market share	1992 market share	Company	1997 market share	1992 market share
IBM	15.5%	14.5%	EDS	23.8	30.5
AC	**6.3**	**7.1**	IBM	12.7	5.5
EDS	4.8	7.2	First Data	12.1	5.3
CSC	4.3	4.2	ADP	10.7	11.4
Fujitsu	3.4	4.0	CSC	5.7	5.3
DEC	3.1	7.9	**AC**	**2.2**	**n.a.**
SAIC	2.9	4.1	Alltel	2.1	2.7
Unisys	2.8	3.7	Fiserv	2.1	1.8
HP	2.6	n.a.	Sema Group	1.9	n.a.
Cap Gemini	2.2	4.9	Cap Gemini	1.9	2.6
Others	52.1	38.4	Others	24.8	22.7
Total market	$91 billion	$36 billion	Total market	$41 billion	$18 billion

Source: McKinsey, *1998 Computer Industry Trends*

Strategic positioning

Andersen Consulting operates on what it calls the "business integration client-service model." Instead of just looking at an isolated piece of a client company's business, like strategy or technology, AC develops solutions that treat the entire organization as one integrated entity. In terms of value to the client, the goal is to ensure that AC's solutions help align clients' processes, technology, and people in support of overall strategy. AC tries to avoid recommending a strategy that can't realistically be implemented or installing technology that people don't understand. The business integration model also is aimed at expanding AC's business opportunities by offering a full range of services to the entire enterprise.

AC touts itself as the company best able to provide such a full range of consulting and IT services. With about 65,000 employees including 53,400 consultants in 46 countries (as of 1998), AC has a breadth and depth of skills to be able to offer everything from high level strategy consulting to nuts and bolts programming and data center operations. The key to this approach is being able to tap those global resources in order to serve individual clients.

Unlike more specialized consultancies that take a highly individualized approach to client engagements, AC begins with standardized methodologies that it customizes to the client's needs. Its strategy is to train and retrain its people to act in teams, applying a uniform approach to achieve a predictable result. "Clients will put up with a lot of things they don't like about consultants because with us they can count on reliable delivery," according to Jack Wilson, AC's managing partner for industry markets and knowledge products.[3]

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[3] J.P. Donlon, " Shaheen's advice machine." (interview with Andersen Consulting CEO George Shaheen) *Chief Executive*, 5/1/97 p.52

AC's target market is primarily large organizations, whether corporations, government agencies, or other institutions. Tier 1 accounts, which are Fortune 50 companies, are targeted for long-term, mutually beneficial relationships. Tier 2 (Fortune 50-500) and Tier 3 (Fortune 500-1000) accounts provide individual engagements, but are less likely to develop into wide ranging long-term relationships. In some cases, AC actually turns away business if it does not offer the potential for developing into such relationships.

AC relies on its partners to develop new business opportunities through relationships with key executives of major companies. The approach is to create broad and deep business opportunities with fewer clients, and this requires getting to know the clients' businesses and top people very well. Once an engagement is started, a partner is responsible for managing it and trying to find new opportunities with that client.

AC is targeting technology as its major growth business, offering a complete line of IT services referred to as "design, build, run." Implementation of enterprise software such as SAP, Baan, Oracle and PeopleSoft, along with associated business integration activities accounts for a large share of AC's business.[4] Another area AC hopes to expand rapidly is outsourcing, which it refers to as Business Process Management. This can include outsourcing of business processes such as accounting, but it mainly refers to IT outsourcing, a business AC hopes to grow in the future.[5] Outsourcing is a relatively low margin business, but it ties clients to AC more closely and for a longer time frame than traditional consulting contracts, making it compatible with the goal of relationship building. Andersen can use the relationship to offer other high value services, such as business process restructuring and change management.

One complaint heard about AC (and other consultancies) is the high price of its services. Sprint PCS, for instance, uses about 150 Andersen consultants to run its internal help desk and other back-office departments. But Sprint estimates it pays up to 40% more for Andersen consultants than it would for technical workers hired off the street. So management plans to take back the business as soon as the expertise can be transferred in-house.[6] Likewise, Wisconsin Electric Power Co. hired AC to move its customer billing system from a mainframe platform to Unix servers. The company feels its corporate objectives are being met, but the cost is very high and it plans to take over the work itself when its people are trained.[7]

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[4] Over 15,000 of AC's 50,000 consultants specialize in "Enterprise Business Solutions," to design, implement and integrate ERP systems. These include SAP (10,096), PeopleSoft (3,328), Oracle (1,364) and Baan (255). Figures from AC materials provided to authors. In terms of revenue, one article claims that AC's ERP and other software implementations and support account for $5 billion of its $8.2 billion in revenues (Josh McHugh, "Simpler software + the Internet = Fewer consultants" *Forbes*, March 8, 1999)

[5] Roger O. Crockett, "Next Stop, Splitsville: What a divorce will cost Andersen Consulting" *Business Week*, 1/18/99 p. 100

[6] Crockett, 1999

[7] Bob Violino and Bruce Caldwell, "Analyzing the Integrators—Systems Integration and Outsourcing is a $300 Billion Business, But Are Customers Really Getting Their Money's Worth? Here's What IT Managers Really Think About Their Hired Guns." *Information Week*, 11/16/98, p. 45.

Possibly to blunt those criticisms, and more importantly to create enduring partnerships with its clients, AC is increasingly negotiating value pricing (or "gain sharing") arrangements, with payment linked to business performance variables such as increased sales or reduced costs. AC's people say that they actually prefer value pricing arrangements, because they are confident they can surpass client objectives and make more money by sharing the benefits. However, many clients are not yet comfortable with such contracts because of the possibility of paying more than they would under a fixed price contract.

While AC is seen by many as a solid, reliable service provider, it has not historically been considered a thought leader along the lines of McKinsey & Company or the Boston Group. To change that perception and provide greater benefits for its clients, AC is investing heavily to develop and disseminate new knowledge. In 1998, it invested $588 million in R&D,[8] mostly carried out in research centers such as the Financial Ideas Exchange in New York, which showcases new technology for financial services clients; the Center for Strategic Technology in Palo Alto, which works with vendors in Silicon Valley to develop new IT applications; the Supply Chain Ideas Exchange in Atlanta, which develops supply chain products and promotes AC's leadership in supply chain management; and the Centre for Thought Leadership, a global think tank designed to create and commercialize emerging management ideas.

Internet and Electronic Commerce Initiatives

Andersen sees electronic commerce as a key capability for its clients, and one that AC must be able to help them develop. Shaheen says, "The Net is the marketplace of the 21st century, where global commerce will be conducted. Generally, not to play in that world will limit the success of an enterprise." AC ranked first in Intenet services revenues in 1998, according to IDC (Table 3). In this market, competitors include Big 5 accounting firms, traditional IT services firms such as IBM and EDS, and many smaller web integrators such as USWeb/CKS.

Some of AC's e-commerce engagements include helping Netscape develop the General Store section of its web site and developing processes and infrastructure to support online transactions. It is also involved in Hong Kong Telecom's video-on-demand, banking and retail service trials. AC estimates that 40% of its business in 1999 will have some e-commerce component, and expects that total to reach 100% in coming years.[9]

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[8] Figure provided to authors by David Deal, Andersen Consulting.
[9] John Soat, "I.T. Confidential," *InformationWeek*, 4/19/1999, Page 190.

Table 3. Top 10 firms by Internet services revenue

1. Andersen Consulting	$425 million
2. IBM Global Services	$385 million
3. PricewaterhouseCoopers	$250 million
4. Ernst & Young LLP	$150 million
5. Electronic Data Systems (EDS)	$150 million
6. USWeb/CKS,	$148 million
7. KPMG Peat Marwick LLP	$125 million
8. Computer Sciences Corp.	$115 million
9. Cap Gemini Group,	$90 million
10.Cambridge Technology Partners	$90 million

Source: IDC, cited in Susan E. Fisher, E-business Strategy Boom, Upside Today, September 22, 1999
http://www.upside.com/texis/mvm/opinion/story?id=37e195750

In 1998, Joe Forehand was named managing partner for the Communications & High Tech global market unit and was also given responsibility to overseeing Andersen's firm-wide e-commerce efforts.[10] The company has established a 200-person core group that acts as an e-business resource and is charged with educating the rest of the Andersen ranks on e-commerce.[11] AC has written several white papers on e-commerce as part of an effort to establish its "thought leadership" in this new area. AC also has developed two Customer Relationship Management (CRM) centers and three solution centers aimed at developing Internet-based CRM systems, and has created an e-commerce center of excellence in Singapore.

III. ORGANIZATION OF BUSINESS ACTIVITIES

AC's organization has evolved from one based on geographies and clients to a matrix organization focused on markets and capabilities.   The move to a matrix organization in 1997 was driven by the need to develop capabilities and industry knowledge that is available globally to serve large multinational clients, while maintaining local responsiveness. The company sought to achieve the following improvements through the reorganization:[12]
- Global market focus: To provide globally coordinated services and help clients become more global or regional themselves.
- Global skill delivery: The means by which AC delivers its services globally.
- Local responsiveness: Geography managing directors for the Americas, Europe/Middle East/Africa/India, and Asia Pacific ensure that local market conditions are understood.
- Strengthening emerging, innovative parts of the business: Two of the fastest-growing businesses, Business Process Management and Enterprises, were brought together under one global management.

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[10] "ANDERSEN CONSULTING : Andersen aligns market units to target convergence in businesses," M2 PRESSWIRE, 9/23/98

[11] Susan E. Fisher, E-business Strategy Boom, Upside Today, September 22, 1999 http://www.upside.com/texis/mvm/opinion/story?id=37e195750

[12] Objectives of reorganization provided by David Deal, Andersen Consulting.

Matrix Organization

AC's business is organized on a matrix, according to industry sectors and capabilities/competencies. Major industry sectors are:[13]

- Retail/Consumer Products (including industrial and pharmaceutical)
- Financial Services
- Energy
- Communications and High-Tech (a new practice created in 1998 from the communications, electronics, and media practices)
- Government

Capabilities or competencies are organized into the following categories:
- Strategic Service
- Systems Integration
- Change Management
- Business Process Management (outsourcing IT and business functions)

In addition, AC has a number of lines of business, which are groupings of consultants with special skills that are in demand by a large number of clients. When AC believes that market demand is strong enough, it creates a line of business representing multiple competiencies. The line of business is led by a managing partner who sets strategy, creates thought leadership and builds capabilities. Consultants with needed skills are brought together and given special training to provide the needed competencies. The consultants maintain their "homes" in one of the four major competencies, but also acquire special skills for that line of business. As an example, AC in 1998 created a Supply Chain Management line of business, which consists of experts who help client engagement teams improve all elements of a client's supply chain.[14]

Global optimization

AC is organized on the principle of global optimization. In order to deliver its business integration client-service model, AC must tap the entire firm's capabilities, not just those of a local team of consultants. In the words of former CEO George Shaheen, "Our leadership, our management and our people have to be as fungible as we can make them across borders."[15] Corresponding to the global orientation, AC has given global profit and loss responsibilities to each of the five industry sector groups listed above, whereas previously P/L responsibility resided within geographic regions.

At the regional level, the biggest changes have come in Europe. In order to prepare for doing business in a unified Europe, AC selected Dublin, Ireland in 1998 as the location of a new European

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[13] Sources: Andersen Consulting documents provided to authors, AC web site, various articles. Different sources break industry sectors and capabilities in broader or narrower categories.

[14] Explanation of lines of business provided by David Deal, Andersen Consulting.

[15] Peter Roberts, "Making An Office Work Without Time Or Space" *Australian Financial Review*, 12/11/98, p. 12

service center that will consolidate administrative and IT support functions previously performed at its operations across the continent. The new center will be supported by an investment of US$60 million and will require a staff of about 350 people. The center will be used as a showcase of AC's leading-edge management of administrative and IT functions with potential clients that are seeking more strategic and cost-effective approaches to their so-called "back office" operations. Showcasing the use of a company's technologies in its own operations is becoming more common in high-tech companies, such as Dell Computer and Cisco Systems. It is something new, however, for a consultancy such as AC, which is showcasing business processes rather than tangible products such as PCs or Internet routers.

Solution Centers

AC has created a global network of solution centers, each focused on an industry sector or a cross-industry capability. Solution centers are permanent facilities where solutions are developed for individual clients and where knowledge and experience can be shared across projects. The idea of solution centers is to provide permanent repositories of expertise and to develop and refine methods and best practices in key capabilities and industry sectors. Solution centers are organized into networked "families," which share knowledge across centers as well as internally.

Solution centers complement the work of onsite teams: generally the onsite teams plan and design systems, while the solution centers build them. Much of the system development and implementation work on a project can be done remotely from the solution center, although solution center personnel may spend time at the client site as necessary. Often the client will send a team to work in an AC solution center, where they participate in the planning and development process, operating under AC's highly structured environment. Enterprise Business centers are all linked via a virtual private network to each other and to clients' data centers via AC's Cincinnati data center, so solution center staff can work in virtual teams with clients and on-site consultants.

The first solution centers were operational in 1994, and the number of centers has grown to 42 as of 1999. Of these, 29 are cross-industry centers, including 25 for Enterprise Business (SAP, PeopleSoft, Oracle, Baan and J.D. Edwards), five for Customer Relationship Management, and one for Custom Development. The remaining 13 centers are industry-specific Solution Centers in four major industry sectors: financial services (four), government (two) , resources/utilities (two), and communications (five).

AC has over 5,000 professionals working in solution centers, of which over 3,000 are in Enterprise Business centers. AC expects the total number to reach 10,000 by 2000. Twenty of the 42 centers are located outside the United States, reflecting the company's global orientation. Locations with more than one center include London, Madrid, Manila and Minneapolis.[16]

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[16] Information based on list of solution centers provided to authors by Andersen Consulting.

An important benefit of solution centers is a reduction in travel demands on consultants, which helps to prevent burnout and reduce turnover. The importance of offering job opportunities that do not require heavy travel was brought up by more than one AC manager, and is also evident on the career opportunties page of the AC web site, where limited travel is mentioned as a benefit for three job categories (solution centers, business process management and business practices). Solution centers also offer employees the opportunity to develop deep skills in a particular technical or business area.

Another benefit of solution centers is in cost control and predictability. Because projects are broken down into measurable steps that have been executed in numerous engagements (AC has done over 500 SAP implementations, for instance), it is possible to come up with a solid, fact-based cost estimate by the end of the assess/plan process. In some cases, this forecast is used to offer a fixed price contract, with AC putting some of its fees at risk if it does not meet project milestones on time.

AC estimates that the use of solution centers achieves productivity improvements of 30% by cutting the time required for each stage of the process and breaking down the processes into small pieces so that an entire project can be mapped out in advance. The operations "jump start" alone saves 4-8 weeks by having the project scheduled and ready to start up from the first day.[17]

AC is not the only consultancy employing solution centers; Deloitte, EDS, Ernst & Young, and PricewaterhouseCoopers have also embraced the concept. However, even competitors admit that AC was the pioneer and is still the leader in using solution centers.

Human resource development

AC's growth strategy depends heavily on attracting, training and retaining good people. The consulting industry in general faces high turnover costs, so one way to gain a competitive advantage is by lowering turnover rates. AC puts a heavy emphasis on training, and on finding ways to improve the working environment for its consultants (one of which is reducing travel, as mentioned above).

Training

AC invests 6.5% of revenue, or about $US400,000 a year per partner, on training. Training opportunities include classroom training, as well as computer-based training (CBT). Business simulations are used for skills such as negotiation and starting a new business activity, but these are mostly used by more advanced consultants who are ready to move up to the managerial level. There is also training provided at client sites to develop particular skills and to learn to interact effectively with clients. Finally, the company recommends outside readings, such as Stephen Covey's time management books and other management training materials.

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[17] From interview with AC personnel at Los Angeles solution center.

Community development

Consultants have the opportunity to join various communities at AC in addition to formal communities of practice based on lines of business. There are communities aimed at enhancing the corporate culture, for instance by promoting diversity and providing forums for minority employees. New communities can be started if there is enough interest and if a partner's support is enlisted. The group can then get a budget to support its activities such as by providing IT resources and by allowing members to charge up to two billable hours a week to community activities.

In 1998 the firm launched an experiment to develop "communities" of about 100 within local offices to offset the anonymity of large offices and constant travel. These communities consist of consultants who work in the same practice at the same office. They offer activities determined by their members, which can range from training programs to social, cultural or recreational activities. Often consultants spend little time in the home office, and feel no sense of belonging to that office. Instead, they become part of project teams for the duration of a project, and then move on to the next engagement without developing long-term relationships within the company. The home- office-based communities are expected to strengthen the consultants' ties to the company and reduce turnover.

Strategic alliances

Andersen relies on strategic alliances to provide its clients with a broad range of capabilities. Shaheen did not like using acquisitions as a tool for developing capabilities, and AC has only made 7 acquisitions since 1989. AC instead is involved in nearly 200 alliances including partnerings with competitors such as IBM and CSC. The alliances are usually aimed at a particular industry sector or client, and have served as an avenue to expand new businesses such as IT outsourcing. In each case, the alliance brings together one or more of AC's capabilities with a capability provided by the alliance partner, whether it's a technology, infrastructure, or market access. In some cases, it is the client who creates the relationship by outsourcing different parts of a job to different consulting firms (as in the case of CSC's role in a large outsourcing contract with DuPont). A sample of major alliances is shown in Table 4.

One risk of relying on alliances rather than acquisitions is that the status of alliance partners may change, making it necessary to restructure or even abandon the alliance. This was the case in AC's alliance with GE Capital, which provides some data center services to AC. GE Capital sold its data center services to IBM, leaving AC in an alliance with one of its strongest competitors. There are also, of course, inherent costs associated with managing a large number of alliances.

Table 4. Some of AC's key strategic alliances

Industry sector/client	Name of venture	Alliance partner(s)	Purpose	Notes
Sector-based				
Health care	Covation	Bank of America (main partner) GTE CyberTrust (provides network security)	Provide electronic commerce infrastructure to manage healthcare payments and services	
Health insurance		ChannelPoint (provides health insurance software)	Provide Internet-enabled software and transaction services to the sale and distribution of health insurance	Currently implementing the solution at United HealthCare
Government/ education		PeopleSoft	Provide professional services, business strategy, software products and training to government and education markets in 35 countries	Andersen and PeopleSoft first established a teaming agreement in North America in 1993 and have since partnered on more than 180 major engagements
Oil	IS-Oil	SAP		All nine Fortune 500 oil companies now use a derivative of IS-Oil with another 20 smaller oil organizations also using versions of the product.
Client based				
Iridium		LHS Group	Support system for customer service, billing and financial management for Iridium's global mobile telephony service	Will operate in seven languages in 250 countries, allowing Iridium customers to roam worldwide.
Mercedes-Benz		Lucent	Intelligent routing of telephone calls from 17 European countries	Lucent provides DEFINITY Automatic Call Distribution (ACD) System. Andersen designs and implements project
DuPont	IT Alliance	Computer Sciences Corporation	Help DuPont gain the greatest business value from its IT systems by outsourcing and partnering with Andersen and CSC	Expected value of $4 billion over ten years. Andersen provides business solutions designed to enhance DuPont's manufacturing, marketing, distribution and customer service. CSC operates DuPont's global ITinfrastructure, and provides applications and software services. 550 DuPont IT staff move to AC, 2600 to CSC.

Partnership structure

One point that comes up in some analyses of AC is the strengths and weaknesses of its partnership structure. As the offspring of an accounting firm, AC has retained the traditional organizational structure whereby people are hired as consultants, then try to move up the ranks through manager to become a partner, a process that can take over ten years. In the meantime, there are no stock options or other incentives to tie the consultant to the firm, so that consultants who do not want to invest over a decade to become a partner (or who are not "partner material") are quite likely to leave the firm.

One AC executive points out that one of the benefits of a private partnership is that the firm can focus on a long-term vision instead of worrying about meeting the short-term needs of outside investors. He also points out that the partners have a tightly knit culture of stewardship, and have the freedom to keep investing in R&D, training and other areas that build AC's people. Finally, he says that AC hires people who fit within its culture, not people who are obsessed with stock options, and that it has been more flexible about hiring experienced people in recent years.

However, countering that argument is George Shaheen's dramatic decision to leave behind the company he created (and a salary estimated at $3.5 million to $5 million) to join a small web startup that offered him 10 million shares of stock prior to its IPO.[18] In addition, Rudy Puryear, former head of Andersen's e-commerce division, left Andersen for Web services company Lante, and Greg Owens, former head of Andersen's supply chain practice, is now chief executive at supply chain software firm Manugistics.[19]

It is possible that AC could go public itself if it is separated from Arthur Andersen. However, the departure of Shaheen and the uncertainty over the resolution of the proceedings with Arthur Andersen make it unlikely that any major changes will take place in the near future. In the meantime, the threat of losing more top people to Internet companies will probably increase or wane with the fortunes of the initial public offering market.

IV. INFORMATION TECHNOLOGY

The use of IT is critical to supporting Andersen's strategies and organization. Most of Andersen's IT initiatives have been in the category of internally-oriented projects. However, some newere initiatives are aimed at creating new business opportunities.

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[18] George Anders and Elizabeth MacDonald, "Shaheen's Webvan Stake Could Hit $100 Million," *The Wall Street Journal,* 9/23/99

[19] Kim Girard and Melanie Austria Farmer, "Andersen CEO leaves firm for Webvan," CNET News.com, September 21, 1999

IT to support internal processes, organization and strategy

Important IT systems and tools that support AC's strategy, processes and organizational structure include: the Knowledge Xchange system for knowledge management; technology tools to support consultants and clients; and computer based training programs. AC also has developed innovative applications for specific lines of business, illustrated by it Supply Chain Value Assessment tool.

Knowledge Xchange

KnowledgeXchange is a Lotus Notes-based knowledge management system, used to capture the firm's intellectual capital from around the globe and serve as a repository of knowledge available to partners, managers and consultants.[20] AC is a very decentralized company, with thousands of partners around the world in a wide range of industries and competencies, all expected to be entrepreneurs and develop new business. In the words of one AC manager, Knowledge Xchange is very important tool for bringing them all together to act as one company.

The knowledge in the system includes business cases from previous engagements, technical information, training modules, and a variety of other information organized around communities of practice. Best practices are reviewed from a strategy, process and technology standpoint, and organized within the system according to industry practice and capability.

Three levels of personnel are involved in the capturing, screening and selection. The partner responsible for each industry area acts as a "knowledge sponsor," providing "a big picture view of how that area wants to serve clients and identifying overall approaches." With that direction, a "knowledge integrator" focuses on defining the content of each practice submitted for inclusion in the firm's database. And "knowledge developers" are the consultants and managers who actually contribute the content, with the help of part-time technical support staff.

Knowledge Xchange creates a base of intellectual capital that stays within the firm and is a selling point for clients. Under the traditional model of consulting projects, each job was a one-time deal, and the client might hire away AC's consultants, who had the knowledge developed from the engagement in their own heads, rather than continue to engage AC in the future. The Knowledge Xchange can create a cumulative effect, with each engagement adding to AC's repository of knowledge, thereby increasing its ability to attract and retain clients. The use of knowledge management systems is one way for a consultancy such as AC to realize its goal of offering clients the full capabilities and knowledge of the firm.

Knowledge Xchange is used throughout AC's business processes. In proposal development, partners and consultants can refer to similar previous proposals and use them as a template for a new

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[20] AC's major competitors have similar systems. IBM has Intellectual Capital Management (ICM), Booz Allen & Hamilton has developed Knowledge On-Line (KOL); Ernst & Young has created a Center for Business Knowledge, KPMG Peat Marwick a Knowledge Manager, Price Waterhouse has KnowledgeView.

proposal. The same goes for project planning, where previous project plans can be used as templates. The Knowledge Xchange is used in project fulfillment to find technical information, resumes and contact information for people with needed expertise, and business cases that illustrate solutions to particular problems. For example, if an insurer client wanted to improve its call centres, the consultant would go to the Xchange for best-practice insights and refine them for the client. Usually consultants use the system directly, while partners and managers assign someone to search for information for them.

Strict rules govern what client material can be used and accessed. For the most part, information about ongoing projects is not available outside the project team (information about an engagement is usually posted only at the end of the engagement in any case). Often, business cases are "sanitized" by having the name of the client, or other identifying information removed.

Consultants, managers and partners are encouraged to contribute to the Knowledge Xchange by that fact that such contributions are part of their evaluations. However, there is no systematic way of measuring the quality of a consultant's contributions, such as the number of times a report is accessed by other consultants. Quality control is achieved mainly through the pride of individual consultants, who do not want to be seen as putting up poor quality reports. But a consultant or manager's pay or career path does not depend critically on contributions to the Knowledge Xchange.

Within the Knowledge Xchange, there is a special category of documents referred to as the "best of the best." These are reports filed by the most knowledgeable people in each specialty, usually line managers who are on the way to becoming partners and are the leaders in carrying out consulting engagements. For a given specialty, there may only be six or eight such experts.

The Knowledge Xchange involves both technology and human elements, and helps support community building. For each specialty or community of practice, there are knowledge managers who are responsible for getting relevant new information to consultants in the field or in the solution centers. These are often managers who are not in line to become partners, according to one AC source. As consultants use the information, they find other people with relevant skills, knowledge and interests, and are likely to contact them directly and continue to interact in the future. These relationships are likely to be at least as important as the specific information found in the database. Andersen's CIO Paulk says, "The use of groupware works better in organizations that are into teaming and collaboration. Groupware shouldn't replace those kind of interactions. But it can build on and extend the benefits of those interactions, and I think we have seen that it can also have a significant impact when it comes to facilitating creativity" across teams.[21]

However, there are limitations in the way that Knowledge Xchange is used. For instance, because information from ongoing engagements is not usually available, new insights may take some time to become available throughout the firm. Information in the Knowledge Xchange generally is

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[21] Byron Reimus, "Knowledge Sharing Within Management Consulting Firms," Kennedy Information, 1997.

only accessible by AC partners, managers and consultants. As a result, there is no creation of a business ecology or community that includes clients or business partners.

Both of these limitations are related to the demands for privacy and security on the part of clients, but they are also related to the nature of AC's business model, which is still based on the traditional view of the consulting business.   Another limitation is simply the work habits of AC's people. According to one AC interviewee, consultants often fall back on traditional means of finding information, such as relying on word of mouth referrals to find a source of expertise within the company. As a result, the full capabilities of the Knowledge Xchange may sometimes be underutilized.

Enterprise information systems

In 1999, AC announced an agreement with J.D. Edwards that includes a plan to install J.D. Edwards enterprise software in all of AC's Enterprise Business solution centers worldwide.[22] AC also has customized software to handle billing of clients, a complex function in large enterprise engagements that might involve many consultants and solution centers, and may be based in part on gain-sharing agreements.

Technology tools

AC's Technology Group provides a range of technology tools for consultants and clients to use. These include:
- FOUNDATION Software Organization: provided methodologies, tools and techniques for building client/server applications.
- Management of Distributed Environments (MODE): Framework for managing distributed architectures.
- Knowledge Technologies: Technologies for supply chain planning, data mining and profile-based reasoning.
- Operations Engineering: Expertise in developing IT strategies and managing enterprise-wide IT infrastructures.

There are also applications developed for specific vertical markets, such as finance, health care or government. Increasingly these applications are developed through partnerships with software companies, or built on standard platforms such as Lotus, SAP or Oracle. In fact, one consultant estimated that 40% of AC's business presently involves SAP implementations. The general trend is toward standardization rather than customization, although the implementation of ERPs, for instance, often involves customization to meet client needs.

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[22] Martin Coyle, "Andersen signs enterprise alliance," *Management Consultancy*, 6/2/99 Page 5.

Computer-based Training (CBT)

CBT modules are available on CD-ROM or on AC's KnowledgeXchange system, ranging from IT skills ("Learn Java in 5 days") to discussions of the company "mythology," such as history, principles and goals.

One CD-ROM-based training program, called Business Practices Course (BPC), simulates the challenges encountered on a typical consulting engagement. BPC was developed for AC by Roger Schank, director of Northwestern University's Institute for Learning Sciences. Andersen estimated in 1996 that BPC had cut training time by 40% and saved Andersen's corporate training university $10 million. Users control the pace and direction of learning. BPC features a dynamic "corporate memory" of video clips culled from interviews with experts.   Trainees face the direct consequences of all their actions and can scroll ahead to learn the results of their decisions.

Andersen also has developed innovative technology-based training tools for its clients. One tool is business simulations. For example, GE Capital wanted to train staff in achieving big-ticket structured finance deals, and found their training results were inconsistent. AC has helped create simulations of the whole process and no one from GE Capital is allowed to work on actual deals without proven levels of competence.

ServiceNet

ServiceNet is a joint venture of Andersen Consulting and GTE BBN formed in 1996 to support AC's Lotus Notes systems. At the time, a number of people from AC's IT organization transferred to ServiceNet, and ServiceNet took over some of the capacity in AC's data centers. Originally, the two shared data centers, but since then ServiceNet has created its own centers in Minneapolis, Herndon, VA, Hong Kong, Sydney, and London. The two still share centers in Tokyo, Frankfurt and Madrid. The reason for moving this IT function outside of AC was to get a handle on costs, as ServiceNet provides its services on a subscription basis. ServiceNet now supports 40,000 AC professionals and staff worldwide.

ServiceNet also started to build up an external business, supporting four clients with what it called "netsourcing" services, offering applications, support and infrastructure on a per-user rental basis. However, in 1999, AC decided not to pursue the external market for the time being, and ServiceNet returned to its core business of supporting AC's internal communications needs.

ServiceNet has contracted with Cable & Wireless to develop a global IP network providing voice, data, calling-card and Internet-related services in 40 countries to. The contract will provide support in 250 locations worldwide to Andersen Consulting for its own use.

Supply Chain Value Assessment[23]

In the category of IT initiatives aimed at developing new business is a new IT application launched in 1999 called the Supply Chain Value Assessment (SCVA). SCVA goes beyond operational improvement to support two strategic goals. By allowing AC to quickly assess a client's supply chain problems and develop an appropriate action plan, the SCVA supports the strategy of "value acceleration," i.e., shortening the time in which clients begin to see a return from a consulting engagement. The SCVA also provides a better quantitative basis for designing "gain sharing" or "value pricing" arrangements with clients, in which AC's payment is based on its performance in meeting prescribed, quantifiable goals.

The SCVA is a web-based tool used to survey executives and managers about their company's supply chain performance. In the past, AC's consultants would have to track people down and ask them questions or get them to fill out a survey. Using the SCVA, it is possible to survey all of the relevant people in a couple of days, regardless of where they are located. The data gathered from the survey are analyzed, with initial results generated in a day or so. The findings can then be compared to benchmark data from industry sources, and to data from AC's own client projects in order to identify areas of opportunity and to develop an action plan for a proposed consulting project.

The surveys measure 53 key performance variables that are common across industries. Each interviewee is identified by a number and given a password (individual results are confidential), and answers a customized set of questions from a pool of 175 possible questions. The results go into an Access database and then can be fed into Excel spreadsheets for analysis. It is also possible to survey the company's suppliers or customers to get an external view of its supply chain processes. This is done by setting up the survey on a private web site with ID and password access. Since AC's clients are generally very large firms, they can usually secure the participation of supply chain partners if they wish.

The SCVA is run from AC's supply chain center in Atlanta. Underlying it is a Lotus Notes database that contains information from the entire company with supply chain cases, methods, best practices, templates, etc. But in order to make the SCVA easy to administer and to generate fast results, the survey tool is web-based and the analytical tools and benchmark data are kept in Access and Excel files.

One value of the SCVA is that it allows AC to develop a business case for a supply chain project based on what it believes are achievable improvements. These potential improvements are stated in process terms such as manufacturing yield, inventory turnover, or cash-to-cash cycles, and in financial terms such as EVA. This can be more compelling to the client than simply providing estimates based on more a more subjective basis such as results from other engagements. It can also be used as the

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[23] As a reviewer of this paper at AC pointed out, this is not a major initiative for the company as a whole. Instead, the Supply Chain Value Assessment is discussed in detail here to give an example of an innovative use of IT in one line of business.

basis for a "gain sharing" or value-priced contract, in which AC's payment is based on its success in reaching targets driven by the SCVA process.

The SCVA is a key part of an entire business strategy that AC calls "value acceleration," which means finding ways to have consulting projects generate returns to the client faster. Because it looks at the entire supply chain, the SCVA can be used to identify places where the biggest gains are likely to be achieved, and resources can be directed to those areas. For instance, if logistics is a bottleneck, improving logistics can have large, rapid impacts on the whole supply chain system. By identifying such opportunities for improvement, AC can get the most out of its efforts. This is especially important in a value pricing arrangement where AC is sharing the rewards from successful execution.

The SCVA has three important functions. First, it is a marketing tool used to help clients understand the potential benefits of working with AC. Second, it is an implementation tool, used to speed the assessment process and drive action plans that get the fastest results. Third, it is an evaluation tool that can be used as the basis for value pricing or gain-sharing arrangements. As such, it is expected to play a key role in AC's entire supply chain business strategy.

IT Infrastructure

AC's network consists of a frame relay WAN supporting more than 500 PC servers. AC outsourced part of the support for its Lotus Notes applications, such as Knowledge Xchange, to ServiceNet, which operates eight equivalent data centers worldwide to provide global coverage. ServiceNet is now creating a global communications infrastructure for AC's Lotus applications, through a $300 million contract with Cable and Wireless, in advance of AC's expected breakup with Arthur Andersen.

AC has major data centers in Dallas (serving North America) and Dublin (serving Europe) and has co-located data centers with ServiceNet in Tokyo, Frankfurt and Madrid. As mentioned before, there is a large data center in Cincinnati that supports the 25 Enterprise Business Solution centers around the world. Other Solution Centers may rely on other AC data centers or even on a business partner's center (for instance, AC's Customer Relations Solution Center uses the data center of software partner Seibel).

With vast amounts of information in Notes databases, Andersen invested in Lotus' Domino Web server, which makes Notes information accessible via its intranet and Web browsers. "It's easy to see the benefit, in that all of our databases are on Lotus Notes," Paulk says. "From a technology viewpoint, the most important trend is further integration of our existing network with the Internet." One AC interviewee stated that AC has hundreds or even thousands of Notes servers around the world.

IT Expenses

Andersen spent $4,000 to $5,000 annually per employee on IT in 1997, according to CIO Charles Paulk.[24] This level of spending would make AC's total IT spending somewhere between $250 million and $300 million in 1998. It is not clear if that would include the contract with ServiceNet, but that has to be under $40 million (ServiceNet's 1998 revenues). Based on revenues of $7.8 billion, AC's IT expense/revenues (IT E/R) would be between 3.3% and 4.1%. By comparison, according to Gartner Group data, the median level of IT E/R for IT services companies (including software) in 1998 was 4.2%, while the median for IT consultants and systems integrators was just 2.3% (Table 5).

Table 5. IT Expenses for AC and competitors

	Andersen Consulting	All IT services companies		IT consulting, system integration	
		Average	Median	Average	Median
IT per employee	$4000-5000	$5623	$2400	$4272	$4181
IT expense/revenue	3.3-4.1%	3.9	4.2	3.1	2.3

Sources: Various press reports and Gartner Group data

This rough calculation suggests that AC is around the median for IT services companies but well above the median for consultants and systems integrators. It is somewhat surprising that AC's IT E/R is more typical of an IT services company, since it does not actually buy hardware and set up data centers for its outsourcing business; rather there is usually another partner that provides that infrastructure (such as CSC in the DuPont outsourcing deal).

V. FIRM PERFORMANCE

Andersen says it does not try to measure the return on its IT investments directly. George Shaheen said, "How do you measure the productivity improvement in Andersen Consulting since we invested in all this technology? I'll tell you I couldn't be in business without it. But I don't know how to measure it. When I made this decision to spend hundreds of millions of dollars on technology, I never asked for a specific business case. I felt we had to do it, and I was afraid if I asked for the business case and saw the number, I wouldn't do it...All I can tell you is the three or four years we've been doing this, our earnings have exploded, our sales have exploded, the quality of our client list has improved."[25]

In terms of the claims that AC's sales and earnings have exploded, it is fair to look at AC's performance over time and in comparison to its competitors, to look for supporting evidence. Unfortunately, it is difficult to measure firm performance in a partnership such as AC, which publishes very limited financial data, primarily revenues by industry and geography. Tables 4-6 presents some indicators of performance, including revenues per employee, per consultant and per partner, over time and in comparison to competitors. A recent article in *Forbes* puts AC's profits at 20% of revenues, or over $1.3 million per partner. If accurate, this is a very high margin, compared to 4-5% for EDS

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[24] Mary Ryan Garcia, "Knowledge Central" *InformationWeek*, 9/22/97 p. 252
[25] Donlon, 1997

and CSC, but there are no other sources to corroborate the *Forbes* figure, and it is not clear if *Forbes* is referring to gross or net profit.[26]

Based on Table 6, we see that revenues have been growing at solid rate of 22.1% from 1993-1998. This is roughly in line with the IT services market, which was growing at a rate of 19.6% from 1992-1997. The consultancy practices of the Big 6 accounting firms have been growing at 25-30%, according to the Yankee Group. Meanwhile, AC's revenues per employee and revenues per consultant have also been growing at modest rates—1.9% and 2.9% respectively.

On the other hand, AC's revenues per partner have been growing at a much more robust 13.1% annually, suggesting that the firm is adding partners more slowly than it grows its revenues or overall head count. From a partnership's point of view, revenues per partner may indeed be the most relevant variable, comparable to shareholder return in a corporation.

Table 6. AC financial performance, 1993-1998

	1993	1994	1995	1996	1997	1998	CAGR%
Revenues ($billion)	2876	3452	4224	5302	6647	7800	22.1
Employees	26,000					64,000	19.7
Revenues/ employee ($)	110,615					121,875	1.9
Consultants	22,765					53,500	18.6
Revenues/ consultant ($)	126,334					145,794	2.9
Partners*	858					1260	7.9
Revenues/ partner ($)	3,351,981					6,200,318	13.1

Sources: Revenues—1997 Annual report; for 1998, various press reports
Employees, consultants, partners—from press reports
* Does not include associate partners, estimated at 3500 in 1998.

Compared to Big 6 firms, AC's revenues per consultant is the lowest, except for those of Coopers & Lybrand, which now must be combined with Price Waterhouse (Table 6). Compared to the major IT services companies, AC's revenues per employee ranks last (Table 7). These are only rough measures, and it should be remembered that AC's business is not exactly comparable to its competitors, because of the wide range of services it offers. However, the data available do suggest that AC is growing at a rate comparable to industry averages, and that the productivity of its consultants is average at best.[27]

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[26] Robert Lenzner and Joanne Gordon, "The messiahs of the network," *Forbes*, March 8, 1999

[27] In many industries, revenue per employee is a misleading measure of productivity, as companies can achieve higher levels just by outsourcing manufacturing or using more temporary workers. In that case, it does not mean the company is actually performing its functions more efficiently. However, in consulting, revenue per employee is a more relevant figure, as the consulting business consists almost entirely of charging clients for consultants' time.

Table 7. AC versus the Big 6

	Revenues per consultant, 1997
AC	145,794 (1998)
Arthur Andersen	199,413
Ernst & Young	247,934
KPMG	182,539
Coopers & Lybrand	266,667
Price Waterhouse	93,333
Deloitte Touche	210,000

Sources: AC—Table 4
Others: Yankee Group

Table 8. AC versus IT Services competitors

	Revenues per employee (1998)
AC	121,875
IBM Global Services	220,000*
EDS	154,000
CSC	147,000

Sources: AC—Table 4
EDS, CSC—Excite/Quicken company profiles
IBM Global Services—Thomas, 1999
*The denominator, number of employees, may be not strictly comparable because IBM Global Services may get support services from its corporate parent that the others must provide themselves. Thus, the number of employees for AC, ADS and CSC may include indirect support personnel not included for IBM Global Services.

VI. CONCLUSIONS

- *AC's business integration client-service model aims at developing wide ranging long-term relationships with large clients.* The model aligns a client's strategy, process and technology with the goal of making the whole enterprise more effective. The value to the client is expected to be greater than if it turns to different consultancies and service providers for each of these needs. From AC's point of view, the business integration model enables it to offer a full range of services throughout the company, rather than having to compete for each project. AC targets large clients who need complex enterprise solutions and have the resources to pay for them.

- *Global optimization makes the full resources of company available to serve large clients.* Clients can be sold on the notion that they are buying the sum of AC's global skills, knowledge and experience, rather than just the capabilities of the project team. One way that this is accomplished is by showcasing AC's capabilities at centers such as the Supply Chain Ideas Exchange. Once a client project is underway, AC can tap its global resources by using Solution Centers or by bringing in experts to the client site if necessary.

- *AC has restructured its organization along a matrix structure (industries and capabilities) to support the shift to global optimization.* With profit and loss responsibilities shifted from geographies to industry sectors, company objectives and strategies now focus on maximizing performance globally. This shift also creates incentives for partners and managers to deploy resources in order to better serve industry sectors rather than to improve country or regional performance.

- *AC uses Solution Centers to develop and centralize specialized capabilities, to speed project execution and to lower costs.* These centers can carry out technical processes such as ERP implementation in support of project teams, expanding the capabilities available to clients, shortening project completion times, lowering costs and reducing travel demands. The solution centers work in virtual teams with on-site consultants and clients, and can be linked electronically to the client's information systems in order to carry out system design and integration. Project costs can be better forecast and controlled, and clients can often be offered fixed price contracts as a result. The Solution Centers are considered an important competitive advantage for AC, which took the lead in developing this approach in the consulting community.

- *Internal information systems, especially Knowledge Xchange, support the globally optimized structure and business integration model.* Exploiting the capabilities of a global organization to provide a full range of integrated services requires a means for coordinating people and information. The Knowledge Xchange is the primary tool used by AC to gather, organize and distribute the company's accumulated knowledge to support consulting teams anywhere in the world. It is also the tool used to identify and contact people with the skills or experience needed for a particular project. This allows knowledge and people to be mobilized effectively to meet client needs. Also, the Knowledge Xchange helps to bring a highly decentralized, heterogeneous group of partners, managers and consultants together to act as one company.

- *AC is utilizing value pricing, or gain sharing contracts, as a way of creating closer partnerships with clients.* If structured properly, these arrangements can create incentives for both AC and the client to make a project successful, and increase the returns to both. However, some clients balk at such arrangements, partly because they lack the skills for evaluation and negotiation, and partly because of a fear of paying more than they would under more traditional contracts.

- *AC's Supply Chain Value Assessment tool is an innovative part of its value acceleration strategy.* The SCVA can be used to quickly identify and quantify potential benefits from improvements in the supply chain, and to communicate to the client what AC can offer. It can be used as the basis for developing action plans and implementing a supply chain project. It also can serve as the basis for negotiating a value priced client engagement. Finally, it can accelerate the whole process of getting a project underway and starting to realize benefits for the client.

- *Growth opportunities are limited by availability of skilled talent and ability to retain it.* IT skills are in short supply and are getting more expensive as demand for IT services grows.

Turnover is also high in the the consulting and IT services industries. These factors make it very difficult to sustain double digit growth rates without finding ways to make people more productive and keep productive people from leaving. AC has addressed the human resources problems in a number of traditional ways, such as through extensive and ongoing training, and through less traditional ways such as the creation of communities based on interests and locality. It has also employed Solution Centers to concentrate and make better use of scarce human resources. All of these efforts are supported by IT, in the form of computer-based training, Knowledge Xchange resources to support communities, and advanced information and communications technologies to support Solution Centers. Still, these efforts may be inadequate to respond to the high costs and decreasing returns from a rapidly growing head count.

- *The loss of CEO George Shaheen and other executives shows another side of the human resources problem—poaching by stock option-wielding startups.* AC and other traditional companies are feeling this threat as Internet stocks continue to create paper millionaires and billionaires. Even if those stocks return to earth, there will continue to be a challenge attracting bright young people and retaining key executives.

- *AC's business is undergoing a transition to Internet services and electronic commerce, where it is an early leader.* If the company can keep its momentum, this is its best opportunity to sustain solid growth rates and profitability in the next few years. Previously, AC was making up to half of its revenues and profits from enterprise resource planning applications, but the ERP market is flattening out. AC needs either to retrain its ERP specialists or replace them with people who have the skills needed for e-commerce. Such transitions are normal in the consulting business, but appear to be happening faster and more often than ever.

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