

## Entrepreneurship in Information Technology

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**Abstract :** *The field of Information Technology has a scope for entrepreneurs in information collection, collation, storage, data analysis, interpretation, presentation, display systems and communication systems like tele-working, mob-links, internet etc. It is knowledge based; requires less initial capital, has high turnover ratio, flexibility for new fields and minimum fixed capital, however, it needs competent and innovative entrepreneurs, owning 3-4 computers, small office, telephone, global vision and regular study, business sense and marketing aptitude, regular development and updating, preferably having previous experience with industry, regular contacts with IT industry and business association and having knowledge of special packages. A B. Tech, MCA, M.Tech., B.Sc IT or even BCA or a qualified specialist with short course, has vast scope in entrepreneurship in various fields like e-commerce, graphic designer, animator, web designer, customs relations management (CRM), medical transcriptionist, enabled services call centers, geographic information systems, networking, data warehousing, system software companies, e-education, e-administration etc. These all are discussed in detail in this paper.*

**Keywords:** *Entrepreneurship, Information Technology, Commerce, Business.*

### I. INTRODUCTION

Entrepreneurs are people who have the ability, to see and evaluate business opportunities; to gather the necessary resources to take advantage of them; and to initiate appropriate action to ensure success. Entrepreneurs are leaders who take calculated risks and

enjoy challenges that involve moderate risks. They strongly believe in themselves and in their ability to make good decisions. They are expected to have confidence, independence, individuality, optimism, need for achievement, profit-orientation, persistence, perseverance, determination, hard-work, drive, energy, initiative, risk-taking ability, challenging spirit, leadership behavior, cooperative nature, responsiveness to suggestions and criticism, innovative mind, creativity, resourcefulness, openness of mind, flexibility, versatility, knowledge, foresight and clear perception as some of the key traits.

The Information Technology is a field of collection, collation, interpretation and dissemination of information with the help of technology. The modern age is the age of knowledge, and the knowledge is based on information. The requirement to gain and attain information is ever increasing. The physical capability to gain information is very limited. As normal human effort to gain vast information comes out to be costlier, difficult, time consuming and of limited scope, the modern technology means to provide information faster, cheaper, easier covering larger scope. While writing this paper it took just two hours scanning over 500 papers and number of books on internet and got wealth of information in the typed form which assisted me immensely. This is what is Information Technology abbreviated as IT.

Our lives have been touched, embraced and shaken up by the prefix e in just about everything these days-e-commerce, e-mails, e-friends, e-courses and even e-jobs. Welcome to the new era ! But the new era is also

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changing the way of entrepreneurship. Shiny Samuel of CRV Consultants, a Bangalore based HR agency says: "Organizations today are flatter, leaner and more aggressive. Equally important is your ability to work as a team, which today are self managed and geographically dispersed. You need to possess people skills besides creativity and lateral thinking with flexibility." You need to market your talents/skills and attitude. Self-awareness is necessary in promoting yourself and your product. Networking will help you to a great extent.

With e-business making its presence felt, a whole new range of exciting opportunities for entrepreneurship have come up, tailor-made for the brash new breed young men itching to take on the world. Take heart, young people, you do not have to work in a regular 9 to 5 job where you yawn half the time. You will be the head of a team that will take the world into a new age with ideas, creativity and pure character. We are not just talking about IT. Every sector in the economy has come up with new ideas and exciting opportunities.

The aim of this paper is to give out the scope of various entrepreneurial opportunities in Information technology and the methodology of developing these opportunities as a profitable venture.

## **II. Entrepreneurial Opportunities in IT**

MIT's computer guru Michael Dertouzos estimates that 50 million US white-collar jobs will migrate to India that will add a trillion dollar to our GDP. Information Technology that is going to dominate the white-collar jobs is the biggest opportunity that has come to India via West. Many overseas Indians dream that this could change the landscape of India. The Rs. 40,000 crore of

IT spending over the past three years could have made the Indian Economy more efficient in its use of resources.

Despite the slowdown expected in American Business after the terrorist attacks on USA, IT is here to stay! With Y2K successfully behind it, this industry is extremely dynamic and still attracts the best talent in the country. Exciting avenues are being identified both globally and within the country. With the advent of the electronic era, IT has gained further prominence. Though the bust in the portal boom is a dampener of sorts, Net based initiatives linking business to consumers (B2C), business to business (B2B), and government to consumers (G2C), VoIP, ASP are being tested out constantly and offer good potential to sound concepts. Some of the entrepreneurial options in IT functions include- e-commerce, eMarketing, eGovernance, eEducation, tele-working, web security; IT enabled services-call centres, CRM, data digitization /GIS; DSP; technical writing etc. These opportunities are discussed in succeeding paragraphs.

**E-COMMERCE:** E-commerce has perhaps received more attention than any other field in recent times as it uses technology to streamline business models, creating savings and increasing efficiency. Most IT companies are focusing on building capabilities in this field. NASSCOM e-business transactions in India were around Rs 300 crore last year. Revenue from exports is likely to be sizeable-the Asia Pacific region is expected to be \$340 billion by 2004, which is around 14 per cent of the world market. You could establish your own business in e-commerce or developing e-business solutions. .E-commerce is all about consumers conducting basic transactions on the Web-this could be business-to-business (B2B) or business-to-consumers (B2C). Example of B2C is amazon.com that sells books, music and films to people. B2B is a revolutionary order.

On 25 February, America's three auto majors General Motors, Ford and Daimler Chrysler joined hand to create the world's most high profile virtual B2B market. The three will buy nearly \$240 billion of auto spares every year from thousand of suppliers linked to Covinsint, the new B2B market. In B2B one company sells to another company over the internet rather than to an individual. A dozen B2B exchanges are expected every day for the next two years. E-markets with these B2B and B2C concepts can help companies save between \$180 billion to \$480 billions by 2003.

As an e-commerce entrepreneur, your work will involve understanding operations of companies, Web enable their businesses and the entire supply chain management (right from raw material to movement of finished goods).

How can an entrepreneur get into eCommerce, eMarkets, B2B or B2C marketing systems? There are three possibilities. Start preparing catalogues for big companies; introduce auction system or reverse auctions. Catalogues where sellers list their offerings on the Net are best used when price volatility of products is low. This is ideal for industries like electrical components or specially chemicals where demand is fairly constant and prices stable. Auctions are for price-volatile industries, where companies seek the best prices. Fragmented industries like used cars and the energy market with many buyers and sellers make for better auction based eMarkets. Reverse auctions work like tender notices, where products or contracts are bought from the lowest bidder. XML is a standard system. There is an enterprise integrator software (EIS) that connects XML enabled exchanges to the company.

With BE/ B.Tech, DCA/MCA qualification and knowledge of XML, EIS, VC++, Oracle, SQL, ASP, HTML, Java Beans, Servlets, CORBA.

A few computers, a telephone and a small office with right connections is sufficient for beginning. A venture capital of not more than 4 to 5 lakhs is needed to start an entrepreneurship in this field.

**GRAPHICS DESIGNER/ 3D ANIMATOR:** The Indian animation industry has come up well and has a vast space for the new entrepreneur. Animation needs high levels of creativity and imagination-it is a fantasy world and the sky is the limit to improvise. India is becoming a global hub with American and European customers making good use of local talent. Customers are mainly studios and channels such as "The Cartoon Network" The Indian industry is worth around \$50 million while the global market is worth an estimated \$15 billion. The future of this industry is bright as the trend is towards outsourcing to cheaper Asian countries. Designers and animators have to fantasise on the projects that are aired as cartoons, ad films, animated graphics, 3D movies, special effects in movies & TV serials. Graduates in arts and design, or a student in mass communication or a software engineer, with on-the-job training at companies such as Pentasoft, Chennai; Heart Animation, Hyderabad; Pentamedia Graphics, Silverton Studio, Crest Communication, Toonz Animation, Color Chips you will know the basics of setting up the project. Exposure to global industry will be a big value-addition.

**WEB DESIGNER:** The Internet is changing the business models of companies and there is a growing demand for Web sites from corporate, small enterprises and individuals. Web designing will be an evergreen area: it includes creating Web pages, layouts and graphics on the Web site, and making it user-friendly and attractive. Their work influences the popularity of the portal. Designing requires high creative and computer skills and involves music and sound, typography and interactive Web design. Your creative

skills can take you to heights. Internet revolution, which is changing the way business is conducted the world over.

As a Web designing entrepreneur, you are responsible for creating an appealing Web site that is easy to navigate, maintaining the Web page, analyze number of hits and monitor performance of the site and to maintain the site.

Web designing is still in its early stages in India and still a developing field. A good entrepreneur in this field has to combine conceptual skills and familiarity with tools, which can be mastered only through sustained practice, a regular controls and checks over the work produced, a very low fixed and working capital. Three to four lakhs are sufficient to start the business which can be developed gradually with hard-work. The more you master the field, the more the income. This field does offer opportunities to travel abroad and interact with clients skills required are ASP, HTML, CGI, Perl, VB Script, Java Script, TCP/IP.

A typical 9 months Diploma in Web engineering offered by Aruna Multimedia is around Rs 27,000 and 3 months Diploma in Multimedia course by Pentafour is around Rs 21,000. These courses can help the entrepreneur to have the basic know-how about the business. You can set up a dotcom company advertising agency, companies specializing in Web designing, ISPs, etc. Planetasia.com is one such company.

**CRM:** The CRM market is very nascent in India. It is highly fragmented with more than 35 software products being available. Each of the CRM products has varying sets of components/modules catering to specific industry segments. Some CRM vendors include: IMS Strategic Health, Dendrite and Siebel for health care product

companies Siebel, CAS GmbH, Dendrite, and MEI for consumer packaged companies Pivotal, Saratoga, MEI, Sales Logix, Moss Systems and Sales Vision for midsize field sales organizations Relavis, Intel Agent Control, and Synergistic for Lotus notes based end users. Presently these software products are sold through the local agents of vendor companies or through value added re-sellers. These local agents themselves provide training to their corporate clients and the principals provide the requisite training to these re-sellers. BE/ME computer science graduates with one to two months on-the-job training on a CRM package could start their own venture. The training provided is very product specific. NIIT, Delhi is a training institute offering training in Siebel package and as of now no other institute is providing any training in this area. You can join the CRM solution providers or the user industries to have the expertise. Companies like Infosys and Wipro have people working in this area.

**MEDICAL TRANSCRIPTIONS:** In a short span of three to four years, the medical transcription industry has grown to an estimated \$10-billion industry... Increasing need of doctors and medical firms in the US to outsource transcription services has allowed the industry to grow at a whopping rate of 25 per cent each year As a medical transcriptionist entrepreneur with your Production centers and transcription schools, your company would involve transcribing doctor's digitized audio reports, and sending back the text to the medical fraternity in the US or Europe via satellite after quality checks.

Educated youth in any place can join this lucrative market and make a great entrepreneur in this field. But certain basic requirements are imperative. A sound knowledge of spoken and written English is a must with good comprehension and listening skills. They should always be ready to update their knowledge and keep

abreast of new drugs entering the market. They need to learn medical terminology, American English grammar and punctuation, and computer basics concerning medical transcription. Knowledge of English and a set of deft fingers on the keyboard are the prerequisites for this career option. Several institutes that offer 4-12 months diploma/certificate training specifically for medical transcription have come up all over the country. These institutes provide training on computer usage, listening to dictation and transcribing and familiarizing candidates with medical terms. A few institutes that offer training in medical transcription are Indian Institute of Medical Transcription, New Delhi; National Institute for Excellence in Tele-working (NEXT) and Aksons, Bangalore. Manipal Academy has tied up with Health scribe to offer a Masters degree in Medical Transcription and Data management. Generally, a four-month course is around Rs 10,000 and a one-year course around Rs 30,000. Companies into medical transcription also provide on-the-job training to their employees. There are more than 30 transcription firms all over India. These are primarily located in software technology parks in cities like Bangalore, Chennai, Delhi, Hyderabad and Mumbai. Health scribe India in Bangalore, Selectronics in Delhi, Care in Hyderabad and Nittany Decision Services in Chennai are some of them.

#### **ENABLED SERVICES CALL CENTRES:**

Increasing competition in businesses is driving the need to focus on the consumer and provide value-added services. Call centers are a step in this direction. A call centre provides round the clock information support to customers; these centers are manned by trained personnel or consultants with access to a wide database of information and a thorough knowledge of the product or service being offered by the company.

The employment base in the call centre business is expected to touch 2.5 million by the year 2007-08. Many call centre businesses of Australia and the US have started setting up base in India. GE Capital plans to shift its call centre operation from Australia to India, and many others are preparing to follow suit.

A call centre would be involved in attending calls and responding to queries or problems of customers. It would also involve redirecting calls to the concerned expert. Basic skills required to set up a call centre is language understanding (accent and dialect) and on-the-job training. Companies like ICICI, GE and Bechtel have set up in-house call centers and provide support to own employees worldwide. Tie up with these companies will help the entrepreneur develop faster.

#### **GEOGRAPHIC INFORMATION SYSTEMS:**

Government departments, telecom companies and utilities are increasingly depending on GIS data for environmental resource analysis, land use planning, network analysis, etc. Marketing companies are also using GIS to explore new markets and to enable marketing and distribution strategies. The entrepreneurs in this field would involve conversion of data (maps, records, aerial photography, etc.) to digital data that can be used for modeling and analysis. A BE graduate with knowledge of operating systems and with right connections can start such a venture. Knowledge of tools like C & C++, specific GIS packages or CAD is an advantage. On-the-job training at Pixel InfoTech, Bangalore will help establishing links and getting the know-how. GIS solution providers, research institutes, the government sector and the GIS user industries (to a limited extent) may be your customers.

**NETWORKING:** is a high priority area in the corporate world. All the large companies are networked while many medium-sized ones and some small units



are moving towards a networked atmosphere. Large corporate are in the process of setting up intranets connecting all their offices and extranets linking up vendors and dealers. : With even the hi-tech chief ministers, Chandrababu Naidu and S.M. Krishna, talking of connectivity across the state as a crucial ingredient for the state's prosperity, one can imagine what may be happening in the corporate world itself. Convergence of technologies primarily calls for a networked environment. In such an environment, network entrepreneurs are required to keep the system up and running all the time. They need to have well-honed technical skills. Initially, technical skills are considered more important than conceptual skills that accrue through experience, gradually focusing will be on trouble shooting, monitoring (local area network) LAN performance and its security, adding or deleting users, adding new servers, etc. Constant upgrading of knowledge of latest hardware availability and networking techniques are critical for performing well. One also has the option of starting off as a network integrator on their own after gaining a few years experience in the industry.

Engineering graduates with specialization in computer science, electronics and communication have better chances of success. In addition, certification programs are available from Microsoft, IBM, etc. for learning initial skills. You can be authorized training partners or franchises of Novell and Lotus. BE graduates could opt for this career option. Scope appears unlimited in the IT sector, telecom companies, manufacturing and service sector. Wipro, Microland, BFL Software and Infosys are the leaders in networking at present. One also has the option of starting one's own business after gaining a few years of experience in the industry.

**DATA WAREHOUSING & DATA MINING:** It might be news to you that companies like Coke and

Pepsi spend millions in understanding consumer behavior. Data warehousing, which is a repository of organized data, facilitates online analytical processing, decision support and data mining. Data marts are smaller versions of the enterprise data warehouses. Data warehousing essentially helps users in drawing conclusions from a set of data, which are not necessarily logical. Companies like VISA and Wal-Mart are turning enormous volumes of dumb data into meaningful business information. The popularly known data warehousing tools are the Rapid data, SQL bench and Red Brick (a product of Informix). Majority of the packages have RDBMS as the base, the architecture is of 3 types and Multidimensional, Relational OLAP and Hybrid. OLAP.

Knowledge of RDBMS is essential. Institutes like RCS Education, Bangalore (offers courses on Red Brick) and OBSI, Chennai, are now offering product specific training. You could join any of the data warehousing solution providers or user industries for on-the job training.. Currently data warehousing consultancy companies like TCS, Sonata, Tata InfoTech and IBM recruit such professionals. User companies recruiting data warehousing professional include Motorola and Pepsi. A BE Computer Science/B.Tech/MCA with some experience in the IT industry can set up small Data warehouse in collaboration with a major industry in the field.

**SYSTEMS SOFTWARE COMPANIES:** Systems software companies have a roaring business. As an entrepreneur you can specialize in a field and have a tie up with a company. Specialization has to be chosen carefully as per your own liking. For instance, telecom software would involve writing programs, coding and module testing of sub systems, source code documentation in the areas of digital signal processing, wireless application and related telecom domain areas.

A BE/BTech in electronics, communication or computer science or M. Tech with specialization in systems have better chances of success. In addition, basic knowledge of skills like C, C++ is a must. Some specific technical skills preferred include GSM, TDMA, CDMA, WLL, etc. Experience in the field can be had from Companies working in the systems domain. Motorola, Philips, Lucent, Texas Instruments and SAS are some such companies.

**eEDUCATION:** The flood in eEducation has provided vast scope for the entrepreneurs to set up their own institutions. A few computers two class-rooms and a lab with 8 to 10 computers will be sufficient for initial start. Expertise in C, C++, Oracle, Java, HTML and a few of the modern languages will provide you number of students. Affiliation with universities or franchise of a good computer education company like NIIT or Aptech will further your income, though initially the costs for franchise may be heavy. B. Tech in CSE or Electronics are doing wonders in this field. Regular updating of courses and upgrading will help the entrepreneur to ne heights. Initial finances may be 6-7 lakhs with own accommodation or hired accommodation. Franchise may vary from 2 to 4 lakhs in addition.

**INTERNET KIOSKS/DHABAS:** A low finance, a low knowledge based entrepreneurial venture is internet kiosks or *dhabas* where networking of four to five computers on internet in a right location in one room with partitions will earn you Rs. 1000/- to 1500/- per day. Basic knowledge of computer and internet is sufficient to start the venture.

### III. CONCLUSION

IT Industry has countless opportunities; only a few are described above. There are many other such opportunities like IT Driven Financial services, IT

appliances which could be exploited well. A successful entrepreneur tracks emerging needs, and identifies opportunities that throw up value. A good idea is the pivot around which a successful venture can be structured.

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