

tance of the appearance of the commercial web site. This is because the user will need to have less direct contact with the product/service provider as the agent will take on the role of mediator between the user and the commercial organisation. One implication of this which may have significant impact on electronic commerce is the shift in emphasis that it suggests from the appearance, or form, of web pages to the web page content accessible by the agents. This content is often invisible to user of the sites as it is embedded in the source code for the pages. Some attention is clearly paid to this already as it is this content that simple search engines use to locate sites of interest. As agents become more sophisticated, however, the importance of considering the structure and provision of this information will increase. Yet, it seems that most effort and expenditure in developing web presence for electronic commerce is expended on the obvious appearance of the site. A closer understanding and appreciation of the structure and workings of agent technologies may be a first step for organisations wishing to differentiate themselves and attract the knowledgeable users who currently form the majority of their potential customer-base. It may even be advisable for web service providers to tie together their strategies for encouraging electronic commerce with the development of agents systems for users which are made freely available and are frequently updated. This might satisfy the often disparate goals of supporting users in finding what they want and helping commercial organisations offer their products and services to their target markets.

BUILDING THE VIRTUAL ORGANIZATION WITH ELECTRONIC COMMUNICATION

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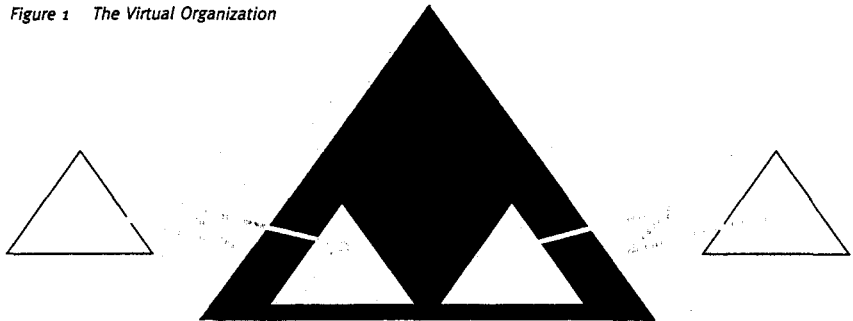
Modern electronic communications has made it possible for business organizations to achieve most of the benefits of vertical integration without the significant investment of capital (Palmer, 1996). A "virtual organization" is a collaboration of business partners to achieve some overall objective. Because of electronic communication technologies, multiple business entities can act in concert, as if they were actually parts of a single wholly-owned business organization (Williamson, 1993). This provides many of the advantages of being a smaller firm and a larger firm at the same time. (Byrne, 1993). Use of information technology and electronic communication systems may be the key to developing future competitive advantage (Porter and Millar, 1985). Figure 1 graphically depicts a virtual organization with two "virtual" elements.

egrated CAD/CAM system. Electronic systems that were linked between the Asian and domestic locations provided the coordination and control mechanisms. These systems also monitored quality throughout the various steps of product development (Rosenzweig, 1994).

VF Corporation (VFC) is the maker of Lee jeans. They developed a system to collect point-of-sale information that feeds a flow replenishment system. In this way, VFC takes on the task of maintaining proper inventory levels on the shelves of retailers (Cafasso, 1993).

One of the most successful examples of implementing virtual partnerships is Corning Inc. In 1992, Corning's 19 partnerships accounted for nearly 13% of its revenue (Byrne 1993).

Figure 1 The Virtual Organization



CASE EXAMPLES

Virtual organization strategies have already been implemented in a number of successful cases. Nike, for example, has always used Asian sources for the manufacture of athletic shoes. In the 1970's, without access to proper electronic communications, Nike had placed their own personnel at each manufacturing location. The purpose of these people was to guarantee proper quality and to serve as a mechanism for coordination and control. By the 1980's, those people were no longer needed. They had been replaced by an in-

Despite the many examples of successful virtual partnering, not everyone is sold on the virtual concept. In 1993, then Intel Chairman Andrew Grove said, "I think it's a business buzz phrase that's meaningless" (Byrne, 1993)

BUILDING THE VIRTUAL CORPORATION

A virtual organization is developed through two different mechanisms: 1) Strategic Partnerships, and 2) Outsourcing. A Strategic Partnership is formed when two business partners (e.g. supplier and manufacturer) agree to act together as a

single strategic unit. Outsourcing occurs when a business elects to have an external organization assume a business activity that had formerly been accomplished on an "in-house" basis.

The development of business partnerships raises two very important questions: 1) How do you decide what portions of the business should be accomplished in-house and which portions should be done by a strategic partner?, and 2) What are the guidelines for developing the contracts that link strategic partners?

IN-HOUSE OR OUTSOURCE?

The basic premise determining which functions to outsource comes down to this principle: a business should outsource activities until it is reduced to its "core competencies." In other words, a business should concentrate on those business activities that it does best, and outsource the rest (presumably to others who do those things best). Corning has apparently been able to identify a large number of areas where strategic partnerships work well (Byrne, 1993).

Often, there are business functions that are perceived to be too sensitive, or too key to the overall strategy, to be trusted to others. It is also possible that no suitable partner can be found for a particular business function. For example at Intel, Grove was able to locate a partner for some projects. But, he apparently did not consider the results to be very successful (Byrne 1993).

RELATIONSHIP BUILDING VIA CONTRACT DISCUSSIONS

Strategic partnerships are about building long-term relationships. In fact, it has been observed that the most important outcome of the contract negotiation is not the finished contract, but the deepened understanding of important issues that naturally arise in working out the contract. Several principles can be applied in developing contracts that contribute to building a long-term relationship:

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- 1) Simplicity
- 2) Flexibility
- 3) Strategic Alignment
- 4) Shared Outcomes

SIMPLICITY.

A good measure of the KISS principle (Keep it Simple Stupid) should be applied. It is not possible to examine every detail of a strategic relationship. It's best to just concentrate on the key issues.

FLEXIBILITY.

All future circumstances cannot be predicted at the time of the contract. It is better to spell out procedures for resolving future business situations than it is to try to predict all possible future situations.

STRATEGIC ALIGNMENT.

If business units are going to act in concert, they must have coordinated strategies. An alliance of this importance will not work if one partner is focusing on building market share and the other partner wants to maximize short-term ROI.

SHARED OUTCOMES.

The success (or failure) of the overall enterprise must be shared by all of the partners. And, because of this, major decision-making must also be shared.

Following these principles will not guarantee the success of the partnership. However, they do provide a framework for addressing the important issues, which may be the most important result.

THE ROLE OF ELECTRONIC COMMUNICATION

Communication in a virtual organization is a logical extension of the "Just-in-Time" concept. Many businesses share transaction-type information through EDI (Electronic Data Interchange) as a part of a just-in-time agreement. Virtual partners must share a much broader range of information. If the partners are to act together as a single strategic unit, they must be willing to share relevant, proprietary information. Information concerning pro-

duction schedules, material availability, availability of labor and other such information must be freely exchanged.

In order to form a partnership; it is not sufficient to be willing to share information. It is also necessary to develop the technological capability and compatibility to accomplish this goal.

SYNCHRONIZING TECHNOLOGY

Most predominant among the issues to consider are the organizations' information architectures (including communication networks) and their bases and structures of relevant data. The sharing of this information is vital in the search for areas of existing commonalities to serve as a base from which to develop the requisite computing system for the alliance (Malone, 1987). This is an area where, ideally, the relative strengths of one organization's "in place" information system assets may be "outsourced" to overcome relative weaknesses in the other partner's information architecture.

The assumption is often made that the hardware, software, and data components of multiple organizations are sufficiently alike so that the virtual corporation's processing requirements are already in place. This is, at best, wishful thinking. Meeting those requirements will generally require systems modification, at a minimum. For example, VFC found many challenges in accommodating the diverse technologies of the different retailers using its systems (Cafasso, 1993).

Some organizations may prefer to conduct coordinated process re-engineering in order to optimize the virtual features inherently required by each of the partners in the virtual corporation. Others, given appropriate time and funding, may opt for the design and development of a totally new system for the "new" company. Such a new system may use a phased implementation concept, in order that the advantages of the system's "virtual" aspects may produce results as early as possible.

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Visualizing the potential of the virtual corporation, software vendors have developed and are enhancing multi-faceted packages that can ease the transition to the virtual environment. For example, Information Builders has developed EDA (Enterprise Data Access), a set of software components designed to integrate information technology across all aspects of an enterprise. Components are available to utilize the worldwide web and interact with such diverse system types as CICS and IMS transactions systems, object-oriented systems, and the newer client-server systems.

One of the most critical components of the new virtual corporation is its communication plan. If an organization's database is the "heart" of its information sharing and processing plan, the data communication network is its central nervous system.

CONCLUSION

Planning is critical if the complex relationships of a virtual partnership are to succeed. Contract negotiation will force the parties to face (and hopefully, resolve) many of the important issues that will be encountered. When properly structured, this process will also set the stage for addressing future situations that cannot be foreseen at the time of the contract formulation. Vital among those issues will be the requirement for sharing of information and the development of the necessary technological infrastructure.