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The Driving Forces in the Virtual Society

Examining the factors propelling the evolution to a virtual workplace and the arrangements being used to implement these changes in a societal context.

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The term virtual society refers to all components that are part of a society's culture based on the functional rather than the physical. It extends to include significant enhanced effects or actions, physical behavior of non-physical entities, and the supporting use of telecommunications and computing technologies. Companies no longer talk about "work at home" programs. Rather, they talk about "work anywhere, anytime" where laptops, fax machines, cellular phones, networks, email, and voice mail are in the state of transformation toward the virtual society. After all, does it matter to the recipient whether that critical voice-mail message was sent from a client's office, an airport, or a traffic jam? The definition of "virtual" was extended by Grenier and Metes [2] to include significant enhanced effects or actions, physical behavior of non-physical entities, and the supporting use of telecommunications and computing technologies. A culture once based exclusively on physical contact is in the process of being transformed to a culture where goods and services are accessible without the need for face-to-face contact with other people. Technology enables this transformation toward a virtual society and is the glue that makes virtual societies plausible. However, technology alone does not guarantee the viability of the virtual society; the technical power must be used intelligently and deliberately by an informed population.

The virtual society is a compilation of leading-edge computer, communications, and information technologies and the impact of these technologies on individuals, groups, organizations, and societies. As the number of implementations of the newly formed virtual societies increases, societies face new challenges to cope with their social structure.

Limited research has been conducted to study issues related to the virtual society phenomenon. Although there has been a fair amount of research on the virtual workplace or telecommuting, this research is usually focused on the individual. It does not consider global issues and models for virtual organizations, communities, and nations. Existing research also espouses the positive aspects of interactive communication in a business environment. It ignores the negative elements, is descriptive, and does not consider consumers, politics, and the culture as a whole. An intellectual comprehension of the entire domain of the virtual society—individual, group, organization, community, and world—is an imperative for studying this impending societal form.

The purpose of this article is to review existing articles in academic and business journals within the fields of information science, social science, economics, and management for the purpose of deriv-

ing a conceptual framework to study the creation and impact of the ensuing virtual society.

Virtual Society Framework

Technology allows change from 20th-century, physically oriented structures to 21st-century, non-physically oriented communication structures without constraints of place and time. Our discussion follows the model of this virtual society, which is presented in Figure 1. The figure describes an evolutionary model conceptualizing an entity hierarchy for studying the virtual society and summarizes both the driving forces and arrangements that are critical components of this proposed research framework. After discussing each driving force and arrangement, we present three implementation examples.

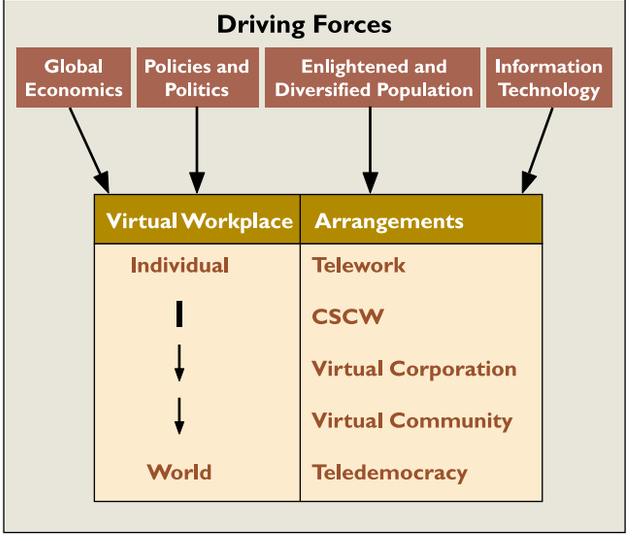
Driving Forces

The virtual society transcends towns, states, and countries, and represents an evolutionary, as opposed to a revolutionary, movement. Typical analyses of change-initiative forces include an examination of economic, political, cultural, and social components. This article discusses these macro elements on finite levels—global economies, policies and politics, enlightened and diversified population, and technology.

Global economies. During the last decade, the world has witnessed an unprecedented expansion of business into global markets. Firms distribute value chain activities throughout the world. Globalization is an important emerging business mandate relevant to virtually all individuals and businesses. Firms realize that they need to think globally and be concerned about business beyond their domestic marketplace both for competitive reasons as well as for identifying opportunities for growth and increased market share for their products and services. Firms routinely move an important piece of work, such as a proposal, across time zones and countries so they can work on it literally around the clock. Borders are becoming transparent for trade as regional trading blocs, such as NAFTA and the European Union (EU), move forward and as global money becomes more of a reality. New IT enables businesses with diverse forms of organization and control to operate in multiple countries.

A global economy requires monetary exchange standards. The integration of national payment systems, through which people can execute foreign exchange and operations and payments in different currencies or between residents of different countries, is important to the EU. We can anticipate the acceptance of electronic payment—electronic payments are becoming commonplace through the direct deposit of paychecks and the use of bank debit cards. New methods for electronic payments, such as E-cash between customers and banks or electronic payments between companies and/or banks, are being developed and piloted in the late 1990s in an effort to improve security, provide anonymity, and reduce transaction costs. These approaches have the potential to change government regulations, the way people view money, and the entire banking industry [8].

Figure 1. A framework for the virtual society.



Another phenomenon driving the global economy is the rapid adoption of English as a common language by the major trading partners of the world. A common language helps to pave the way for increasing the worldwide adoption of the virtual workplace. Standardization is an inexpensive alternative to interpreters, and the acceptance of English as the global language would significantly simplify trade transactions.

The global efforts to standardize economic issues by enhancing free trade policies, creating robust telecommunications infrastructures, changing the nature of payment and money,

upgrading global monetary standards and policies, and adopting a common language for conducting business, are moving us to the virtual workplace.

Policies and politics. Government policy-making for IT is at a crossroads. Some people believe the market should drive IT policy while others think government intervention is necessary. National IT infrastructure serves the broad public interest and serves the commercial and industrial interests. Concerns have been raised that large businesses and big money will dominate the global marketplace and minimize the ability of the ordinary citizen to leverage the intellectual, social, commercial, and political benefits of global technologies. Clearly, policy and politics will shape the global marketplace.

The world's trading partners have differing views of governments' role in IT implementation. Governments play a major role in emphasizing the importance of telecommunications to national and business infrastructures by building and maintaining national backbones and helping to provide gateways to other nations. Singapore, for example, in 1980, established the first formal IT policy. The National Computer Board in Singapore in 1992 announced the IT2000 Plan to extend the role of IT beyond its domestic needs to embrace the rapidly developing Asia-Pacific region. Some European countries already view the free flow of information as a way to improve their economies and are instituting policies that demonstrate clearly their commitments toward creating a global marketplace. For example, the Danish government is aggressively pushing the country toward a virtual workplace. It has developed a technical blueprint for achieving this goal, including a plan to have 75% of the households equipped with personal computers and modems by 2000 [1]. The U.S. National Information Infrastructure initiative intends to give every school access to the Internet. Although this attitude toward a virtual community is not yet commonplace worldwide, some countries' commitments to building virtual communities are noteworthy because government is taking the responsibility to create the foundation for change.

Enlightened and diversified population. According to projections reported in Workplace 2000 [5] the U.S. workforce is becoming increasingly diverse. Johnston and Packer [5] projected that by 2000, approximately 47% of the workforce will be women and 61% of all women of working age will be employed. It is projected that by 2000, African Americans will comprise 12% of the U.S. workforce, Asians 4%, Hispanics 10%, and women 48%. Further, the nature of jobs will also change, with professional, technological, and sales jobs becoming the fastest growing sectors [10].

The evolution of a virtual society is dependent on having people understand, accept, and implement the consequences of the new society culture. Use of the technologies requires individual computer literacy which, in turn, requires typing skills. Countries in which people learned to type in school and that teach computing in the schools have a temporary edge in working virtually. However, this edge will disappear as older workers leave the workforce.

People need exposure to IT at a young age so they are able to effectively build on their learning and are able to adapt to change. School curricula are starting to offer computer classes in the elementary grades to expose children during their formative years to the ways they can use information to enrich their futures. The passage of time will produce a more knowledgeable group of people with the requisite skills to interact in a virtual workplace.

Information technology and its applications. The interest and growth in the virtual society has been further spurred by advances in technology. Technological advances and the reduction in hardware and software costs have made this phenomenon a reality. Telecommunications and network technology enable us to create the virtual society; however, technology by itself does not ensure the coming of the virtual society. Rather, it is an enabler. Digital technology has made it possible to convert text, sound, graphics, pictures, and motion into a computer language. Codification of data, including text and numbers, as well as multimedia digitalization, allow us to be less time- and location-dependent. These technological advances, plus the emergence of multimedia standards and the shift to distributed computing and internetworking, are providing the raw power for the digital convergence. We are seeing a cornucopia of supporting technologies, including the Inter/intra/extranet, email, groupware, videoconferencing, workflow, data management, data warehousing, and improved networking capabilities.

In the 1990s, the Internet moved from supporting only science and research to becoming an integral tool for commerce. The Internet is at the forefront of the global growth of these enablers. The growth rate in the number of Internet hosts is exponential. For example, in 1995, 148 out of 185 (86%) United Nations members had Internet service, compared to 46% in 1991 [6]. In June 1996, approximately 400,000 businesses worldwide had domain addresses (see rs.internic.net). As of July/August 1997, it is reported that there are more

than 4,000 Internet service providers (ISPs) in North America [9].

Interactive communications are required if business is to be conducted virtually on the Internet (or its successors). Email is the foundation for such communication and is available at relatively modest cost, but the simple sending of text messages is not enough. Multimedia applications are increasing the gains of groupware, videoconferencing, data management, and data warehousing in the virtual world. Improved networking infrastructures will underlie the higher bandwidth, security, and reliability that enable this technology.

Internet e-commerce is replacing traditional e-commerce, which relied on value-added and private messaging networks—both of which were relatively expensive and provided limited connectivity. The new technology holds many possibilities for virtual societies. It enables individuals, groups, communities, organizations and societies, among others, to exchange information, conduct business, participate in newsgroup discussions, and publish information electronically. The new technology enables innovative ways of communicating and doing business. It is an important element of creating the virtual society.

Virtual Workplace Arrangements

There are many possible approaches to workplace arrangements, schemes, and potential scenarios, as discussed here.

Telework. Telework originated with the idea that work could be moved to where the workers are rather than moving the workers to the work. People can work in a variety of locations (at home, a neighborhood office or at a client office) and participate in the work of the organization [3].

Teleworking has grown due to the demands of three constituencies: employees, organizations and society. First, employee demands for more flexible work arrangements resulted from substantial changes to the family structure. Traditional families with a working husband and a stay-at-home wife are down to 10% of American families. The growth of dual-career households, those with preschool-age children, those with older children, and those with a dependent spouse or parent may increase the work-family conflict resulting from trying to perform multiple roles such as worker, spouse, and parent. Thus, telework arrangements may make it easier for individuals to achieve a better balance between their work and personal lives.

Second, organizations need to make accommodations to attract and retain employees due to demographic changes. The next generation of workers will be much smaller in number than the current workforce. As older workers, who are experienced and trained, retire, the smaller pool of younger workers causes a shortage of needed employees. Flexible work options are expected to be required to recruit and retain quality employees.

Societal demands for environmental awareness are the third factor contributing to the demand for flexible work. Teleworking helps organizations deal with the regulatory requirements of the Clean Air Act and the Americans with Disabilities Act. The Clean Air Act requires large companies to reduce the number of automobiles used to commute to work on a daily basis. Allowing employees to work at home helps organizations to comply with this legislation. The American Disabilities Act requires organizations to make reasonable accommodations for disabled employees to perform their jobs. Allowing physically challenged individuals to telework allows organizations to comply with this legislation as well. Flexible work also provides an organization with a contingency plan to cope with disasters. Recent weather problems and other disasters, such as the Northridge earthquake in California and the blizzard of 1996, which paralyzed the U.S. east coast, all but required employers to consider alternate work arrangements.

Figure 2. Four combinations of time and place.

	Same Place	Different Places
Same Time	**Face-to-face interaction** (example: group decision support systems)	**Synchronous distributed interaction** (example: videoconferencing)
Different Times	**Asynchronous distributed interaction** (example: project scheduling tools, team rooms)	**Asynchronous distributed interaction** (example: email, computer conference)

On balance, companies appear to use productivity improvements and cost reductions for justifying telecommuting more than they use regulation or disaster-prevention as a rationale.

Computer-supported cooperative work. The rapid evolution of information and the new potentials for communication, particularly the increased availability of computer networks and the trend toward teamwork, contribute to the success of organizations. Computer-supported cooperative work (CSCW) is about using teams to support the flexi-

bility in virtual work. CSCW is a computer-based system that supports groups of people engaged in a common task (or goal). It provides an interface to a shared environment. CSCW is a generic term that combines the understanding of the way people work in groups with the enabling technologies of computer networking, and associated hardware, software, services and techniques. The major change that computer support (such as Lotus Notes) has brought to teams is the ability to work anyplace, anytime. The two-by-two grid shown in Figure 2 depicts the four combinations of time and place involved [4].

In a virtual workplace using different time/different place communication, people have the opportunity to decide when they want to communicate, the form of communication, and how the communication will proceed. CSCW systems are often categorized according to the preceding time/location matrix using the distinction between same time (synchronous) and different times (asynchronous), and between same place (face-to-face) and different places (distributed).

Virtual corporations. Vertical integration, in which organizations carry out all their activities themselves, is diminishing. Some corporations outsource part of their work, whereas others create virtual alliances and partnerships. Organizations create alliances with other firms that possess competencies needed to create a specific product or service in a very short period of time. These alliances and partnerships constitute virtual corporations. Virtual corporations are temporary networks of independent companies—suppliers, customers, even erstwhile rivals—linked by information technology to share skills, costs, and access to one another [7].

Virtual organizations are established though the use of one or more of the following existing collaborative mechanisms:

- Partnerships
- Joint ventures
- Strategic alliances
- Supplier-subcontractors
- Cooperative agreements
- Outsourcing contracts
- Royalty agreements
- Licensing agreements

More complex than the traditional model are the virtual business relationships, which are created and dissolved quickly. Two companies in partnership on one project may be bitter rivals in another. Differences in corporate culture must be worked out. Ways have to be found to protect company secrets, such as special formulas or marketing strategies.

Virtual communities. Virtual communities emerged from a surprising intersection of human needs and technology. When the ubiquity of the telecommunications network is combined with the information-structuring and storing capabilities of computers, a new communication medium becomes possible. Virtual community is a term commonly used to describe various forms of computer-mediated communication, particularly long-term, textually mediated conversations among large groups. It is a group of people who may or may not meet one another face-to-face, and who exchange words and ideas through the mediation of computer networks and bulletin boards. The range of activities is immense. People chat. They argue. They exchange property, ideas and gossip. They plan, make friends, even fall in love. They do everything people do when they meet face-to-face, but by using computers, they do it separated in space and time. Electronic interactions in which people don't know each other make new kinds of communities possible.

The improved communication of virtual interaction allows people to seek out more easily those who espouse similar beliefs than can be done in a physical world. For example, Net newsgroups and electronic bulletin boards allow people to share ideas and knowledge on a particular subject. Children and adults spend time surfing the Internet, participating in chat rooms or MUDs (Multi-User Dungeons/Dimensions), redefining their physical and social appearances, or playing "love connection" to find a partner rather than interacting physically. It is unclear whether these activities create homogeneity among people or whether such interactions more often are viewed as a convenience for a particular time. Over time, two extreme outcomes are possible. In one, people become more alike because they are all exposed to the same ideas; in the other people become fragmented into multiple special interest groups that never intersect and hence cannot compromise their differences.

Telededemocracy. The rapid evolution of information and the new potentials for communication, particularly the unprecedented global telecommunications and information networks explosion and the trend toward a global social society, will have profound impacts on various phenomena, such as work, social life, entertainment, education, and democracy (see www.auburn.edu/tann/tann2/editor.html).

Telededemocracy is about using directly empowered citizens to support the flexibility in virtual work and to have meaningful input into the political system.

In modern societies, citizens want to shift from being "the governed" into "self-government." They want to be involved actively in the political work instead of being mere subordinates. They want to have more power, authority, and control over their own lives. Ordinary citizens can play a major role in helping to decide what kind of society they want to live in. They can take an active role in socio-political decision-making in order to make their lives better and to manage their own affairs. They can participate in agenda setting, planning, and policymaking and they ask for the power to be handed back to them. Technology, now, can easily empower them. It promotes a new form of direct citizen participation and direct democracy—Teledemocracy.

Teledemocracy is a generic term that combines the understanding of the way citizens are empowered with the enabling technologies of computer networking and all of the associated hardware, software, services, and techniques (see www.auburn.edu/tann/tann2/auli.html). The major change that teledemocracy has brought to societies is to ensure that political decisions are made in accordance with the people's attitudes and desires, to facilitate personal and community evolution, to build social value structures, and to make their future (see www.tcm.hut.fi.).

Teledemocracy has grown due to the demands of three constituencies: citizens, elected leaders, and society. First, citizens' demand for more leverage in self-governance resulted from substantial changes to citizens' perceptions of governments and increased citizen participation in information revolution. Information technology could support increased civic participation by facilitating an informed citizenry. The increased number of informed citizens may increase the need to create a more conscious direct democracy. Citizens need to interact electronically with their elected leaders and hold weekly or monthly electronic meetings. These meetings can establish some accountability between the public and their elected leaders. Holding electronic town meetings may provide a forum for citizens to build a working consensus on major issues and priorities (see www.auburn.edu/tann/tann2/elgin.html). These may assure that citizens feel engaged, involved, and invested in decision-making and responsible for society and its future.

Second, elected leaders, due to electronic means and social changes and demands, need to realize critical political transformations that may redistribute their political power. Elected leaders need to communicate with citizens, colleagues, and government agencies. They persuade, negotiate, listen, and question to meet stakeholders' desires. Citizens' wishes can push elected leaders to adopt teledemocracy. Teledemocracy can also improve the relationship between citizens and policymakers and decrease the gap between the governor and the governed.

The virtual society transcends towns, states, and countries, and represents an evolutionary, as opposed to a revolutionary, movement.

Societal demands for voicing public opinion and communicating with elected leaders are the third factor contributing to the demand for teledemocracy. Governments may need to increase their funding for telecommunication infrastructures to generate the level and quality of communication needed to support teledemocracy in its process of choosing a sustainable future. Faster, cheaper, more diverse, and more interactive communication have the potential to increase citizen participation and involvement in the democratic process. Local information networks should be designed to promote civic participation by offering government information and communication at little or no cost.

Perhaps a more dramatic change for the future will be a shift in governmental processes. A representative government is used so that people are able to elect others whom they believe will perform governmental rules effectively and follow their ideals. Elected representatives are agents of those who elect them. In a virtual society, these agents may no longer be necessary because people could perform governmental functions virtually (for example, virtual voting on issues, teledemocracy, Ross Perot's suggestions for virtual town halls). While I foresee an increase in electronic meetings for global commerce, I expect an even greater impact will be made by simplified distribution in the government and political arenas.

Conclusion

The world recognizes the potential of the virtual society as the model most likely to cope with the future. Individuals, groups, organizations, communities, and the world can communicate with one another and do business independent of time zones and geographic locations. A framework to explore

the entire realm of the virtual society has been presented here, with an examination of how people can expand the way they work and mix remote interaction with face-to-face relationships. The elements of this framework are both the driving forces that will propel us to evolve to a virtual workplace (global economies, policies and politics, enlightened and diversified population, and technology) and the arrangements being used (telework, CSCW, virtual corporations, virtual communities, and teledemocracy) to implement these changes in a societal context.

This study provides important insights into the forces and the issues in virtual societies. Additional research is needed to examine the relevance of such forces and arrangements in a societal context. We have attempted to develop a framework to explore the entire realm of the virtual society. This framework is aimed at organizing the knowledge from prior literature and identifying the boundaries of this phenomenon. We hope this framework will stimulate additional research in field settings on the driving forces and issues facing the virtual society and contribute to a deeper understanding of the interrelationships among all these forces and issues. Further, the push toward a virtual society appears inexorable and can be both a positive and a negative force. The technology keeps getting better and more sophisticated. However, the determining factors for the essential outcome will most likely be the social and economic forces. C

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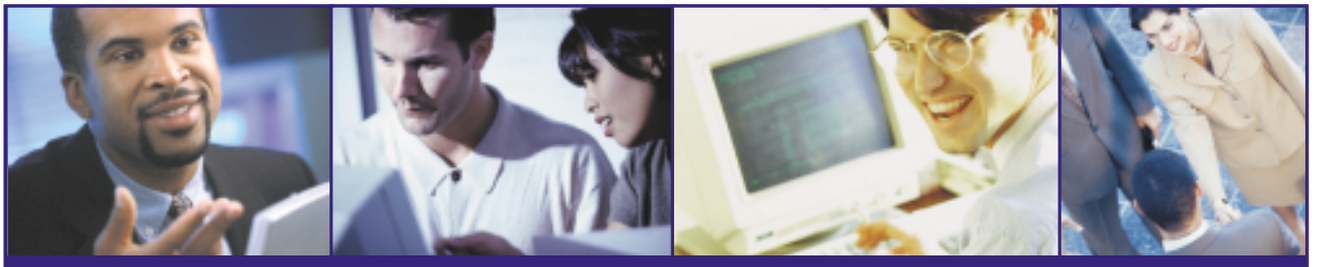

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