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CREATING A SILICON VALLEY IN INDIA?

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"Silicon Valley is the only place on earth that is not trying to figure out how to become a Silicon Valley"

-Robert Metcalfe

I would start my article with couple of real stories that would give you an idea about Indian IT scene. These stories are so imaginative but also so real that it would convince us in believing that India is an IT Superpower in the making? Let's begin with Sabeer Bhatia. When he started the concept of the free e-mail service, people laughed at him. Today, Bhatia's company Hotmail has been ranked as one of the five "Heroes of American Manufacturing" by Fortune magazine. Today, Microsoft has bought his company for a reported $400 million. Rakesh Mathur created massive content-based databases for Internet to facilitate on-line retailing, recruitment, and shopping. Today, Amazon.com has bought his company for a fortune. Ajay Shah and Lata Krishnan started SMART in 1987 and today that company has been brought for $2 billion in stock options by Solectron, US firm. Cernet is an Indian company that has been bought by Cisco Systems for $6.9 billion.

I was reading an interesting article "The Future Firm" of Mr. Gurcharan Das. In that article he talked about a company called Armedia, which was started by Tushar Dave only two years back in Bangalore. American company Broadcom has purchased this company specializing in chip designing for $67 million. The best part about the takeover is that all 43 employees not only have made fortune out of it, but have also got shares in the new US Company. Mr. Das compares entrepreneurs like Tushar Dave to entrepreneurs like Ramesh Chauhan, owner of Thums Up. He says, "It took Ramesh Chauhan decades of sweat, toil and brand building in a protected market to make a success of Thums Up. In between he got distracted and wasted his energy keeping Pepsi out of India. Had he focused his considerable skills in building his business, Thums Up would have been a stronger brand and Coke would have paid him an even higher price." He adds, "The parable teaches us two lessons. In two years, Armedia became a powerhouse of knowledge and 50% more valuable than decades old Thums Up. All the employees shared the reward at Armedia while only Ramesh Chauhan did at Thums Up. Armedia is a creature of the reformed, liberalized Indian economy; Thums Up belongs to the old, protected socialist economy. Armedia is our future. Thums up is our past."

Indeed, there has been a reinvention of companies and careers in our economy. The most visible of them is the software industry. Thus, it seems as if India is moving towards becoming a major superpower in the future. It looks as if a Silicon Valley can be created in India. Some Indians are doing so well domestically as well as globally that it makes us really believe that India has a potential of creating a Silicon Valley in India. Bangalore and Hyderabad in the South and Gurgaon and Noida in the North are places where the potential lies. It would need visionary politicians like

Chandrababu Naidu and visionary entreprenuers likee Narayan Murthy, founder of Infosys to fulfill this dream. Indian professionals in the US have made a mark not only in terms of profit but also in terms of bringing out technology and innovation, which are the keys to the future. Names like Sabeer Bhatia, Vinod Khosla, Ajay Shah-Lata Krishnan, Rakesh Mathur and Farroukh Billimoria make Indians proud.

John Mickethwait and Adrian Woodbridge in "The Witch Doctors" have rightly said that "Management Theory is bound up with three revolutions that directly or indirectly affect all of us: the reinvention of companies, reinvention of careers and reinvention of government." The corporate India especially the IT Sector is witnessing a silent and quiet revolution that is changing the face of Indian business. Today, in India as in the global economy there has been reinvention of companies, reinvention of careers and reinvention of government. This reengineering process has led to the separation of the roles of the owner and the manager on one hand and more focus on the customer and employees on the other hand. The Indian companies have started looking globally and strategically. They have started focusing on their core-competence and are taking a long-term view of things. This shift in the thinking of the Indian Corporate marks the dawn of a new professional culture where the customer is king on one hand and employee is the master on the other hand. There has been a reinvention of the government. The role of the government has undergone a metamorphosis. Today, it is being increasingly accepted that the role of the government should be minimum in the economic sphere. The government should concentrate on areas like education, infrastructure and health and leave other sectors for the market. The liberalization marked the beginning of this new era. The economic reforms started in early 1990's brought a dramatic shift in the thinking of Indian people. Socialism had become synonymous with red-tapism, poor quality and inefficiency. Though change is coming slowly but the process has begun. The opening up of the telecom and insurance sector are the examples of the change. There has also been a re-organization of the public sector. MTNL is a recent example of it. With the private ISP's coming in, MTNL itself has become more professional and is reaching out to the consumer.
Reinvention of the companies has also started, mainly, because for the first time the roles of the manager and owner has changed. Today, in the new environment, even the owners have to prove that they are worthy managers. Professionalism has started perforating even in so-called family owned or Lala companies. Today, owners of companies like DCM, Tata and Escorts are sending their children to business schools like Harvard Business School and MIT. This is an example that the reinvention has made a mark even at the top level. Secondly, because the Indian companies have started thinking globally and acting locally. They have started having a long-term perspective. Today, the companies like Infosys and Reliance have registered itself at New York Stock Exchange or are in the process of doing so. This is a great victory for ideals of corporate governance in our country. Now these companies are become more transparent and are trying to meet tight accounting standards followed in the US. Thirdly, Indian corporates have started sticking to their core competence. They have now got more clear and coherent vision about their future. They are all coming up with vision statements and mission statements about their future. The company like Arvind Mills has a clear vision of their company. It wants to have a global dominance in the select businesses built around its core competence. Today, the companies lake Tatas that made everything from salt to automobiles are going out of certain segments and concentrating on key areas. This is the reason because of Tatas sold TOMCO to Uniliver. The new takeover code and governments favorable attitude towards mergers and takeovers would increase market share of companies in chosen field. Times have changed so fast. Swaraj Paul, who could not takeover inefficient companies like DCM and Escorts because of their strong nexus with the government, would now be a happier man. All this change may not be great for inefficient companies but would be good for shareholders and the economy on the whole.

Fourthly, the reinvention has led to more emphasis on customer intimacy. Today, the Indian consumer has infinite choice. He can buy the best of the products. In olden days, Indian consumer had to be satisfied with Ambassador or Fiat. Today, he has infinite choice available. Before the

Information Revolution, we had to be satisfied with Doordarshan. Today, there has been a reinvention of information. Internet has brought more socialism than our Communist Party did. It has given each and everybody the equal right to information. Today, consumer can get all the knowledge about the products from the Internet. Lastly, there has been reinvention of employees. In the past, the employees were treated shabbily by their masters. Today, all this is changing. There is more empowerment for the employees especially in the sectors like software and pharma. Companies like Infosys are giving stocks to their employees and making them an owner of the company too. Today, retaining employees have become the key issues in the software industry. Indian business leaders are listening to the magic of Shiv Khera and Dipak Chopra. Their rooms are filled with slogans such as "Winners don't do different things but they do things differently" and "Only the paranoid survive."

Similarly, there has been a reinvention of careers. In the olden days, people wanted to spend their whole life in one company. Today, individuals want to learn more. In the software industry, changing jobs is taken in a positive sense. According to Tom Peters, "Forget Loyalty, start thinking like an independent contractor". This reinvention has started taking place in the third wave companies.. Alvin Toffler has made an interesting difference between the first wave, second wave and third wave companies. The first wave companies are built in the agricultural age. Second Wave Companies is the models of the industrial age. These companies are built for growth and not for change. The third wave companies are- flexible, creative and innovative. For, second wave, size is religion. Promotion, salary and bonuses motivate people. As John Scully, in his immortal book 'Pepsi to Apple' points out that these are the companies that are motivated by an ideology, by the chance personally to change the world, the chance to grow as a person. In a third wave, quality plays a key role. It not only applies to the product, but also is persuasive throughout every part of the organization. Philip Kotler, the great marketing guru, feels that "having High quality won't be enough. It must be offered at a lower price." The third wave companies are fast in replacing its emphasis from tangibles (size, promotion, physical assets) with greater emphasis on intangibles (knowledge, quality, learning, motivation, empowerment). These companies are committed to change rather than responding to it. Sundaram Fasteners is doing so well because it has realized this important lesson. Infosys is a third wave company that has innovative schemes like stock-option scheme, health club for the employees and many other schemes which makes an employee a part and parcel of the organization. With more and more third waves companies coming up, careers are getting reinvented. To develop a Silicon Valley, India would have to bring about a culture of change. It would be a business at speed of thought. The culture of rapid decisions, rapid movements and rapid change would have to come. Bill Gates has rightly said, "If the 1980s were about quality and the 1990s were about reengineering, then the 2000s will be about velocity. About how quickly the nature of business will be transacted. About how information access will alter the lifestyle of consumers and their expectations of business. Quality improvements and business process improvements will occur far faster. When the increase in velocity of business is great enough, the very nature of business changes." He also puts "The successful companies of the next decade will be ones that use digital tools to reinvent the way they work. These companies will make decisions quickly, act efficiently, and directly touch the customers in positive manners. A digital nervous system will let you do business at the speed of thought-the key to success in the twenty-first century."

Thus, Indian IT industry is at the crossroads. The reinvention is going on. India aims to be an IT superpower in the next century. The examples of Tushar Dave, Sabeer Bhatia and Rakesh Mathur are a pointer to a dormant Silicon Valley that is likely to erupt in the coming future. Rapid and unprecedented changes are taking place in our economic landscape. India, the world's largest democracy is trying to become haven of software development. It is said that software is the fastest growing segment having an impressive growth rate of more than 50%. Our software companies are booming on account of Y2K problem. Experts feel that there would be mushrooming of more companies due to Euro conversion demand in Europe. We all take pride in the fact that Bill

Gates recently stated that India is likely to become a superpower in the near future. In the last decade, India has effectively done software development for companies ranging from Coca-Cola and Pepsi on one hand to companies like Citibank and Morgan Stanley on the other. Today, the corporate giants from all over the world are looking up to India for cost effective and high quality solutions. The marketing genius of people like Chandrababu Naidu, Seshagiri and Dewang Mehta is continuously making all of us believe that a golden future for software is at the doorsteps. The recent announcement of Chandrababu Naidu that IBM is going to setup a center for electronic governance, more focus of IIT's and Universities on IT is going to have revolutionary impact on all of us. The report of the IT Task force appears to be encouraging and motivating. The plan of setting up 'Vidya Vahini Network' would synergise the proposed Intranet of agencies like UGC, CSIR & Ministry of HRD. Similarly, the Govt. plan of liberalizing telecom sector and setting up of IUNet would also revolutionize the IT Sector.

If India wants to develop something like a Silicon Valley in the country, it would have to learn from the latter. In 1940's, Silicon Valley was a purely an agricultural place but due to vision of people like Hewlett-Packard or Fredrick Terman, it could become what it is today. The major characteristic of a Silicon Valley is that it has a very strong bond between the engineers and companies, between engineers and Universities, between the small companies and big companies and between the engineers and the financial community. In India, unfortunately there is hardly any bond between the various parties. Only visionary companies like Infosys have given complete empowerment to its employees by the schemes like stock options. There is hardly any interaction between engineers and Universities. This interaction is of paramount importance and we must learn from Silicon Valley whose founder Fredrick Terman was a Professor at Stanford. Not only was he a Professor of Electrical Engineering, but he was a catalyst in bringing about change. He encouraged his students to work for local companies and to start businesses. Terman has written in his own words "I encouraged our new, young faculty members to get out and get acquainted with local industry and the people in it who were doing interesting and creative things. Likewise, I encouraged industry to know their university by getting acquainted with what was going at Stanford as it related to their technical interests, and to make acquaintance of those university people who had similar interests." If we see the history of Silicon Valley, there were three stages of interaction between Stanford University and Silicon Valley. First of all, it was the link between Professor Fred Terman of Stanford who encouraged entrepreneurs like Bill Hewlett and David Packard to start HP. The second stage of the development was the starting of Hons cooperative Program, which enabled local industry to send employees on part time basis. The third link was Industrial Affiliates Program where there was a continuous interaction between faculty and engineers. However in India, there are not many such interactions. There is also hardly any interaction between the small and the big companies. There is a big problem of venture capital for entrepreneurs in India. The problem of Venture Capital can be tackled if banks and financial institutions give loans to small software companies at a very nominal rate of interest on one hand and the successful entrepreneurs in the IT field reinvest their capital for new ventures started by others. These problems have to be addressed if we want to develop a Silicon Valley in India.

Silicon Valley is a unique place, which encourages only innovation, creativity, speed and meritocracy. In the Silicon Valley, people don't care about ones ethic background, the color of the skin, the degree he holds, his educational background or his family pedigree. Steve Jobs, founder of Apple has rightly put "Silicon Valley is meritocracy. It doesn't matter what you wear. It does not matter how old are you. What matters is how smart you are." One of the great uniqueness of Silicon Valley is its diversity. Pete Engradio in an article 'Where Immigrants find a melting point of Gold' says, "Color-Blind Immigrants have earned their big dreams in Silicon Valley. More than 100,000 technically savvy Indians, Israelis, Chinese and Europeans keep the area at the forefront of global technology. Indeed, according to some estimates, one-third of its engineers are foreign born". Indians should learn the spirit of diversity from the Silicon Valley.

Despite India having third largest scientific and industrial manpower, advantage of proficiency in English language, functioning legal system and a vibrant stock market, we are still far behind our mission of becoming a strong and powerful superpower. We have miles to go until we reach our difficult but not an impossible target. At the present moment, China is far ahead in software development than India. The major reason for this is that China had a head start of around 15 years over India in attracting foreign direct investment. China opened its economy in late 70's while we did it in early 90's. This is the reason because of which world's largest PC maker Compaq opened a manufacturing plant in China and not in India. If we ever want to achieve our mission of becoming an IT super power, we would have to have tremendous amount of foreign investment. The government policy would have to be more clear and focused. Today the problem, which Indian economy is facing, is that we are trying to become master in every field but we are ending up as "Jack of all trades and master of none". The image that is generally portrayed about India is that we have good talented people but is a risky country. The government should not attempt in doing the impossible task of becoming world leader in all the fields but should select core competency in certain areas in which we would be the best. Our information technology should be one of those key areas of our economic development. IT should be one of our few high growth segments and we should divert all our energies and resources into that. Ireland could do excellent work in IT because its government had a clear political will and focus in that area. Today Ireland attracts a close to one-third of all US IT investment in Europe. We should take our lesson from a country like Japan, which became an economic super power because it spent its energies only in certain critical and key areas like electronics and automobiles.

The potential of software exports is enormous. The government has taken certain bold steps in this direction such as setting up of export-oriented units, liberalization of Indian economy and providing state of the art infrastructure for software developments. Still our share in exports in the world market is very low. For improving our software exports lot of things need to be done. It is true that Indian companies are doing very well in outsourcing but it should not only be outsourcing but smartsourcing. This does not mean that we do not provide software solutions to MNCs. We should do the work for our foreign clients but we should ensure that we follow the right model in this direction. Today most of the MNCs are using us for doing coding and low-end work. Even the management is under the control of the foreign partner. The companies should try to get out of this vicious circle which may be beneficial for us in the short run but may make us a low quality nation in the long run. They should try to have their own management doing the work. Indian companies must try to have direct link with the ultimate customer. They should not be at the mercy of the middlemen who may replace them if they find a cheaper alternative. If we start going in for more of high-end work we would ultimately be able to get more returns, ensure more quality and retain the best people. Today, we are in a trap where we accept low-end work, pay little to the employee and are weak in quality. This leads to a high turnover rate where our best engineers go abroad and we continue to have low-end work. Since we are following this model, the brand equity of Indian software companies is not high. Attempts should be instigated so that our brand equity increases. Than only, we can think of developing a Silicon Valley in India.

A key thing for our software industry is that Indian companies should attempt in becoming "Virtual software organizations". In the future, Indian software companies should not sell individual projects alone but try to sell "Virtual software organizations". Indian companies should start saying to their clients that "since we have completed successful projects for you, and you know that we can be trusted, why not give all your software projects to us. If you give all the work to us we would invest in infrastructure and people so that we meet your expectations and give delight". This would insure repeat business for our companies and their brand equity would also increase.

An area where India has a lot of potential in Information technology is hardware. Here we should take lesson from Silicon Valley itself. The driving force of the Silicon Valley is not software but hardware. Silicon Plateau (Boston Area) in the East Coast has given more impetus to software

while Silicon Valley has not. The strength of Silicon Valley lies in the hardware. The Government should try to set up hardware technology parks in India. It should make hardware imports duty-free because this would not only be beneficial for the consumer but would also lead to economies of scale and would compel IT giants to set up their hardware units in India. The consumer would be happier because he would get PC's at a very low price. This would help in the penetration of computers, which is very low in India. We should try to mobilize our NRI's who are working in fabrication and designing units abroad to persuade their companies to set up such units in India. Indians in India and abroad have excelled in the field of hardware designing whether it is ISRO in Bangalore or NASA in the US. If the designs produced by various hardware designers were actually translated into hardware, it would not only boost up the motivational level of the designers, but also ultimately help in self-reliance in the field of hardware. Also, since Indians are very proficient in software, therefore, the integration of the two would lead to development of highly optimal products, and in future, cutting down both the cost and the time in terms of delivering real products, which are both hardware and software centric. These products are known for their adaptability and quality. In the present scenario, companies abroad prefer countries like Malaysia to India. We would have to follow a two-pronged strategy i.e. that we should set up hardware technology park on one hand and compel MNC's to invest in this area on the other. Malaysia has done exceedingly well in this area because it compelled MNC's to invest in their country. As Indians are also not strong financially, thus, they should learn some lessons from the Malaysian model. This can only change if these steps are implemented.

It is generally believed that India is strong in engineering skills and unlike USA weak in marketing. They are unable to identify the needs of the market. Indians will have to be more business driven. The Indian software industry would have to give more importance to marketing especially in product and package development, which requires it to invest heavily in R&D, market intelligence, software documentation, enough venture capital and special skills for marketing software products.

Another area where we have to act fast is in regard to piracy. The companies like Microsoft continuously say that their major competitor is not any Indian company but piracy. If Indians have to bring quality consciousness in our country, they would have to take positive steps in this direction. This would lead to more foreign investment and better quality of software for the ultimate consumer in the long run.

An area where lot of things need to be done is the Internet. It is generally believed that Indians are very good in this area. This can be evident from the fact that more than 50% of all Internet startup companies around the world have Indians nationals on the management team. Thus, there is a tremendous niche in this area. The concept of Internet is still new in India and this can be seen by the distribution of the usage pattern which shows that 86 % of the people use Internet for E-mail purposes, 68 % for web browsing, 46 % for mailing lists .The interesting thing is that the percentage of people shopping on internet is nil which gives the indication that there is a large scope of expansion by promoting new concepts like shopping, home banking etc. Once the number of connection starts to grow, there will be an automatic change in the kind of usage and more and more services will come in the fray with the growth of the Internet market. The Govt. must take quick steps in this direction.

The opening of the Internet for private companies is a sign that the Content Revolution is in the corner. The companies, which are going to distinguish themselves on content and give more value added services, are the companies of the future. Bill Gates knows the impact the content is going to have on our everyday lives and thus calls it a revolution. Bill Gates has said, “By the end of the decade a significant percentage of documents, even in the offices won’t be fully printable on paper. You’ll still be able to print out a two-dimensional view of it’s content, but that will be like reading a music store instead of listening to recording.” Imaging is an area that will have tremendous impact in the future. The transfer and manipulation of images will not have a strong impact on

elder people but on kids who are our future. Kids are already seen talking to their favorite film star Aamir Khan. The whole of economic- commerce would be done on the Internet. Multimedia, Home Banking, Teleshopping and Web Varsity are also going to have a major impact in the future.

The great economist Adam Smith in his immortal masterpiece- 'The Wealth of Nations' has said that "if every buyer knew every seller's price and every seller knew what buyer was willing to pay, everyone in the "market" would be able to make fully informed decisions and the society's resources would be distributed efficiently". Internet is precisely doing that. It is optimizing resources and maximizing wealth. It is maximizing welfare and giving consumer the right to choose. It is educating the consumer and giving them access to the right information. It is said, "knowledge is power". The Content revolution is imparting knowledge and making the people more powerful. It in a true sense is bringing out democracy and equality. Previously, since the rates of VSNL were so high, our people have been deprived their right to information. If the Govt. has to bring true socialism and democracy in this great nation, then it would have to become a catalyst in helping Internet reach in every corner of the country. The Govt. should liberalize and end the protection of inefficient public sector organizations.

It is clear that the Indian Internet Industry is witnessing a revolution, which will change the entire scenario of the telecom sector. Though there is going to be lot of competition in the future but looking at the trends whosoever gives better value added service would survive. The company that is able to differentiate on the basis of content is going to be the market leader. The companies who enter this market should not think of reaping returns in short term because in initial years heavy investment would be needed. The profits would mainly start coming after 2004 when the complete monopoly of VSNL would end.

Another area where the government needs to have a more broad, liberal and flexible policy is the issue of venture capital. Today, individuals are not helped by the government to become entrepreneurs because either they don't provide loans or they provide loans at a very high rate of interest. This kills the spirit of entrepreneurship. Even with so many bottlenecks, a person becomes an entrepreneur; the government is very strict if something wrong happens. Instead of helping him to get out of the chaos our banks kill the entrepreneur mentally and economically. If we have to become an IT superpower, the banks must have more liberal venture capital policy. Japan did so well in IT because their banks encourage the spirit of enterprise. Our EXIM banks should give loans to software companies, which are exporting.

Attempts should be made for using Information Technology in even in the grassroots level. Today, the poor people in village have not seen the impact of IT in their lives. India cannot become a superpower in IT if it does not transform rural India. The Government should try to apply IT in revenue administration and land reforms. IT should be applied in other sectors and areas as well. It is believed that oil productivity has increased by 20% due to use of IT. Thus, this knowledge-based technique should be used even in industries like Steel, Agro-processing and Textiles. IT can revolutionize our education system. Virtual Universities can be set up. In Distance Learning and open education also IT can play a crucial role. India can fill the shortage of software professionals worldwide if it invests in education in IT. The step like University of Urbana-Champaign, among the four best Universities in US, is thinking of setting up its center in IT is revolutionary step, which can change the total educational landscape. The Government should try to use computers as much as it is possible. This only can improve the image of the Government. IT can be the best way of bringing decentralization and empowerment in our country.

We are all proud that Amatya Sen got Nobel Prize for Economics. The major area of his work has been 'Welfare economics'. We should learn from what he is saying if we do really want to be an IT Superpower. He asks the Govt. to spend more on education, health and infrastructure if the country wants to eliminate poverty, unemployment and have good economic growth in long run. It

is only with Literacy and Education that technological skills will permeate the society and people will be able to take advantage of it. As we move from 'Knowledge Society' to 'Knowledge Economy', innovation and technology is must for survival. This spirit of innovation would only come if Government and Companies spend more on R&D. In India the unfortunate part is that either entrepreneurs don't have venture capital or they are not using the findings of the research. A simple example of this is SAP, which is being used only as an information tool rather than an ERP (Enterprise Resource Planning) package. In India until SAP is implemented fully and its findings are implemented, our business practices would not change. We cannot have corporate governance in this Country. In India, lot of impetus is given to software professionals but no importance is given to Doctorates in Applied Sciences like Physics. Major reason of success of Silicon Valley is that it not only took software professionals but also took people who had mastered theoretical aspect of their specialization. In Silicon Valley, we find people of Physics having no Software background doing excellent innovative work.

In the next decade, India can become a major global R&D hub for software development. There is lot of potential in this area. This can be evident from the fact that Microsoft is setting up its first R&D center outside US in Hyderabad and Quark is setting up it's center in Chandigarh. Boeing, AT&T and Lucent are also setting up their R&D centers in India. Polaroid, Hughes and Adobe have already setup their software center in national capital region. Computer vision and Mahindra British Telecom has setup its R&D center in Pune. Microsoft, Oracle, IBM and Silicon Graphics have already started investing in R&D schools in India.

The last but the most important thing that India would have to do to become a Silicon Valley is to create a safety net for entrepreneurs. In Silicon Valley even if you fail, there are companies that hire you. In places like Bangalore or Hyderabad or Gurgaon, if you fail a stigma is attached to you. In the case of Silicon Valley, failure is looked in a positive manner. People, financial institutions and social institutions recognized that you learn through failure. Most of the big legends failed the first time but still they came back because society accepted failure and were not reluctant to help them. In India risk taking should be encouraged, as a profit is a reward of risk taking and uncertainty bearing. Saxenian has rightly put "Silicon Valley's heroes are the successful entrepreneurs who have taken aggressive professional and technical risks: the garage tinkers who created successful companies". This is the spirit of Silicon Valley that needs to be blossomed in India as well.

References

Bill Gates, 1999, Business @ The Speed of Thought, Penguin.

Bill Gates, 1996, The Road Ahead, Penguin

Gregory R. Gromov, A Few Quotes from Silicon Valley History.

David Jacobson, July / August 1998, Founding Fathers, Stanford Magazine.

Carolyn E. Tajnai, Manager - Stanford Computer Forum, May 1985, Fred Terman – The Father of Silicon Valley.

Rogers E. M. & Larsen J. K., 1984, Silicon Valley Fever, Basic Books, New York.

Lowood Henry, 1987, From Steeples of Excellence to Silicon Valley, Published in Celebration of Varians 40th year.

Saxenian A. L., 1994, Regional Advantage: Culture and Competition in Silicon Valley, Harvard University Press.

Rosegrant S. and D. Lampe, 1992, Route 128, Basic Books, New York.

September 1999, Are Indian IT Preneurs Racing Ahead?, IT Magazine.

Gurcharan Das, August 08 1999, The Future Firm, Times of India.

Vinay Deshpande interviews A. L. Saxenian, What make Silicon Valley Bloom?, 16 – 31 December 1998, Computers Today.

Shiv Khera, 1998, You Can Win, Macmillan India Limited.

John Sculley and John A. Byrne, 1988, Odyssey Pepsi to Apple, Harper Collins Publishers.

Rajesh Mehta, October 1998, In Search of Excellent Visionary Companies, Indian Management.

Rajesh Mehta, November 26 - December 2, 1997, India - an IT Super Power in the making? DQ Week.

Rajesh Mehta, December 3 - December 9, 1997, India - an IT Super Power in the making? DQ Week.

Rajesh Mehta, October - December, The Content Revolution In India, Journal of Management & Strategy.

Rajesh Mehta, November – 1998, Bound By A Vision, Human Capital.

Rajesh Mehta, March 6, 1999, Market India as a Brand in, Observer.

Rajesh Mehta, Jan - June, 1999, Reinventing Indian Business, in Pranjana