THE INTERNET AND IMPERATIVES FOR NEW FORMS OF ORGANIZATIONS

R. GHASEMIYEH, Ph.D. Researcher
Department of Management
University of Newcastle Upon Tyne
Newcastle, U.K.
email:Rahim.ghasemiyeh@ncl.ac.uk

A. ZARIFFARD, Ph.D.
Department of Management and Accounting
College of Social Science, Shiraz University
Shiraz, I. R. of Iran
email: azrif@rose.shirazu.ac.ir

Abstract - The role of information technology (IT) in shaping tomorrow's operations is a distinctive one. The Internet is a pervasive phenomenon and it is commonly believed that the Internet and its inherent distributed capabilities lead to decentralized views. They have had profound effect on organizational structure, because organizations can gain enormous location flexibility in various activities. While the Internet has overcome distance and organizations, they now have to deal with different combinations of physical and electronic spaces and places. The challenge for companies in information markets is the shift from physical to electronic infrastructures. Many researchers believe that current models of organizational structure fail to meet the challenges of the information age. Researchers believe that the traditional hierarchy has outlived its usefulness and that new organizational models are needed and that IT lies at the heart of these new models for the next century. The purpose of this paper is to evaluate the impact of the Internet on organizational structures and identify imperatives for new emerging forms of organizations in light of IT advances.

Keywords - IT, Organizational Structures, New Organizational Models, Electronic Infrastructure.

INTRODUCTION

To evaluate how organizations change Brown and Eisenhardt [7] consider two theories. One perspective is a Darwinian view, in other word, a process of how living things grow, adapt, and change. This is the Evolutionary Theory that describes the process of gradual change across time through variation, selection, and preservation. This theory gives a passive role rather than an active role to organizations. The organizational growth model that has been introduced by Greiner is an evolutionary model. The second and newer perspective is the Complexity Theory. This theory emphasizes the emergence of adaptive systems. According to the complexity theory, adaptation is most effective in systems that are only partially connected. According to this theory, after an unknown period of time a significant event occurs that creates a pervasive changes in all aspects of human life. The time of occurrence of such event is called the "Bifurcation Point." Looking backward, when we look at history we can identify many of these bifurcation points, for example, electricity in its time was a bifurcation point. In our age, the Internet can be seen as a new

bifurcation point.

Internet is a pervasive phenomenon and it is commonly believed that the Internet and its inherent distributed capabilities lead to decentralized views. They have had profound impact on organizational structure, because organizations can gain enormous location flexibility in various activities. Nowadays that the Internet has overcome distance and organizations, it will have to deal with different combinations of physical and electronic spaces and places. The challenge for companies in information markets is the shift from physical to electronic infrastructures.

Many factors are driving change – or perhaps it is better to say impose change - but as Byrne reports, [9] none is more important than the rise of Internet technologies. According to Johnson [17] the Internet is going to mature faster than any other development seen to date. He claims, in a traditional organization, the CEO has used information as a power device. In the 21st century Corporation, continuous link between customers, workers, and suppliers and so on is necessary. In such a setting the free flow of information is inevitable. With the Internet everyone can participate, regardless of size and circumstance. [8]

Using the Internet offers opportunities for reducing operating cost levels and enhancing services. [35] It also provides opportunities for leveraging divers' sources of expertise within and across organizational boundaries. [37]

The growth of Internet-based business is truly meteoric. A recent report in the *Purchasing Magazine* stated that 81% of purchasing professionals use the Internet in their job. That's up from 73 percent in 1998, and represents an incredible increase from 1997, when just 45% of buyers utilized the Web. Ford and General Motors have announced that they will do all procurement over the Web within a year. Bulloch [8] reports, four years ago, according to a recent CFIB survey, only 30% of firms with 5099 employees were using the Internet to do business. Today that number is 85%. It is no surprise that 82% of these firms are using the Internet for email, 46% own a Web site, 23% are buying online and 17% are selling online. Some researchers claim, the advent of Internet has increased the importance of IT and opened new opportunities that can dramatically alter the way a firm competes, for example Intranet and extranets have enabled firms to reduce costs and streamline business operations.

In contrast, Simon [30] declares that loyalty may be less on the Internet than in traditional organizations. In spite of a great advantage, the Internet's effect on centralization will not be as strong as one might expect, but there is evidence to support both points of view. One of major criticisms of the Internet is that it does not lend itself to a centrally managed environment. [31]

TRADITIONAL FORMS

In summary, looking backward, four organizational models have been introduced for prescribing how to design an organization to achieve alignment among the various components within the organization and its environment. The models are discussed briefly below:

The Bureaucratic Hierarchy: In bureaucratic organizations, authority hierarchy is well defined; duties of employees are clear (division of labor). Organizations are characterized by high formalization and employment decisions are based on merit. The strength of this model lies in the standardization and implementation of activities in a highly efficient manner. [28] Its major weakness is too much emphasis on specialization which leads to sub-unit conflict.

The Entrepreneurial Organization: In contrast to bureaucratic firms, an entrepreneurial firm always looks for innovation, and continually searches for the risky environments. The key to success in entrepreneurial organizations is real-time, organization-wide information sharing, and collaboration throughout the organization. [1]

The Matrix Organization: In an effort to minimize environmental complexity, in the 1960s researchers introduced the matrix model. This model was characterized by using specialists from various departments to collaborate as a team(s). In contrast with its primary objects, the matrix failed to create a suitable climate throughout the organization. Its various information channels resulted in overlapping authority and power struggles. [1, 28]

The Adhocracy: In a dynamic and complex environment, there is a need for sophisticated innovation. Mintzberg [25] suggests the adhocracy as a final solution, and characterized it as a "highly organic structure, with little formalization of behavior, high horizontal job specialization based on formal training. According to Robbins, [28] adhocracy is a kind of organization with low vertical differentiation, low formalization, decentralization and great flexibility.

EMERGING FORMS: CHARACTERISTICS AND IMPERATIVES

Many studies have been devoted to finding characteristics of emerging forms of organizational structures. [1, 3, 7, 9, 11, 15, 16, 18, 19, 20, 23, 24, 32, 35, 36] It is obvious that mentioning all the related studies are far beyond the scope of this paper. However, an attempt will be made to try and evaluate briefly the main ideas of above papers.

A number of terms have been used to describe the organizational form of the future. [11,15] and is called *Virtual Corporation*. [12] Other names include: *Plug-And-Play Company* [10], *Network Organization* [3,9], *Web Company* [14], *Knowledge-Creating* Company [26], *Opportunity Based Design.* [13] Despite the different names, all the new

forms emphasize on similar drivers: globalization [11, 16, 27, 32] the move to an information economy [2, 34, 36], flexible environment [4, 18], to be entrepreneurial and to be responsive to markets [13], and customer orientation. [35, 36]

Some commentators identified technology as an "imperative" that determine structural characteristics such as span of control, and centralization of authority. [19] Bjorn [2] recognized technology as an "enabler," however he argued that it is not technology itself that should be the primary local point of organizational transformation. It is obvious that IT has had a profound impact on business and organizational structures [20, 24, 36], and it seems, this trend will continue at a faster pace, particularly, the role of IT in changing the organizational routines, and its potential as a main source of organizational innovation. [22, 36]

Generally, researchers have argued that in the light of IT advances, organizations have been moved away from centrally coordinated, multi-level hierarchies towards a more flat and flexible structures. [4, 5, 9, 16, 20] In other words, because vertical structures tend to be slow in developing and implementing decisions and less facilitative on innovation, hierarchical organizational structures are replaced by more horizontal structures. [19] Coordination, in traditional structures, usually was achieved through establishing standards, developing plans and schedules, but a horizontal structure will use more formal integrating mechanisms. [16]

Today organizations confront a set of new imperatives that have changed the nature of competition. The new situation needs new rules. Successful organizations in the 21st century must identify new imperatives and then build proper organizational structure to cope with them. New imperatives can be posed as follows:

Globalization: Drucker points out that one of the big headaches for companies in the new century continues to be globalization. [27] Globalization has largely been due to worldwide economic development and the opening of domestic markets to foreign firms. A recent survey showed that approximately 50% of small businesses in the US were operating in international markets, up from 20% in the early 1990s. [16] Advanced information technology has overcome the geographical distance. [12, 22] In fact all the players in recent years have close ties with each other, but these ties are all electronic.[12]

Entrepreneurship and Innovation: Traditional business typically concentrate on opportunities they can pursue. By contrast, new organization must encourage their people to look for a richer multiplicity of opportunities, including those that businesses can't seize alone. Kelly [18] alleges that one of the main source of wealth in a new situation flows directly from innovation. Some researchers claim that innovation is the first rule in the globalized economy. [16] Companies in the Internet Age, require organizing efforts that move beyond efficiency and control to ones that emphasize the ability to take advantage of opportunities. [3]

Customer or Service Orientation: Customers in new landscape are informed and knowledgeable. Venkatraman & Henderson [37] and Schacklett [29], assert that, emergence of electronic customer communities, is one of the most profound aspects of advanced IT. They also argue, in the industrial economy consumers could not be effectively linked together across time and space. Nowadays, using the Internet, customers can remotely experience products and services. To be more precise, electronic communities signal a power shift from manufacturers to customers. According to Byrne [9], the future company will tailor its products to each individual by turning customers into partners and giving them the technology to design and demand exactly what they want. He also claims that the real power of IT results from its potential to transformative change, and much of that will involve the company's relationship with its customers.

Flexibility: Flexibility is a vital characteristic. Firms must be flexible to manage unpredictable change in their environments. This feature, will able companies to deal with enhanced competition, and rapidly reacts to competitors. Hitt and Keats [16] claim success in the 21st century organization will depend first on building strategic flexibility. As noted earlier, implementing a horizontal structure can also enhance organizational flexibility.

Cost Reduction: In the light of IT advances, over half of web purchasers' view three or more sites before they purchase. Consequently, Simon [30] predicts that price will be even a greater factor in the new landscape. Using IT in many virtual companies have had dramatic effects on cost reduction. A typical bank transaction costs $1.25 when handled by a teller, 54 cents when done by phone, but the same transaction processed over the Internet costs 2 cents In some cases a Net-based catalogue system reduced procurement costs to one-twentieth. [9] Roughly 65% of IT managers believe the Internet technology has reduced costs in their organizations, and 55% say it has increased revenue. [39] A major impact of the Internet and its inherent distributed capabilities, says Mahadevan [23], is a dramatic reduction in search costs for both buyers and sellers.

Outsourcing: while moving manufacturing offshore is nothing new to many corporations, Brenner [6] reports, still a significant percentage of corporate purchasing cost is focused on outsourced services from third-party vendors. Nike creates a global network of organizations to produce athletic shoes instead of keeping all the work inside the organization. Waters [38], reports that the strong global economy will expand demand for U.S. goods and services. But the domestic labour force will be unable to produce these for a competitive price. Some companies are finding that they can cut costs and leverage the most out of their staff and budgets if they form partnership with other companies that specialize in particular areas that they can't do as efficiently by themselves. [12] Ford Motor Company has process links with Goodyear Tire that allows it to exploit concurrent engineering and reduce the introduction time of new products. The potential benefits are that each partner can leverage the competencies in the extended network without resorting to the costly

options of vertical integration. [36] According to Wilson [39], 53% of IT managers say they are outsourcing at least some of the development of their Internet/Intranet projects.

Improving Quality: As noted earlier, with the use of the Internet, customers are informed, so corporations must rely on the quality of their product rather than on the strength of their brand. [15] There are some evidence that using advanced IT offers opportunities for reducing operational cost levels and/or improving products and services. [35]

Cooperation through IT: New situations create a need to "Digitization," which means simply removing human minds and hands from an organization's routine tasks and replacing them with computers and networks. Unlike traditional organizations that most interaction occurs within business units, in a virtual corporation people from a variety of units work together. [13] Recent advances in collaborative software; Internet/intranet technologies and personal desktop video conferencing have facilitated the use of external experts. Management must encourage collaboration and coordination.

Developing Human Capital: Human capital has been and will continue to be, the most important asset of every organization. Management, increasingly, has found out that working in the competitive world is a war. A war for talent; it is a war for three types of resources: financial, human and technology. According to *Internet Week's* survey, more than 60 percent of IT departments were experiencing a shortage of skilled workers in those fields. According to Li [20], around half of GNPs of industrialized countries are made up of information contents and it is estimated that around half of the workforce in all these economies are information workers.

REFERENCES

[1] Applegate, L. M. "Managing in an information age: Transforming the Organization for the 1990s," *Transforming Organizations with Information Technology,* 15-94, 1994.

[2] BjOrn-Andersen, N. and Turner, J.A. "Creating the Twenty-First Century Organizations: the Metamorphosis of Oticon," *Transforming Organizations with Information Technology,* IFIP, 1994.

[3] Black, J.A. and Edwards, S. "Emergence of Virtual or Network Organizations: Fad or Feature," *Journal of Organizational Change Management* 13, 567-576, 2000.

[4] Boddy, D. and Buchanan, A. *Managing New Technology,* Basil Blackwell Ltd., 1986.

[5] Boddy, D. and Gunson, N. *Organizations in the Network Age*, Routledge Press, 1996.

[6] Brenner, E. "Virtual Communities on the Business World," *Information Today,* 17,

2000.

[7] Brown, S.L. and Eisenhardt, K.M. *Competing on the Edge: Strategy as Structured Chaos*, Harvard Business School Press, 1998.

[8] Bulloch, J. "Virtual Value," CMA Management, Nos. 74, 30-33.

[9] Byrne, J. A. "Management by Web," *Business Week,* Nos. 84-96.

[10] Cairncross, F. "Survey: E-Management. The Shape of the New E-Company," *The Economist,* 11, 37-38.

[11] Chesbrough, H.W. and Teece, D.J. "When is Virtual Virtuous? Organizing for Innovation," *Harvard Business Review* 65-73, 1996.

[12] Chutchian, J.A.F. "Virtual Corporation," *Computer World,* 33, 64-65, 1999.

[13] Eisenstat, R.; Foote, N.; Galbraith, J. and Miller, D. "Beyond the Business Unit," *The McKinsey Quarterly,* 1, 54-63, 2001.

[14] Hagel III, J. "Spider Versus Spider," *Mckinsey Quarterly,* 1, 71-80, 1996.

[15] Hagel III, J. and Armstrong, A.G. "Net Gain: Expanding Markets Through Virtual Communities," *The McKinsey Quarterly,* 1, 141-153, 1997.

[16] Hitt, M.A. and Keats, B.W. "Navigating in the New Competitive Landscape: Building Strategic Flexibility and Competitive Advantage in the 21st Century," *The Academy of Management Executive,* 12, 22-42, 1998.

[17] Johnson, J.R. "What's your Web Strategy," *Industrial Distribution,* 89, 131, 2000.

[18] Kelly, K. "New Rules for the New Economy: Twelve Dependable Principle for Thriving in a Turbulent World," 140-197, Wired 1997.

[19] Klenke, K. "Information Technologies as Drivers of Emergent Organizational Forms: a Leadership Perspective," *Transforming Organizations with Information Technology,* 323-337, 1994.

[20] Li, F. "From Compromise to Harmony: Organizational Re-Design through Information and Communication Technologies," *International Journal of Information Management,* 17, 451-464, 1997.

[21] Li, F. "Interfirm Collaboration through Interfirm Network," *Information Systems,* 9, 103-115, 1999.

[22] Li, F. and Williams, H. "Living in 'Two Spaces': Organization in the Information Economy," *The New Review of Information Systems Research,* 2000.

[23] Mahadevan, B. "Business Models for Internet-Based E-commerce: an Anatomy," *California Management Review,* 34, 53-72, 2000.

[24] Miles, R. E. and Snow, C. "Causes of Failure in Network Organizations," *California Management Review,* 34, 53-72, 1992.

[25] Mintzberg, H. *Power in and Around Organizations*, Prentice-Hall, 1983.

[26] Nonaka, I. and Takeuchi, H. *The Knowledge Creating Company: How Japanese Companies Create the Dynamics Of Innovation*, Oxford University Press, 1995.

[27] Raynor, M. "In Search of New Opportunities: Drucker Suggests," *Consuling to Management,* 11, 55-56, 2000.

[28] Robbins, S. *Organization Theory: Structure, Design, and Applications*, Prentice-Hall, 1987.

[29] Schacklett, M. "A Tale of Three Successful Web Strategies," *Credit Union Magazine,* 8-9, 30-31.

[30] Simon, A. "Prescription for Internet Success," *Discount Merchandiser,* 40, 21-22, 2000.

[31] Smith, D. "Centralization: What`s The Internet`s Role?," *Internetweek,* 748, 27-28.

[32] Symon, G. "Information and Communication Technologies and Network Organization: A Critical Analysis," *Journal of Occupational and Organizational Psychology,* 73, 389-414, 2000.

[33] Teo, T.S.H.; Kam, P.; Ee, W.; and Chia, H. "Information Technology Investment and the Role of a Firm: an Exploratory Study," *International Journal of Information Management,* 20, 269-286, 2000.

[34] Venkatraman, N. "Beyond Outsourcing: Managing IT Resources as a Value Center," *Sloan Management Review,* 38, 51-64, 1997.

[35] _____ "Five Steps to a dot.com Strategy: How to Find Your Footing on the Web," *Sloan Management Review,* 41, 15-28, 2000.

[36] "IT-Enabled Business Trasformation: from Automation to Business Scope Redefinition," *Sloan Management Review,* 52, 73-84, 1994.

[37] Henderson, J.C. "Real Strategies for Virtual Organizing," *Sloan Management Review,* 40, 1998.

[38] Waters, J. "10 Trends Affecting the Corporate Environment," *Facilities Design & Management,* 19, 14-15, 2000.

[39] Wilson, T. "Transforming The IT Underpinnings: Organizational Change - IT Leads Charge - The Internet Is Pushing IT Executives into the Corporate," *Internetweek,* 780.