Information Technology - Its Impact on Global Management

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Abstract: 21st century is the century of information technology (IT) and globalization. Information technology is playing its significant role in the betterment of the organizations. This paper explores another very important role of IT on global management i.e., IT helps to redefine the vision of global corporations which is the primary component of global corporate strategy. IT also plays a role in managing the global talent in an environment of cultural diversity and in managing global supply chain management. The paper employs the archival method of reviewing related literature (theoretical, applied and empirical) and organizing and presenting the propositions for future empirical research.

Key words: Information Technology · Global management · Vision · Corporate strategy · Global supply chain management

INTRODUCTION

Advancements in information technology (IT) and the rapid globalization of businesses, both are realities and opportunities of the 21st Century [1]. The term information technology refers to techniques and facilities designed to enable the transfer, storing and processing of data [2]. This includes not only computers but also facilities for mailing services, telephone and fax networks, information centers and libraries. Internet is definitely one of its manifestations. Consumer markets are growing more global every day. Brands like Coca-Cola, McDonald's and Microsoft are popular not only in USA but also well known across the world. Manufacturing companies have got the opportunity of globalization and today, much of the world's manufacturers and suppliers are located in the lower-cost countries (e.g. Nike has its manufactures in Thailand and Sony has in China). The Internet has further linked the overseas suppliers of services and goods and their buyers. Internet traffic is increasing day by day and e-business is in hyper growth. At the same time, borders are becoming increasingly extraneous, while people and organizations are intermingling in very different ways [3]. This rapid growth in globalization has demanded the need of integrated strategies in promoting organizational change technology innovation and entrepreneurship [4, 5, 6].

Globalization, at one end, is an opportunity, but at another end it also creates challenges for the multinational companies. Global corporations have two primary challenges; talent management - as they have to share resources and knowledge across a number of business units inside and outside the country [7] and supply chain management [8]. Moreover, before going global it is very important to have global mindset or global vision. This paper presents the impact of IT on global management. The areas covered in this paper are vision, corporate strategy, cultural diversity and global supply chain management. Construction of the paper is as follows: All areas are discussed one by one. Under each heading, importance of that particular area is discussed with the references of previous literature and case studies and discusses how IT can play a role in supporting or redefining that particular area. After discussion, propositions are made for future empirical study. This study also presents a theoretical framework. Secondary data i.e. previous literature like research papers, research articles and case studies etc., is used to support the arguments. In the end, concluding remarks are given along with limitations and future directions.

IT and Global Vision: Global leadership development must be determined by an organization's global business strategy. Only having "global" experiences at work is not

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enough for effective global leadership. Having a true global mindset enables leadership effectiveness in a global environment. Increase in cultural `and business complexity demands for a global mindset. To be a global organization, company's vision and values must show global consistency [9]. Yang Jianguo of Deronde International was appointed as the global head of product development [10]. He was very committed and devoted person and had very successful career as a country manager, but he faced some problems when he came to France as a Global leader. He was focusing on local culture instead of global world. One can say that he was lacking global mindset. Therefore, his ideas were not appreciated by his colleagues even by his CEO. It is clear that the most important attribute required for effective global leadership is not a new set of skills or experience, but rather a new perspective called a global mindset [9]. A question confounding top management of the world's leading corporations is how to identify and develop global leadership competencies for the future direction of their businesses. A popularly held view is that successful global management will think strategically in a world-wide context [11]. Rapid change in the organization's environment resulting in uncertainty of goals in the issues together with continually increasing complexity of issues present considerable challenges on analytic and deductive modeling and knowledge acquisition approaches. The key function of leaders and managers in this situation is to form visions of the organization in the future [2]. Companies understand that going global can only be realized through a global vision and strategy [3]. But how? Cohen (2010) has given four approaches to develop global leadership.

- Examination
- Education
- Experience
- Exposure

How IT can play its role to redefine vision or to develop global leadership? For this, it is critical for top management and IT to agree on where IT is to provide leadership and vision (Fig. 1) and where IT is expected to partner and support [8]. Top management should work with IT to translate the business vision to technical reality [12].

Modern computers with their elevated calculating and graphical output capabilities offer the opportunity to form visions with due work processes in a virtual world of simulation models [2]. The leaders or managers can play with these visions and gain 'experience' of how the system solutions would function in certain important aspects. The experience can concern both the outcomes of decisions under given constraints and the constraints themselves. Training plays a very important role in redefining the vision of the managers. For instance, Jack Welch, the CEO of GE wanted to inculcate the anti-union sentiment in managers [13]. To make the mindset of the managers and leaders in this way, he introduced different courses for managers and also held "Personnel Relations Leadership Seminar". One of the course learning objectives was to develop UA (Union Avoidance) in the managers. As for as training and education are concerned, there are a number of IT based softwares which companies can use for global leadership training. Computer based training and simulation models play a very important role in redefining the vision of the people [14, 15]. Hassan, (2009) gives the list of IT softwares (Table 1), which can be used by companies [16]. Following propositions are made on the basis of the above discussion;

Proposition 1: Global management is positively correlated with the global vision of the managers.

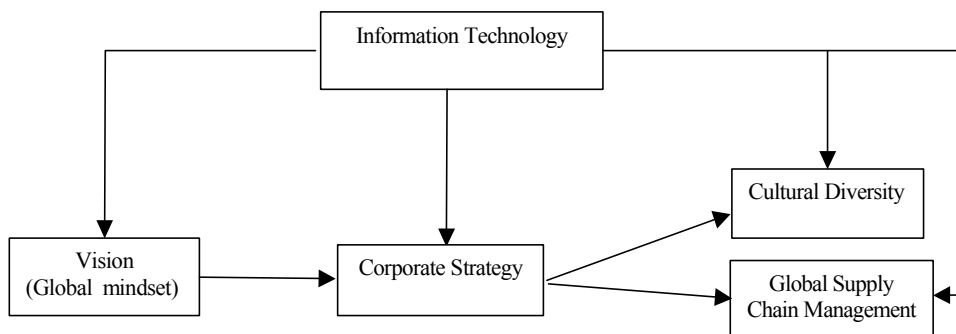**Proposition 2:** Global vision is positively correlated with the IT.

Fig. 1: Theoretical Framework

Table 1: Different types of IT softwares

Software	Description
Computer Assisted Instructions (CAI)	It is a system of individualized instruction that uses a program presented by a computer as a learning medium.
	Major types are: Drill and Practice, Tutorial, Dialog, Testing
Computer Managed Instructions (CMI)	In this, computer assigns a candidate to read certain book, listen certain tape; attend certain lecture and so on.
	On completing the assignment, the candidate returns to the computer for testing and further assignment
Computer Based Simulations	To simulate is to copy the behavior of one system with a different, dissimilar system.
	Thus a computer can be programmed to behave like some other system. Simulation is used
	when direct experimentation is impossible or undesirable or uneconomical or immoral or simply slow.
Computer Aided Problem Solving	t is used to explore and organize material from different sources by using computer as an aid to problem solving

Source: Adapted from a textbook of computer science, National Book Foundation, Islamabad, Pakistan

IT and Corporate Strategy: IT takes in business processes related to information technology or communication technology including decision making. For instance, IT adoption would include having an organizational intranet, having enterprise resource planning (ERP) systems installed [17], using e-mail for external communications, having an EDI, Video conferencing with suppliers and so on [18]. Formulation of effective business strategy for a firm is not an easy task. Strategic and organizational requirements for person-system-organization fit are, therefore, becoming an important area of research for competitive advantage through deepening knowledge of technology, strong financial backing, learning new technological skills and information, building up the capabilities and competencies for organization design can distribute and serve a large customer base [19]. The Internet is creating one global market place which is free from any geographical boundary. E-business is just a mouse click away no matter where they are physically located, allowing buyers to comparison-shop globally. The IT has not changed the fundamentals of strategy – it is still about wining in both the competitive and capital markets.

What the IT has changed, however, is the speed of strategy formation and evaluation. IT and Internet have also changed the formulation, execution and evaluation of global strategy's key elements – vision and planning, measurement and the utilization of partnerships [3]. New technologies help to make a real-time dynamic strategic process that obsolete the traditional planning cycles. They facilitate greater input into strategy process by everyone in the organization, challenging established decision-making norms. Consequently, planning becomes dynamic, with the active involvement of the IT and the entire organization. Finally, strategic execution, which depends upon the flow of information, becomes easy by the Internet, both within the company and throughout its network of suppliers. Globalization has increased the connectivity and collaboration which in turn has increased the magnitude and volatility of data available with and between organizations [20]. Intelligent agents are now emerging as a way to deal with this astounding variety of data in diverse and assorted environments [21]. Global information systems play a significant role for multinational companies in implementing strategies. These systems give competitive advantage to a business by enabling timely transfer of information irrespective of the different time zones and geographical constraints [22]. On the basis of above discussion, following proposition is made;

Proposition 3: IT and global corporate strategy are positively correlated.

IT and Cultural Diversity: Cultural distance; which means the difference between country cultures, has become a very important factor in global business [23]. Organizational culture and team development have become more and crucial with the development of globalization and virtual organizations. Cultural distance moderates the role of IT adoption on globalization. One study on collaborative information infrastructure in a distributed virtual enterprise presented a theoretical approach to engineering collaboration in the process of designing production systems [24]. In the recent years, interpersonal relationship is becoming more and more important HR factor for organizational effectiveness of technological innovations [25]. Employee development is a pillar of the enterprise-value framework for advanced global companies, equal in importance to shareholder support or customer loyalty. Retaining talent is identified as a key business priority for all the companies surveyed by World Economic Forum [3, 7].

The digital economy has changed the relationship between global companies and the workforce. In the globally connected business environments employees have more options than ever before; members of a "free-agent" workforce can expect and demand more from the employer in exchange for their loyalty. New Internet-related technologies facilitate the recruitment of quality employees from around the world and enable increasingly creative work arrangements that balance work demands and family responsibilities. Research shows that global firms are increasingly using Internet - IT related technologies to enable and necessitate the use of virtual teams around the world to solve complex global problems and foster both knowledge integration and continuous learning, which aid in the motivation and retention of a company's best people [3, 26]. The rapid change in organizational structure and globally distributed engineering demands for integrated strategies and new ways of HRM in promoting organizational culture and entrepreneurship [4, 5, 6]. Besides this, companies are facing the problem of balancing the culture of openness and knowledge-sharing with the need to appropriate knowledge as intellectual property.

IT can play a very important role in knowledge sharing specifically in an environment of cultural diversity. Refer to the example of IBM's ThinkPlace program, "catalyst" where employees post ideas on an intranet site and invite comment or support from other people [27]. This approach could be adopted to nurture the ideas within the organization. Knowledge management is itself a global challenge in such kind of cultural diversity. In fact, knowledge management is essentially a deeply social process which must take into account the human and social factors primarily [28]. Two main approaches are used for knowledge management. One focuses on the deployment and use of appropriate technology to utilize knowledge while the other focuses on the capture and transformation of knowledge into a corporate asset [28, 29]. The first approach emphasizes information technology (IT) and focuses on it as the mechanism for managing knowledge [30, 31]. The second emphasizes people and processes. It attaches greater importance to human relations and the elicitation of tacit knowledge [32, 33, 34]. Hence the study proposes that;

Proposition 4: IT is positively correlated with the cultural diversity

Proposition 5: IT is positively correlated with the knowledge-sharing environment

IT and Global Supply Chain Management: In today's highly competitive and global environment, companies need to improve effectiveness and efficiency. GSCM, as a major part of business operations, plays an important role for organizations to achieve competitive advantage [8]. Good supply chain management can help a company to meet market demand. A good supply chain is that which is able to move product to market faster and cut the cost of moving goods from the source to the customer [35]. The wide applications of IT make it possible for organizations to improve the overall business operations. Supply chain managers increasingly want to automate all of the supply chain, from forecasting to distribution and to every element of the chain [36]. Today, companies want an integrated solution to enable them to see the entire supply chain at once. For instance, they want to know that if they drill down to forecast, they can see the demand history, which is a combination of data which comes from sales order processing, inventory management and the warehousing system. Less human intervention and the flow of parts and products along the supply chain can help dramatically in cutting logistics costs and boosting customer satisfaction [37].

"To survive, let alone win, a company must be part of one or more supply chains producing world class performance" [38].

Hence companies need to work together and optimize the complete pipeline by establishing a seamless supply chain ("think and act on") to maximize their market share. The global industry of today demands logistics managements to plan and execute customer-led, profit-driven tactics, where an array of alternative production and procurement methods is deployed simultaneously. GSCM is the philosophy that underpins the logistics business in the Royal Air Force [39]. RAF is developing a new IT system, LITS (Logistics Information Technology Strategy) to support GSCM. Table 2 provides examples of corporations that provide IT tools/services and corporations that have successfully implemented IT related software packages in GSCM.

The strategy in GSCM is to optimize product and information flow from the purchase of raw material to the delivery of finished product, with the aim of achieving ever higher levels of productivity, quality, innovation and alliance between the company and its vendors and customers [40]. Companies exploiting IT and related technologies are successfully implementing this strategy. For example, Benetton, of Italy, is often cited as one of Europe's success stories [8]. It does not have its own manufacturing facilities or

Table 2: Corporations that provide IT tools and corporations that use IT tools

Corporations that provide IT tools	Name	Description/application of IT tools provided
	Allied-Corp.	Global company integrating SCM services to industrial clients worldwide
	CAPS logistics Inc.	Specializing in decision optimization software for supply-chain modeling
	Chesapeake Decision Sciences, Inc.	Provides software and services for developing supply-chain and scheduling solutions
	CyberSystem Technologies, Inc.	Offers fully-automated, supply-chain management systems, called intraMalls
	Global Information Solutions	Provides logistics/supply-chain software products and custom programs
	i2 Technologies	Provides clients/server based eBPO software products for SCM and related business
	InterTrans Logistics Solutions	Provides enterprise-wide, integrated client/server SCM software applications
	LogicTools, Inc.	Develops SCM tools for intelligent strategic, operational and tactical decision
	Lyte Group, Inc.	Offers integrated SCM and planning software solutions
	Supply Chain@ Solutions	Developer of application software to manage the supply-chain environments of manufacturers, wholesalers, etc.
Corporations that have successfully implemented IT related software packages in GSCM	Name	Direct benefits from IT implementation in GSCM
	Cardinal Logistics, Inc.	Increased customer service; reduced customers' inventory levels; reduced customers' transportation costs
	Compaq	Increased on-time delivery to 95 percent; decreased inventory; decreased order-to-receipt cycle time to five days
	Cumberland Packaging	Decreased inventory by 10 to 15 percent, or approximately by $2 million; reduced production costs substantially
	Data Card	Reduced engineering change process time from two weeds to two hours
	Kobe Copper Products	Increased the information sharing across the company dramatically. Approximate saving of $270,000 per year on account of this information sharing
	Pair Gain	Saved millions of dollars by strengthening corporation among employees and outside business partners; cut change cycle time by nine weeks
	Philips Semiconductors	Increased forecasting accuracy; decreased inventory levels; integrated logistics and marketing functions
	Thompson Consumer Electronics	Reduced planning cycle time from four to five weeks to one week; reduced raw materials, work-in-process and finished goods inventory substantially
	Xircom	Increased the speed of engineering change order cycle by five times; permitted instant broadcast of product data worldwide

Note: Adapted from http://emeraldinsight.com/10.1108/09576050010378540

retailing outlets and serves as a merchandiser and distributor, who contracts manufacturing and sell through franchised outlets. Using its excellent IT system Benetton responds to the pull of the marketplace to schedule manufacturing and directs to correct products to its customers [41]. Following propositions are made herewith;

Proposition 6: IT is positively correlated with business operations of the company.

Proposition 7: IT is positively correlated with global supply chain management system.

CONCLUDING REMARKS

The world has now become a global village. Borders and barriers are going to be vanished. In order to operate effectively in an environment of borderless markets, global multinational corporations have to manage their corporate philosophy in order to sustain in this environment of globalization and information technology [42]. Information technology is a great truth of this century and it has a great impact on globalization. This paper discusses the role of information technology for global management. Multinational companies which are implementing IT and related technologies are enjoying competitive advantage over the companies which don't do the same. In this paper, several areas of global management are taken and discuss how IT has already helped or can help in these particular areas. Previous literature has been taken in this study. One of the limitations of this study is that it is based on secondary data. In future, primary data could be used to support the argument that IT has a direct relationship with global management.

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