Having understood the hierarchy of plans, we should keep in mind that strategic, tactical, and operational plans are interlinked to each other through the objectives and goals. Therefore, a frequent failure of operational plans may have the impact of weakening the tactical plans. Similarly, failure of tactical plans on many occasions may have a negative impact upon the strategic plans, and the top management may have to revise the strategic plans (at times by invoking the contingency plans). Hence, it must be emphasized that despite the highest hierarchy enjoyed by the strategic plans, their success is heavily dependent upon the success of lower-level plans, namely the tactical and operational plans. Clearly, the crucial role of middle and lower management in the organizational hierarchy should not be underestimated for the successful implementation of the overall grand strategy of the firm.

Points to Ponder

- Goals are more concrete aims of the organization and more specific than the objectives.
- The strategy developed by the top management is helpful in winning the corporate "wars" against the competition, while the tactical plans help in winning the shorter duration "battles."
- Directional planning has a lot of flexibility compared to specific planning, however it is much more stressful and cumbersome for planners who are accustomed to planning with specific goals.
- In case the chosen strategy does not yield expected results due to abrupt changes in the business environment, contingency plans prepared by the top management may be invoked.
- Despite the highest hierarchy enjoyed by the strategic plans, their success is heavily dependent upon the success of lower-level plans, namely the tactical and operational plans.

THE BANGALORE INTERNATIONAL AIRPORT

The new Bangalore International Airport is envisioned to meet the growing aviation needs of the city through the development of a passenger-friendly, well-operated, and financially sound airport. Located east of the Bangalore-Hyderabad national highway (NH 7), the new airport is 37 kilometres away from Bangalore and 4 kilometres south of Devanahalli. The site spans an area of 3,900 acres and comprises of all the modern amenities a traveller looks for in terms of convenience, comfort, and connectivity.

Figure A The Bangalore International Airport

The Bangalore International Airport Ltd (BIAL) shareholding pattern consists of private promoters holding 74% equity stake and the state holding the remaining 26%. The private promoters include: Siemens Projects Ventures, Larsen & Toubro, and Unique Zurich Airport. The two state promoters are the Karnataka State Investment and Industrial Development Corporation (KSIIDC), and the Airports Authority of India (AAI). The shareholding pattern is depicted in Figure B.

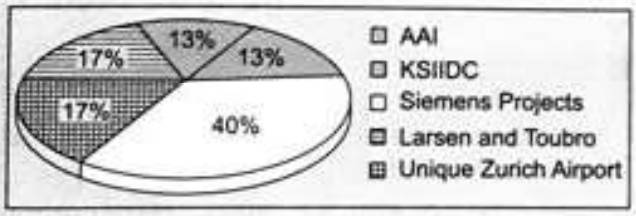

Figure B Shareholding Pattern in BIAL

BIAL's design and business plans are based on two passenger traffic forecasts:

- SH&E UK, appointed by KSIIDC (Government of Karnataka) in the year 2000.
- Lufthansa Consulting (LHC), appointed by BIAL in the year 2002 to revalidate the SH&E traffic forecast.

With the passenger traffic at the HAL airport increasing from 2.3 million in 2001 to approximately 5 million in 2005, BIAL appointed LHC once more in 2005 to update the traffic forecast and develop planning parameters. In an extensive report conducted by Lufthansa Consulting, the potential traffic flow from 2005 to 2025 was analysed. The new forecast showed a significant increase in passenger figures and aircraft movements in the coming years. These revised forecasts for passenger and cargo traffic are shown in Table A.

It was evident from Lufthansa Consulting's revised projections that during the last few years, Bangalore has experienced a strong growth in traffic at its existing HAL airport with prominent international airlines—Air France, British Airways, Gulf Air, Jetstar Asia Airways, KLM, Lufthansa, Malaysian Airlines, Royal Nepal Airlines, Singapore Airlines, and Sri Lankan Airlines already operating from Bangalore.

The study estimated the international airport's opening year (2008) traffic flow to be 6.7 million passengers. Given the new traffic figures, the facilities proposed initially were deemed to be grossly inadequate to cater to the new peak hour demand. Since the task of giving a final shape to agreements had taken three years and aviation requirements

Table A Revised Forecasts by Lufthansa Consulting

Scenario	2005	2010	2015	2020	2025
Optimisitc	4,613,742	10,190,762	13,922,812	18,193,819	23,444,066
Most likely	4,470,904	8,540,579	11,369,184	14,536,743	18,441,082
Conservative	4,328,259	7,144,506	9,777,469	12,284,213	15,377,190

(I) Total passengers

Scenario	2005	2010	2015	2020	2025
Optimistic	124,904	257,263	334,795,	426,367	538,844
Most likely	122,157	234,017	299,303	375,118	469,179
Conservative	118,378	198,565	255,033	316,118	391855

(II) Total Cargo (tonnes)

had changed during the interregnum, the design of the project was changed and scope extended. Figure C shows the initial design, while Figure D shows the revised design of the airport.

The re-design saw an increase in the size of the terminal, number of aircraft stands, new taxiway layouts, and landside infrastructure. However, the re-design was incorporated into the present project schedule as BIAL was committed to open the new Bangalore International Airport in April 2008. The project managers eventually were able to complete the project one month before the scheduled completion date.

Construction of the Airport commenced on 2 July 2005 and continued, including the testing phase, for 33 months. The project progressed very well according to the time schedule of the project, which is shown in Figure E. The total project cost of BIAL stands currently at Rs 1,930 crores. The re-designing entailed an additional capital investment of about Rs 500 crores over and above the original

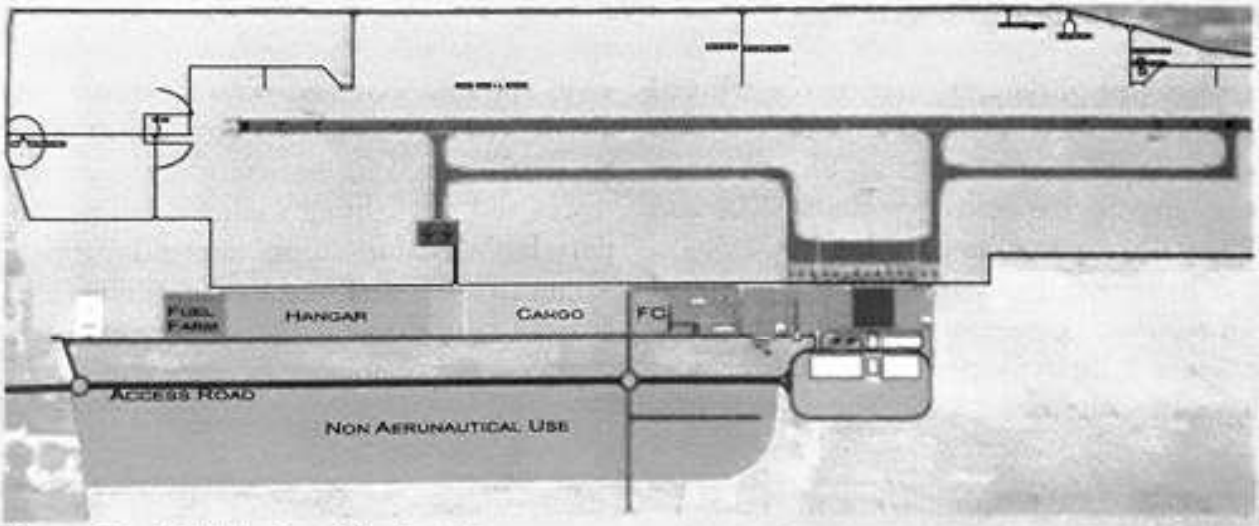

Figure C Initial design of the airport

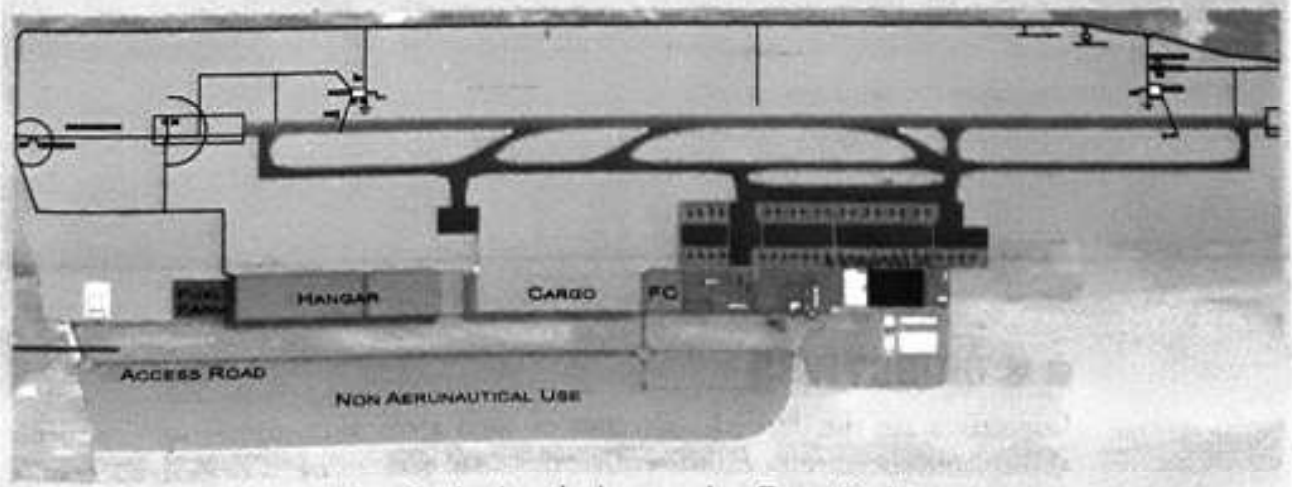

Figure D Revised design keeping in view the increased traffic projections

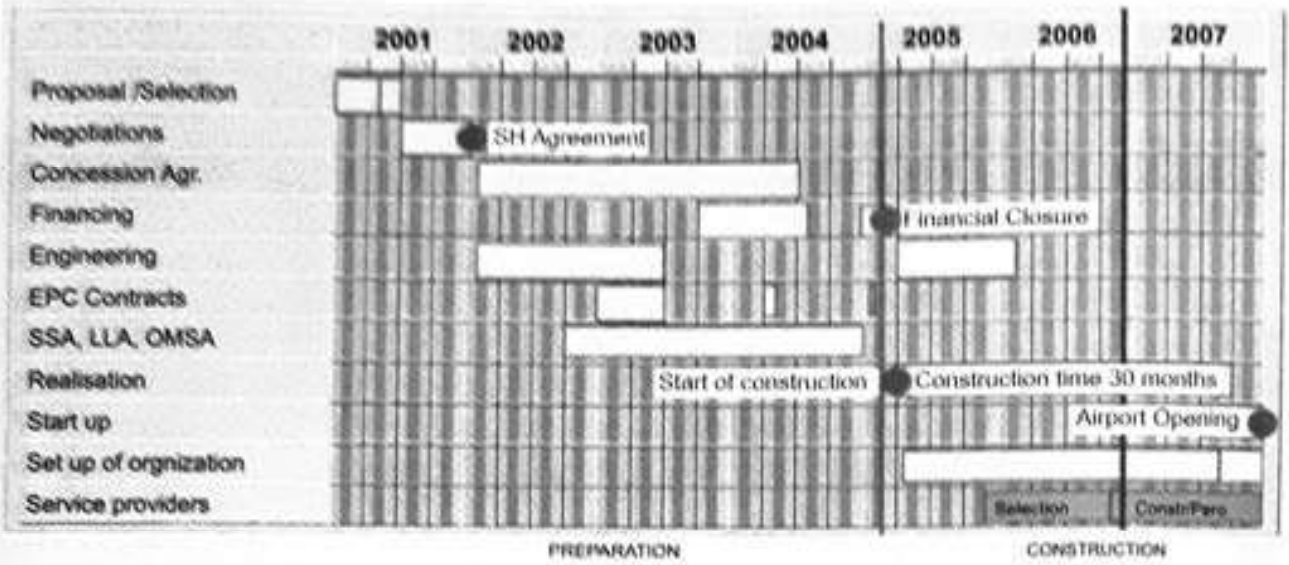

Figure E The time schedule of Phase I

project cost of Rs 1,411 crores. The selected partners of BIAL invested an additional 700 crores in their infrastructures. Phase I of the new airport was ready by March 2008 and Phase II is expected to complete by 2015.

The airport development plan is staggered across several phases. The initial phase development completed by March 2008 includes a passenger terminal, a 4,000-metre-long runway, entrance/exit taxiways, isolation bay, airside road system, two-way access road, air traffic complex, aeronautical equipment, rescue and fire-fighting facilities, airline support facilities, fuel farm, terminal parking, administration and maintenance buildings, ground equipment maintenance area, cargo complex, and boundary/security wall.

Discussion questions

1. Shouldn't project planners incorporate suitable time cushion for taking necessary approvals from the government while planning such mega projects as the Bangalore International Airport (to avoid re-designing as it happened in this case)? Discuss.
2. How helpful in planning is it to have the government as a shareholder in such mega projects?

■■ OBJECTIVES

Objectives are the desired outcomes in such areas as customer service, profitability, and social responsibility, that the management of an organization hopes to attain.

requiring great communication skills. Their enthusiasm is contagious and they create a shared vision for the future. However, they need to be supported by the "detail people" who could take care of the nitty-gritty of implementation. Transformational leaders may not necessarily lead from the front and tend to delegate responsibility to the teams of their followers. Paradoxically, the same enthusiasm and passion that attracts the followers to the transformational leader may at times result into the followers getting overwhelmed and feeling worn out. Also, one of the traps of this leadership style may be that the passion and confidence of such a leader may be taken as equivalent to the truth and reality, which may not always be the case.

As the adjoining caselet shows, the former President of India, Dr A.P.J. Adbul Kalam is a transformational leader who not only successfully guided India's space programme as a scientist, but also created a shared vision for his countrymen to transform India into a developed nation.

Dr A.P.J. ABDUL KALAM—THE TRANSFORMATIONAL LEADER

Dr A.P.J. Abdul Kalam served the country as the 11th President of India from 2002 to 2007. He was awarded the highest civilian honour "Bharat Ratna" in 1997 for his exemplary contributions to the India's space programme.

Dr Kalam shared his views about leadership at Wharton India Economic forum, Philadelphia, on 22 March 2008, when a question was put before him: Could you give an example, from your own experience, of how leaders should manage failure? What follows below is an inspirational anecdote as an answer to this question in his own words and a couple of other speeches made by him at various forums, in which he shared his vision for India and the milestones of his career:

Let me tell you about my experience. In 1973, I became the project director of India's satellite launch vehicle program, commonly called the SLV3. Our goal was to put India's "Rohini" satellite into orbit by 1980. I was given funds and human resources—but was told clearly that by 1980, we had to launch the satellite into space. Thousands of people worked together in scientific and technical teams towards that goal.

By 1979—I think the month was August—we thought we were ready. As the project director, I went to the control center for the launch. At four minutes before the satellite launch, the computer began to go through the checklist of items that needed to be checked. One minute later, the computer program put the launch on hold; the display showed that some control components were not in order. My experts—I had four or five of them with me—told me not to worry; they had done their calculations and there was enough reserve fuel. So I bypassed the computer, switched to manual mode, and launched the rocket. In the first stage, everything worked fine. In the second stage, a problem developed. Instead of the satellite going into orbit, the whole rocket system plunged into the Bay of Bengal. It was a big failure.

That day, the chairman of the Indian Space Research Organization (ISRO), Prof. Satish Dhawan, had called a press conference. The launch was at 7:00 am, and the press

conference—where journalists from around the world were present—was at 7:45 am at ISRO's satellite launch range in Sriharikota (in Andhra Pradesh in southern India). Prof. Dhawan, the leader of the organization, conducted the press conference himself. He took responsibility for the failure—he said that the team had worked very hard, but that it needed more technological support. He assured the media that in another year, the team would definitely succeed. Now, I was the project director, and it was my failure, but instead, he took responsibility for the failure as chairman of the organization.

The next year, in July 1980, we tried again to launch the satellite—and this time we succeeded. The whole nation was jubilant. Again, there was a press conference. Prof. Dhawan called me aside and told me, "You conduct the press conference today." I learned a very important lesson that day. When failure occurred, the leader of the organization owned that failure. When success came, he gave it to his team. The best management lesson I have learned did not come to me from reading a book; it came from that experience.

I have three visions for India. In 3,000 years of our history, people from all over the world have come and invaded us, captured our lands, conquered our minds. From Alexander onwards, the Greeks, the Turks, the Moguls, the Portuguese, the British, the French, the Dutch, all of them came and looted us, took over what was ours. Yet we have not done this to any other nation. We have not conquered anyone. We have not grabbed their land, their culture, their history and tried to enforce our way of life on them. Why? Because we respect the freedom of others. That is why my first vision is that of **freedom**. I believe that India got its first vision of this in 1857, when we started the war of independence. It is this freedom that we must protect and nurture and build on. If we are not free, no one will respect us.

My second vision for India is **development**. For fifty years, we have been a developing nation. It is time we see ourselves as a developed nation. We are among top 5 nations of the world in terms of GDP. We have 10 percent growth rate in most areas. Our poverty levels are falling. Our achievements are being globally recognized today. Yet we lack the self-confidence to see ourselves as a developed nation, self-reliant and self-assured. Isn't this incorrect?

I have a third vision. **India must stand up to the world**. Because I believe that, unless India stands up to the world, no one will respect us. Only strength respects strength. We must be strong, not only as a military power but also as an economic power. Both must go hand-in-hand. My fortune was to have worked with three great minds: Dr Vikram Sarabhai of the Department of Space, Professor Satish Dhawan, who succeeded him, and Dr Brahm Prakash, the father of nuclear material. I was lucky to have worked with all three of them closely and consider this the great opportunity of my life.

I see four milestones in my career:

1. I have spent twenty years in ISRO. I was given the opportunity to be the project director for India's first satellite launch vehicle, SLV3, the one that launched Rohini. These years played a very important role in my life of a Scientist.
2. After my ISRO years, I joined DRDO and got a chance to be the part of India's guided missile program. It was my second bliss when Agni met its mission requirements in 1994.
3. The Department of Atomic Energy and DRDO had this tremendous partnership in the recent nuclear tests, on May 11 and 13. This was the third bliss. The joy of participating with my team in these nuclear tests and proving to the world that India can make it, that we are no longer a developing nation but one of them. It made me feel proud as an Indian the fact that we have now developed for Agni a re-entry structure, for which we have developed this new material, a very light material called *carbon-carbon*.

4. One day an orthopedic surgeon from Nizam Institute of Medical Sciences visited my laboratory. He lifted the material and found it so light that he took me to his hospital and showed me his patients. There were these little girls and boys with heavy metallic calipers weighing over three kilogram each, dragging their feet around. He said to me: Please remove the pain of my patients. In three weeks, we made these Floor Reaction Orthosis 300 gram callipers and took them to the orthopedic centre. The children didn't believe their eyes. From dragging around a three kilogram load on their legs, they could now move around! Their parents had tears in their eyes. That was my fourth bliss!

Why is the media so negative? Why are we in India so embarrassed to recognize our own strengths, our achievements? We are such a great nation. We have so many amazing success stories, but we refuse to acknowledge them. Why?

- We are the first in Milk production.
- We are number one in Remote Sensing Satellites.
- We are the second largest producer of wheat.
- We are the second largest producer of rice.

There are millions of such achievements, but our media is only obsessed in the bad news and failures and disasters.

I was in Tel Aviv once and I was reading the Israeli newspaper. It was the day after a lot of attacks and bombardments and deaths had taken place. The Hamas had struck. But the front page of the newspaper had the picture of a Jewish gentleman who in five years had transformed his desert land into an orchid and a granary. It was this inspiring picture that everyone woke up to. The gory details of killings, bombardments, deaths, were inside in the newspaper, buried among other news. In India, we only read about death, sickness, terrorism, crime. Why are we so negative?

Another question: Why are we, as a nation, so obsessed with foreign things? We want foreign TVs, we want foreign shirts. We want foreign technology. Why this obsession with everything imported. Do we not realize that self-respect comes with self-reliance?

I was in Hyderabad giving this lecture, when a 14-year-old girl asked me for my autograph. I asked her what her goal in life is. She replied: I want to live in a developed India. For her, you and I will have to build this developed India. You must proclaim India is not an underdeveloped nation; it is a highly developed nation.

The precision with which India's moon mission Chandrayaan-I was executed is unprecedented. Chadrayaan-I could not only orbit around the moon, but also touched its surface without a single flaw in its 3,86,000 km journey. Chandrayaan-I Project Director, M. Annadurai, credits India's newfound status in the Moon club to former President of India, Kalam, for his interjection which made the Moon touchdown a reality and the mission's fillip to science. In the words of Annadurai, "Six months into the project, Kalam told me India must touch the Moon and not just orbit around it. Our hearts skipped a beat because all plans had to be changed. That's when the Moon impact probe was initiated. We took it as a challenge and did it. Today when I look back, it feels wonderful" (Seethalakshmi, 2009).

Discussion question

Which aspect of Dr Kalam's persona as a transformational leader inspires you most and why? Discuss.

MOKSHAGUNDAM VISVESVARAYA

The entrepreneurial function can be performed by a relatively small number of people and can have a major impact. As an illustration, we may note the role played by Dr Visvesvaraya in India, particularly in the (erstwhile) State of Mysore (now Karnataka). Here was one man who was responsible for many new industrial enterprises, without his providing equity capital himself or actually running an enterprise (Schloss, 1969).

"Remember, your work may be only to sweep a railway crossing, but it is your duty to keep it so clean that no other crossing in the world is as clean as yours."

The obsession for perfection and excellence, which is clearly reflected in the above quote, is none other than that of the matchless dreamer, achiever, the great Sir Mokshagundam Visvesvaraya (1860–1962). Any endeavour that he embarked on, he executed with a great degree of perfection (State Bank of Mysore, 2009).

Visvesvaraya was born in Muddenahalli village in Karnataka. His father expired when he was just 15 years old. After completing his high school from Bangalore and Bachelor of Arts from Madras University, he studied engineering at the College of Science (now College of Engineering) at Pune.

After completing his studies, he worked in Bombay before joining the Indian Irrigation Commission. He implemented an extremely intricate system of irrigation in the Deccan area. He also designed and patented a system of automatic weir water floodgates, which were first installed in 1903, at the Khadakvasla reservoir near Pune. These gates were employed to raise the flood supply level of storage in the reservoir to the highest level likely to be attained by its flood, without causing any damage to the dam. He designed a flood protection system to protect the city of Hyderabad from floods. He was also instrumental in developing a system to protect Visakhapatnam port from sea erosion.

Visvesvaraya retired in 1908 and Sri Krishnarajendra Wodeyar, the then Maharaja of Mysore, was eager to secure the services of Visvesvaraya to serve Mysore. He joined as Chief Engineer in Mysore because he wanted challenging opportunities. He supervised the construction of the Krishnarajasagara dam and the famous Brindavan gardens across the Kaveri River from concept to inauguration. This dam created the biggest reservoir in Asia at the time it was built. He was responsible for building the very first electricity generation plant in Asia at Shivanasamudra near Mysore in 1894. During his period of service with the Government of Mysore state, he was responsible for founding, under the aegis of that government, the Mysore Soap factory, the Parasitoid laboratory, the Bhadravati Steel factory (now a part of the Steel Authority of India), the SJP Polytechnic Institute, Mysore University, the Bangalore Agricultural University (now University of Agricultural Sciences), the State Bank of Mysore, the Mysore Sugar Mills, and numerous other industrial ventures. He was instrumental in the founding of the Government Engineering College (now called University Viswesvarayya College of Engineering) at Bangalore in 1917, one of the first engineering institutes in India.

Visvesvaraya belongs to that small band of eminent Indians whose ideas and achievements have been among the truly creative and formative force of modern India. Visvesvaraya's slogan was "Industrialize or Perish" and

Mahatama Gandhiji's view was "Industrialize and Perish." In 1921 Gandhiji launched his non-cooperation movement which Visvesvaraya did not agree with. Visvesvaraya wrote to Gandhiji urging him to be dressed well in view of the upcoming Round Table Conference. Visvesvaraya himself used to be immaculately dressed always (Karnataka.com, 2009).

While he was Diwan (equivalent to the current time's Chief Minister) of the State of Mysore, Visvesvaraya was made Knight Commander of the Order of the Indian Empire by the British for his myriad contributions to the public good. After India attained independence, Sir M. Visvesvaraya was given the nation's highest honour, the Bharat Ratna, in 1955. He was also awarded several honorary doctoral degrees from various universities in India.

Discussion question

How difficult, in your view, is it to inculcate the virtues of honesty, ethics, and integrity like that of Visvesvaraya? Did these virtues help him to exploit entrepreneurial opportunities? Discuss.

■■ ENTREPRENEURSHIP IN INDIA

India has a long history of entrepreneurship. During ancient times, muslin from India was exported to Egypt, where it was used in mummification (Datt & Sundharam, 1968). India was known world-over for its spices and many entrepreneurs in ancient India were into the barter (exchange) of goods from other countries.

The East India Company, which was incorporated in Great Britain on 31 December 1600, established trade relations with Indian rulers in Masulipatam on the east coast in 1611 and Surat on the west coast in 1612. The company rented a trading outpost in Madras (now Chennai) in 1639. This trading company later provided a platform for the British to establish their empire in India.

During those times, the "managing agency system" of industrial organization was the result of efforts by British and Indian entrepreneurs to overcome the limitations imposed by a shortage in India of venture capital and business ability. The managing agency system was a type of industrial organization unique to India in which the promotion, finance, and administration of one or more legally separate and presumably independent companies was controlled by a single firm (called the managing agency firm) (Brimmer, 1955). Managing agents, the businessmen operating through the managing agency firm, were the real entrepreneurs in India. They had been the ones primarily responsible for the introduction of new products, new methods of production, and new sources of raw materials; they had discovered and exploited new markets and had usually undertaken whatever reorganization Indian industry had experienced during those days (Buchanan, 1934).

Figure 6.1 shows the new nomenclature and classification of MSMED Act, 2006. Manufacturing enterprises have been defined in terms of investment in plant and machinery (excluding land and buildings) and further classified into:

- Micro (earlier called Tiny) Enterprises—investment up to Rs 25 lakh.
- Small Enterprises—investment above Rs 25 lakh and up to Rs 5 crore.
- Medium Enterprises—investment above Rs 5 crore and up to Rs 10 crore.

Service enterprises have been defined in terms of their investment in equipment (excluding land and buildings) and further classified into:

- Micro Enterprises – investment up to Rs 10 lakh.
- Small Enterprises – investment above Rs 10 lakh and up to Rs 2 crore.
- Medium Enterprises-investment above Rs 2 crore and up to Rs 5 crore.

As the term Small Scale Industry (SSI) has been hitherto used extensively in the Indian context, we shall continue to use it in this chapter and the book to signify micro and small scale enterprises in the manufacturing as well as the service sector.

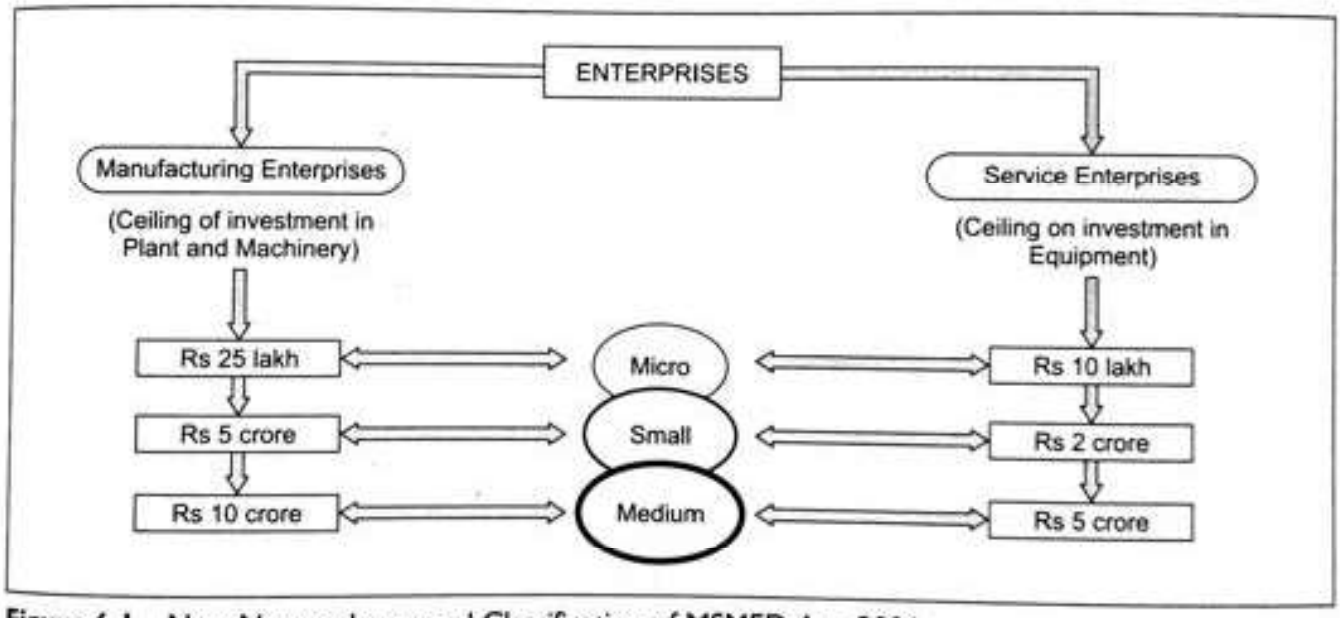

Figure 6.1 New Nomenclature and Classification of MSMED Act, 2006

MICROSOFT—FROM SMALL-SCALE TO WORLD-SCALE

No single innovation in recent memory has created more millionaires so quickly than the personal computer. These millions have come not only from making the personal computers, but also from supplying the chips that go into them, from supplying the software that is needed to run them, and from buying them to improve productivity—that is, they have come from all over the innovation value-added chain. Manufacturers are firms such as Compaq, Apple, Dell, and HP who make personal computers. Suppliers

are firms such as Intel, Cyrix, AMD, Micron Technology, NEC, Toshiba, and numerous others who supply chips, disk drives, and other components that go into the personal computer. Complementary innovators are firms such as Microsoft, IBM, Novell, Oracle, and Lotus who supply software, but over whom personal computer makers have very little or no control.

A point worth noticing about the personal computer is that some of those who have profited the most from it do not manufacture it. In 1994 alone, Intel, the top supplier of microprocessor chips for the personal computer, made $2,288 billion in profits on revenues of $11,521 billion, and Microsoft, the maker of personal computer software, earned $1,146 billion on revenues of $4,649 billion. On the other hand, Compaq, the top personal computer maker, made only $239 million on sales of $4,099 billion.

Microsoft was founded by Bill Gates and Paul Allen in 1975. Their first successful products were personal computer versions of compilers for the computer programming languages BASIC, COBOL, and FORTRAN which programmers used to write software. Their biggest break may have come in 1980, when IBM decided to enter the personal computer market and went to Microsoft for help. It wanted Microsoft to develop the programming languages BASIC, FORTRAN, and COBOL for the upcoming PC. In a meeting to see how they were going to meet their commitments to IBM and what else they could sell to it, Bill Gates, Paul Allen, Steve Balmer, and Kay Nishi had an even more important question to discuss: whether they should commit to developing an operating system for the new machine.

Knowing that Paul Allen was in the process of buying an operating system called Q-DOS (Quick and Dirty Operating System) from Seattle Computer, Nishi, their Japanese partner, insisted that they agree to provide IBM with the operating system. Bill Gates would later recall Nishi saying, "got to do it, got to do it." So they offered to develop the operating system for IBM. In fact, when they promised to license Q-DOS to IBM, the deal with Seattle Computer had not been closed yet. Microsoft paid $ 50,000 for it, turned around, and sold it to IBM for $186,000. But it was the terms of the contract with IBM that Microsoft is most proud of. "We didn't get paid that much—the total was something like $186,000—but we knew that there were going to be clones of the IBM PC. We structured that original contract to allow them (the cloners) to buy from us. It was a key point in our negotiations"—Bill Gates would later recall.

Bill Gates knew that good IBM products were usually cloned and was sure that the PC would be one of those. So in the contract selling MS-DOS to IBM, Microsoft made sure that IBM had the right to sell its own PCs with the modified Q-DOS in them, but not the right to license DOS to other makers of personal computers. That right belonged to Microsoft.

As it turned out, Microsoft was right. Many firms decided to clone the IBM PC and Microsoft could sell its operating system to them. However, Microsoft still had one problem: CP/M-86. This was a competing operating system, which on the August 1981 announcement of the IBM PC, had been offered as an alternative operating system for the PC and was considered by some as superior in performance, given its memory management and other features. Although CP/M-86 was late (released in the spring of 1982), it was the strategic actions taken by Microsoft and IBM that helped DOS triumph over it.

First, Microsoft was the leading producer of languages such as BASIC, COBOL, and FORTRAN for PCs. These languages ran on DOS but not on CP/M-86, and Microsoft was

not about to drop everything and develop the languages for the competing CP/M-86. When it did get to delivering such languages for CP/M-86, Microsoft priced them 50% higher than comparable languages running on its DOS. The version of BASIC that Microsoft sold for CP/M-86 was also an inferior one, with the graphics having been stripped. Since these languages were the major tools that software firms used in the development of applications software for the PC, their absence from CP/M-86 meant fewer applications being developed for the platform. For a computer operating system to emerge as a standard, applications software is critical.

Second was IBM's pricing. DOS on the PC came with two advanced versions of BASIC, ran all the applications software available on the machine, and was priced at $40. When CP/M-86 eventually came out in the spring of 1982, it was priced at $240, even though it ran almost no applications software and did not include BASIC.

Third, Microsoft went aggressively after firms such as Compaq that wanted to build IBM PC clones. It gave them a 50% discount over the listed price of $95,000, which was very low for an operating system to begin with, and that for an operating system that, unlike CP/M-86, was already deliverable and had many applications running on it.

With all of this going for Microsoft, its DOS quickly emerged as the standard for personal computer operating systems (and the standard for the IBM PC compatibles) and the major source of its profits. What it now had to do was to keep exploiting it, and it did just that. It actually started laying the groundwork for exploiting the standard back in 1981, shortly after the announcement of the IBM software for Apple's Macintosh. Like most computer enthusiasts, Gates knew that the "look and feel" of the Macintosh, which was superior to that of the DOS-based IBM PC and compatibles, was critical to future computing. The PC had a so-called character-based interface where all that the users could see were numbers and letters. They must communicate with the computer by typing commands, which they have to remember every time. Macintosh used a so-called graphical user interface (GUI), with which the, users can see not only characters but pictures, or *icons*. With the use of something called a *mouse*, they can click on these self-explanatory icons to invoke programs instead of having to remember the exact file name and typing it correctly. Moreover, once a user has learned to use a GUI-based applications program, it becomes very easy to learn other applications without a manual.

One reason for Microsoft's commitment to developing the applications programs for the Macintosh was its belief that the future of computing (and therefore of Microsoft) was in GUI, and the earlier it started developing the capabilities to exploit it, the better. It hired Charles Simonyi from Xerox's Palo Alto Research Center (PARC), where GUI had been invented. In January 1984, when Apple introduced the Macintosh, Microsoft offered Multiplan, BASIC, and Word 1.0 (a word-processing program). A year later, Microsoft announced Microsoft Excel, a spreadsheet for Macintosh.

Developing the applications programs for the Macintosh gave Microsoft an opportunity to understand the GUI technology and the relationship between GUI and how applications programs interface with it. Microsoft used these competences to develop its Microsoft Windows operating system, a GUI-based operating system that is compatible with DOS and, therefore, the huge installed base of personal computers and applications that run on them. The first two versions of the program, introduced in 1985 and 1987, had problems which the firm rectified in the very

successful 1990 version. Using the same GUI capabilities, Microsoft quickly developed versions of its Microsoft Word and Excel for the PC, and later the popular Microsoft Windows 95 (Afuah, 1998).

Discussion questions

1. A stroke of luck in the form of its initial deal with IBM to provide the computer operating system Q-DOS gave the initial push to Microsoft as an SSI unit for survival. Do you agree with this statement?
2. How important was the role of innovation in Microsoft's odyssey from small-scale to world-scale?

■ Definitions

Small scale enterprise. In the Indian context, a small scale enterprise is broadly defined in terms of the value of investment in plant and machinery. A small scale enterprise is the one in which the investment in fixed assets in plant and machinery, whether held on ownership terms, on lease, or on hire purchase, is above Rs 25 lakh and up to Rs 5 crore (above Rs 10 lakh and up to Rs 2 crore for service enterprises), subject to the condition that the unit is not owned, controlled or subsidiary of any other industrial undertaking (MSME, 2009b)

In calculating the value of plant and machinery, the original price thereof, irrespective of whether the plant and machinery are new or second hand, shall be taken into account. In the case of imported machinery, the following shall be included in calculating the value, namely:

- import duty (excluding miscellaneous expenses as transportation from the port to the site of the factory, demurrage paid at the port),
- the shipping charges,
- customs clearance charges, and
- sales tax.

Computer software development and software services including computer graphics, engineering design, computerized design and drafting have been recognized as industrial activities eligible for registration as small scale enterprises (MSME, 2009c, p.33).

Ancillary industrial undertaking. It is an industrial undertaking which is engaged or is proposed to be engaged in the manufacture or production of parts, components, sub-assemblies, tooling or intermediates, or the rendering of services; and undertaking supplies or renders or proposes to supply or render not less than 50 percent of its production or services, as the case may be, to one or more other industrial undertakings and whose investment in fixed assets in plant and machinery whether held on ownership terms or on lease or on hire-purchase, does not exceed Rs 1 crore (MSME, 2009b).

- *A grant of Rs 75,000 to each SSI unit which opts for ISO-9000 certification*: Quality of products produced by the SSI sector has been a concern and therefore, the government floated this policy to encourage SSIs for establishing quality management systems so that their products may compete well in the market place against the products of their large-scale rivals.
- *One-time capital grant of 50% for Small Scale Associations which wish to develop and operate Testing Laboratories, provided they are of international standard*: As we shall study in the next chapter, the government has created several testing laboratories itself. Nevertheless, this policy aims to strengthen the efforts of SSI Associations to establish their own testing laboratories. This will help in encouraging private participation in SSI infrastructure development.
- *No liability for SSIs under State Sales Tax Law for import of the goods into or export of goods out of the territory of India*: The State governments have, through this policy, provided a great relief to SSIs which are into export-import activities.
- *Export sales for SSIs exempted from levy of sales tax under Central Sales Tax Act, 1956*: The Central Government has provided this exemption to encourage SSIs to export their products abroad and earn valuable foreign exchange for the country.

CAPTAIN G. R. GOPINATH

Captain Gorur R. Gopinath, founder of India's first budget airline says, "My story – and Air Deccan's story – is the story of the new India, the India of possibilities. And it can be anybody's success story, in a country that is hungry for growth. All it needs is the ability to dream and the will to sustain that dream."

As a child, Gopinath—today the founder of first low-cost airline, Air Deccan—often used to go barefoot to class in his village school at Gorur, Karnataka, where his father was a school teacher. The young Gopinath joined Indian Armed Forces and rose to the rank of Captain within the eight years of service, before he decided to quit and return to his native place for becoming a farming entrepreneur.

During late 1970s, he landed at a place called Javgal, a couple of miles from Gorur, his ancestral village. All of 27, having just left the Indian Army, all he had with him was a tent, some utensils, bare necessities, and a *harijan* boy called Raju. Before him lay a stretch of barren land that his family had inherited as government compensation. At that time, he did not know that this would be his home for the next 10 years! It was here that he would start his married life with Bhargavi and have his first-born, Pallavi.

When he returned home, his mind was afresh with memories of his village, where he was born and attended school, where his father was a teacher, where he played bare-foot in the paddy fields and swam in the river Hemavati. But now, he found it was in crisis. A dam had

been built that flooded the ancestral lands. The government paid compensation in the form of a patch of land, which every villager decided to sell. But Gopinath decided to take a look at his plot. When his family heard this, they took him for a lunatic. After all, he was a student of the prestigious National Defense Academy and the Indian Military Academy. His father chided him till late. And by dawn, he was advising Gopi on what crops to grow and how to gather his resources.

As an army man, Gopi had seen the life in tough places and wanted to start afresh. He knew it would be an arduous journey, but when he saw the land allotted to his family with shrubs and cacti all around, it justified his presence there. So he pitched his tent and pondered how to turn this patch into a profitable venture. Fortunately, the soil was fertile.

After an ineffective start at farming that landed him in debt, he refocused his efforts on sustainable eco-friendly crops that eventually succeeded and also brought the prestigious Rolex International Award for Enterprise in 1996 for breaking new ground with organic farming. What Gopi had done was to go back to his plot after the earlier farming disaster, set up a *gobar* gas plant, bought cows for milk and manure. Then he started silk worm farming. The low-cost formula formed its roots in the success of this venture.

At every step, life teaches you something. As Gopi was still learning to farm, he had a thousand thirsty coconut trees. In the dry season, as there was no electricity, he carried water to the trees by hand, one pail on each side. Then one day he saw a *dhobi's* donkey carrying the entire load. He started dreaming of donkeys. He struck a deal (four donkeys for Rs 65 each per day) and got his money's worth. Every morning, villagers gathered at his farm to see the "mad farmer" tying pitches of water on his donkeys to water his plants!

Today, Gopi's farm is a secluded heaven. Tall palm and coconut trees grace the area. There are birds, bees, insects, cobras, and leopards too! Raju is still there and looks after the land. There's a mystical quality about being there. It gives Gopi time to think, read, and stand amidst the trees that he has planted.

At some point, Gopi moved Bangalore for his children's education. He bumped into an old friend from the army and together they realized that there was nobody at that time who was offering customer-dedicated helicopter services. Gopi realized that he was staring at a goldmine. The idea took shape and he launched Deccan Aviation, his heli-charter business. Gopi's dream got its wings! The helicopter service grew to become Air Deccan because Gopi could see what others failed to—the needs of a billion people. He wanted to make every Indian fly at least once. He was no longer looking at a billion hungry people, he was looking at a billion hungry consumers. Thus, Air Deccan was formed as a unit of Deccan Aviation and began its operations in August 2003.

There can be no doubt that Air Deccan's business model flies: some 15 million people travel by trains in India every day, with 3,00,000 of them traveling First Class; the airline hopes to get some of them to consider flying by offering rates that are the same, sometimes lower than the First Class tariff. That may sound simple, but the idea came to Gopinath—military hero, award-winning sericulturist, collector of Kannada literature—on a 2002 holiday to the Grand Canyon. The epiphanic moment came at the Phoenix airport. "I hadn't heard of (management guru) C.K. Prahalad's theory of targeting people at the bottom of the

(income) pyramid," he says. "All I knew was that the US, which had a population that was one fourth of India's, boasted 40,000 flights and four million passengers a day."

It wasn't that India did not have the requisite infrastructure; true, the quality of some airfields in the smaller towns leaves a lot to be desired, but the fact is, they exist and it is possible to land and take off from them. For the record, India has around 400 airports that were not connected through any flights at all before Air Deccan began operations. For instance, Bellary in Northern Karnataka has a pre-World War-II airport that can be used to land small airplanes, as does Dindgul to the south of Madurai in Tamil Nadu.

If the cost of leasing or purchasing planes is the same for everyone (it is), fuel costs are the same for everyone (they are), and airport landing fees the same (they too are), how was Air Deccan able to offer such low-cost tariffs? Simple, by cutting out all the frills. On Air Deccan flights, even water wasn't free. The exterior of the plane had been sold to the likes of Sun Microsystems and NDTV (as an advertising hoarding) and the interiors to the likes of Chevrolet Tavera for in-flight promotion. Air Deccan did not offer frequent flyer programmes; nor did it put up people at hotels if a flight is cancelled (only the ticket value was refunded); it did not offer a cargo service (cargo delays turnaround time); and it used to fly point-to-point rather than follow the hub-and-spoke model, which has a cascading effect should one flight be delayed or cancelled. Then there's the choice of aircraft itself: ATR 42s make sense as they seat just 47 and the load factor can be improved (then, smaller airports lack the infrastructure to handle Boeings and Airbuses).

Air Deccan created history during August 2004 by flying passengers to Delhi from Bangalore for a fare of only Rs 500, plus taxes (Rs 200). The Airbus A320 has a capacity of 180 passengers, and almost 100 of them took the inaugural Bangalore-Delhi Air Deccan flight by paying just Rs 700. The budget airline offered 75 percent of the seats at rates ranging between Rs 500 and Rs 5,000 and the remaining 25 percent at around Rs 7,500, which was 25 percent less than the normal fare of Rs 10,500 on any other airline. The new fare system devised by the airline was called Dynafares. Passengers must book their tickets 90 days in advance of the date of flight for availing confessional fares.

In June 2005, Air Deccan introduced dirt-cheap Re 1 scheme. The logic behind offering 2–3 seats per flight was that it is better to provide seats at dirt-cheap rates, rather than flying with unoccupied seats. The catch behind the scheme was that only 2–3 seats per flight were made available. Also, the ticket cost to the customer amounted to Rs 222 inclusive of taxes and not Re 1 as was the perception.

During June 2006, Air Deccan created another aviation history. It overtook the national carrier Indian (earlier known as Indian Airlines) to become the second-largest domestic airline in the country. Air Deccan's share crept up to 21.2%, from 19.4% in May, while Indian's declined to 20.8%, from 21.3% in May 2006. The Mumbai-based Jet Airways, India's largest private airline, remained the market leader with a 32.3% share.

On 1 June 2007, the board of Air Deccan issued in-principle approval for UB Holdings (Vijay Mallya promoted Kingfisher Airlines) to invest up to 26% in the low-cost carrier. UB spent Rs 550 crore for acquiring this stake and Air Deccan later came to be known as Kingfisher Red.

Gopinath looks at his farm as a place not just to grow coconuts for profit, but to grow ideas, to plant experiments, fertilize them

with imagination and harvest the ideas that take root.

In the April 2009 General Elections, Gopinath decided to contest for the Lok Sabha from the Bangalore South Parliamentary Constituency. He defended his decision of foraying into politics saying, "Though there is skepticism and cynicism towards politics, we can ill afford the apathy and be silent spectators. Therefore, I have decided to contest and that too as an Independent candidate, because I do not want to mortgage my soul and ideals to any of the political parties for the sake of winning an election. There are two ills plaguing our Nation, one is politics of communalism and religion which is dividing us by caste, creed, and religion. The second is corruption and lack of good governance. We as educated citizens need to come forward and bring about a change by disagreeing to this kind of politics. I can be the voice to your frustrations and give wings to your aspirations. In commencing this process, I would like to herald an era of "political Entrepreneurship," where each of us feel empowered and contribute to this engine of change (Gopinath, 2009)."

Discussion questions

1. The experience gained by Gopinath during his initial small-scale ventures paved the way for his large-scale venture Air Deccan. How important is the role of experience in setting-up SSIs in your view?
2. Would you support Gopinath's idea of Political Entrepreneurship?

■ Government Support for SSI during Five-Year Plans

From the data of the plan outlays for Village and Small Industries (VSI) sector over various Five-Year Plans, it is observed that the share of outlay on VSI sector, out of the total plan outlay has shown a non-linear trend. The proportion of fund allocation to the sector was highest at 4% of the total plan outlay in the Second Five-Year Plan and thereafter, it gradually declined till the Fifth Plan. The plan allocation to the VSI sector again increased to 2.1% during 1979–80, but subsequently declined to 0.94% in the budget estimates for 1998–99 (SIDBI, 2000).

First five-year plan (1951–56)

Following are the highlights of the first five-year plan and progress made during its time frame (First Five-Year Plan, 1951):

- Establishment of All-India Boards to advise and assist in the formulation of programmes of development for the Handloom Industry, Khadi and Village Industries, Small Scale Industries, Handicrafts, Sericulture and Coir.

During the last few years, government policies relating to trade and industry in India have been substantially liberalised and modified in keeping with the WTO related trade obligations. These have accelerated competition for SSIs not only in the global markets but even in the domestic market due to the increased inflow of low cost imports and substantial FDI even in the hitherto SSI dominated sectors (XII FYP, 2008).

The large scale domestic industry seems to have benefited in some sectors at the expense of SSIs as a result of WTO agreement. During the Tenth Five Year Plan period, the growth rate of the textile industry accelerated under the twin stimuli of domestic policy reforms and the end of the quota regime with effect from 1 January 2005 in major industrialised countries following agreement in the WTO. The excise duty structure was streamlined and rationalised, customs duty on machinery reduced, and the reservation for SSI units for garments eliminated. Removal of the policy rigidity towards the SSI units had a significantly positive effect on the industry (Eleventh Five Year Plan, 2008, p. 193).

Points to Ponder

- From the data of the plan outlays for Village and Small Industries (VSI) sector over various Five Year Plans, it is observed that the share of outlay on VSI sector, out of the total plan outlay has shown a non-linear trend.
- The Eleventh Plan approach to the MSE sector marks a shift from the welfare approach to that of empowerment. The strategy is two-pronged – it focuses on livelihood and social security.
- Policy initiatives are proposed to incentivise MSEs to achieve economies of scale by expanding production. One possibility could be to allow them to retain the benefit of excise duty exemption up to the prescribed limit even after they graduate into medium-scale enterprises.
- Globalization has become a big blow to the SSI units, which have already been struggling to exist.
- The reduction of restrictions on the movement of goods between countries and the subsequent increase in world exports would have benefited multinational corporations much more than small enterprises.

N. R. NARAYANA MURTHY & INFOSYS

Nagavara Ramarao Narayana Murthy better known as N. R. Narayana Murthy, is one of the seven founders of Infosys Technologies, a global consulting and IT services company. He is currently the non-executive Chairman and Chief Mentor of Infosys. Born into a Kannada Madhva Brahmin family in Mysore on 20 August 1946, Murthy graduated with a degree in electrical engineering from the National Institute of Engineering, University of Mysore in 1967 after attending government school, and received his master's degree from IIT Kanpur in 1969.

His first position was at IIM Ahmedabad as chief systems programmer where he worked on a time-sharing system and designed and implemented a BASIC interpreter for ECIL (Electronics Corporation of India Limited). After IIM Ahmedabad, he joined Patni Computer Systems in Pune. Before moving to Mumbai, Murthy met his wife Sudha Murthy in Pune who at the time was an engineer working at Tata Engineering and Locomotive Co. Ltd. (Telco, now known as Tata Motors) in Pune. In 1981, he founded Infosys with six other software professionals. In its early days, Infosys was supported financially by Karnataka State Industrial Development Corporation (KSIDC) and Karnataka State Financial Corporation (KSFC), which sanctioned Rs 24 lakh for the purchase of computers (Infosys, 2004, p. 7).

During a lecture delivered by Murthy at the Stern School of Business, New York University in 2007, he shared rare insights about the struggles undergone by him and Infosys during the early days:

Dean Cooley, faculty, staff, distinguished guests, and, most importantly, the graduating class of 2007, it is a great privilege to speak at your commencement ceremonies.

I thank Dean Cooley and Prof. Marti Subrahmanyam for their kind invitation. I am exhilarated to be part of such a joyous occasion. Congratulations to you, the class of 2007, on completing an important milestone in your life journey.

After some thought, I have decided to share with you some of my life lessons. I learned these lessons in the context of my early career struggles, a life lived under the influence of sometimes unplanned events which were the crucibles that tempered my character and reshaped my future.

I would first like to share some of these key life events with you, in the hope that these may help you understand my struggles and how chance events and unplanned encounters with influential persons shaped my life and career. Later, I will share the deeper life lessons that I have learned. My sincere hope is that this sharing will help you see your own trials and tribulations for the hidden blessings they can be.

The first event occurred when I was a graduate student in Control Theory at IIT Kanpur, in India. At breakfast on a bright Sunday morning in 1968, I had a chance encounter with a famous computer scientist on sabbatical from a well-known US university. He was discussing exciting new developments in the field of computer science with a large group of students and how such developments would alter our future. He was articulate, passionate, and quite convincing. I was hooked. I went straight from breakfast to the library, read four or five papers he had suggested, and left the library determined to study computer science.

Friends, when I look back today at that pivotal meeting, I marvel at how one role model can alter for the better the future of a young student. This experience taught me that valuable advice can sometimes come from an unexpected source, and chance events can sometimes open new doors.

The next event that left an indelible mark on me occurred in 1974. The location: Nis, a border town between former Yugoslavia (now Serbia) and Bulgaria. I was hitchhiking from Paris back to Mysore, my home town.

By the time a kind driver dropped me at Nis railway station at 9 pm on a Saturday night, the restaurant was closed. So was the bank the next morning, and I could not eat because I had no local money. I slept on the railway platform until 8.30 pm in the night when the Sofia Express pulled in.

The only passengers in my compartment were a girl and a boy. I struck a conversation in French with the young girl. She talked

about the travails of living in an iron curtain country, until we were roughly interrupted by some policemen who, I later gathered, were summoned by the young man who thought we were criticizing the communist government of Bulgaria.

The girl was led away; my backpack and sleeping bag were confiscated. I was dragged along the platform into a small 8 × 8 foot room with a cold stone floor and a hole in one corner by way of toilet facilities. I was held in that bitterly cold room without food or water for over 72 hours.

I had lost all hope of ever seeing the outside world again, when the door opened. I was again dragged out unceremoniously, locked up in the guard's compartment on a departing freight train and told that I would be released 20 hours later upon reaching Istanbul. The guard's final words still ring in my ears—"You are from a friendly country called India and that is why we are letting you go!"

The journey to Istanbul was lonely, and I was starving. This long, lonely, cold journey forced me to deeply rethink my convictions about Communism. Early on a dark Thursday morning, after being hungry for 108 hours, I was purged of any last vestiges of affinity for the Left.

I concluded that entrepreneurship, resulting in large-scale job creation, was the only viable mechanism for eradicating poverty in societies. Deep in my heart, I always thank the Bulgarian guards for transforming me from a confused Leftist into a determined, compassionate capitalist! Inevitably, this sequence of events led to the eventual founding of Infosys in 1981.

While these first two events were rather fortuitous, the next two, both concerning the Infosys journey, were more planned and profoundly influenced my career trajectory.

On a chilly Saturday morning in winter 1990, five of the seven founders of Infosys met in our small office in a leafy Bangalore suburb. The decision at hand was the possible sale of Infosys for the enticing sum of $1 million. After nine years of toil in the then business-unfriendly India, we were quite happy at the prospect of seeing at least some money.

I let my younger colleagues talk about their future plans. Discussions about the travails of our journey thus far and our future challenges went on for about four hours. I had not yet spoken a word.

Finally, it was my turn. I spoke about our journey from a small Mumbai apartment in 1981 that had been beset with many challenges, but also of how I believed we were at the darkest hour before the dawn. I then took an audacious step. If they were all bent upon selling the company, I said, I would buy out all my colleagues, though I did not have a cent in my pocket.

There was a stunned silence in the room. My colleagues wondered aloud about my foolhardiness. But I remained silent. However, after an hour of my arguments, my colleagues changed their minds to my way of thinking. I urged them that if we wanted to create a great company, we should be optimistic and confident. They have more than lived up to their promise of that day.

In the seventeen years since that day, Infosys has grown to revenues in excess of $3.0 billion, a net income of more than $ 800 million and a market capitalization of more than $ 28 billion, 28,000 times richer than the offer of $1 million on that day. In the process, Infosys has created more than 70,000 well-paying jobs, 2,000-plus dollar-millionaires and 20,000-plus rupee millionaires.

A final story: On a hot summer morning in 1995, a Fortune-10 corporation had sequestered all their Indian software vendors, including Infosys, in different rooms at the Taj Residency hotel in Bangalore so that the vendors could not communicate with

one another. This customer's propensity for tough negotiations was well-known. Our team was very nervous.

First of all, with revenues of only around $5 million, we were minnows compared to the customer. Second, this customer contributed fully 25% of our revenues. The loss of this business would potentially devastate our recently listed company. Third, the customer's negotiation style was very aggressive. The customer team would go from room to room, get the best terms out of each vendor and then pit one vendor against the other. This went on for several rounds. Our various arguments about why a fair price—one that allowed us to invest in good people, R&D, infrastructure, technology, and training—was actually in their interest, failed to cut any ice with the customer.

By 5 pm on the last day, we had to make a decision right on the spot whether to accept the customer's terms or to walk out. All eyes were on me as I mulled over the decision. I closed my eyes, and reflected upon our journey until then. Through many a tough call, we had always thought about the long-term interests of Infosys. I communicated clearly to the customer team that we could not accept their terms, since it could well lead us to letting them down later. But I promised a smooth, professional transition to a vendor of customer's choice. This was a turning point for Infosys. Subsequently, we created a Risk Mitigation Council which ensured that we would never again depend too much on any one client, technology, country, application area, or key employee. The crisis was a blessing in disguise. Today, Infosys has a sound de-risking strategy that has stabilized its revenues and profits.

I want to share with you, next, the life lessons these events have taught me.

I will begin with the importance of learning from experience. It is less important, I believe, where you start. It is more important how and what you learn. If the quality of learning is high, the development gradient is steep, and, given time, you can find yourself in a previously unattainable place. I believe the Infosys story is a living proof of this.

Learning from experience, however, can be complicated. It can be much more difficult to learn from success than from failure. If we fail, we think carefully about the precise cause. Success can indiscriminately reinforce all our prior actions.

A second theme concerns the power of chance events. As I think across a wide variety of settings in my life, I am struck by the incredible role played by the interplay of chance events with intentional choices. While the turning points themselves are indeed often fortuitous, how we respond to them is anything but so. It is this very quality of how we respond systematically to chance events that is crucial.

Of course, the mindset one works with is also quite critical. As recent works by the psychologist, Carol Dweck, has shown, it matters greatly whether one believes in ability as inherent or that it can be developed. Put simply, the former view, a fixed mindset, creates a tendency to avoid challenges, to ignore useful negative feedback and leads such people to plateau early and not achieve their full potential. The latter view, a growth mindset, leads to a tendency to embrace challenges, to learn from criticism and such people reach ever higher levels of achievement.

The fourth theme is a cornerstone of the Indian spiritual tradition: self-knowledge. Indeed, the highest form of knowledge, it is said, is self-knowledge. I believe this greater awareness and knowledge of oneself is what ultimately helps develop a more grounded belief in oneself, courage, determination, and, above all, humility, all qualities which enable one to wear one's success with dignity and grace.

Based on my life experiences, I can assert that it is this belief in learning from experience, a growth mindset, the power of chance events, and self-reflection that have helped me grow to the present.

Back in the 1960s, the odds of my being in front of you today would have been zero. Yet here I stand before you! With every successive step, the odds kept changing in my favour, and it is these life lessons that made all the difference.

My young friends, I would like to end with some words of advice. Do you believe that your future is pre-ordained, and is already set? Or, do you believe that your future is yet to be written and that it will depend upon the sometimes fortuitous events?

Do you believe that these events can provide turning points to which you will respond with your energy and enthusiasm? Do you believe that you will learn from these events and that you will reflect on your setbacks? Do you believe that you will examine your successes with even greater care?

I hope you believe that the future will be shaped by several turning points with great learning opportunities. In fact, this is the path I have walked to much advantage.

A final word: When, one day, you have made your mark on the world, remember that, in the ultimate analysis, we are all mere temporary custodians of the wealth we generate, whether it be financial, intellectual, or emotional. The best use of all your wealth is to share it with those less fortunate.

I believe that we have all, at some point in time, eaten the fruit from trees that we did not plant. In the fullness of time, when it is our turn to give, it behoves us in turn to plant gardens that we may never eat the fruit of, which will largely benefit generations to come. I believe this is our sacred responsibility, one that I hope you will shoulder in time.

Thank you for your patience. Go forth and embrace your future with open arms, and pursue enthusiastically your own life journey of discovery.

Discussion questions

1. Murthy has often faced criticism from some quarters that he was affluent enough to start an SSI in the form of Infosys in 1981 as against the humble-beginnings projected by him. What is your take on this?
2. There is a very thin line between success and failure for an entrepreneur in the SSI sector. Do you agree with this statement in the context of Infosys?
3. Which of the life lessons of Murthy inspires you the most and why?

SUMMARY

- In the Indian context, a small scale enterprise is broadly defined in terms of the value of investment in plant and machinery.
- The small scale of operations in SSI generally requires utilization of local resources (to avoid transportation costs for sourcing the raw materials from distant locations).
- The SSI sector in India has a vast scope and comprises of modern and traditional industries.
- The small-sector is the second largest employer in India after agriculture.
- Government's intervention in promoting SSIs in small towns, villages, and backward

Start operations

Last but not the least, the unit should start its operations. The initial production/operation should be done on the basis of demand projection arrived at earlier in the project report/business plan. The inventory of the finished goods produced should be carefully planned to make sure that it is neither too high nor too less. As with raw materials, a large finished goods inventory unnecessarily ties up the working capital, while too less an inventory may result in customers going back disappointed due to non-availability of stock.

TULSI TANTI—THE WIND POWER ENTREPRENEUR

The same kind of venturesome spirit that drives Tanti now was what set the Suzlon train in motion. Spurning their father's construction business in Gujarat, Tanti and his three siblings moved into textiles in the late 1980s. They started processing polyester yarn, and then graduated to making furnishing fabrics.

The decision to shift again, into wind energy, was a brave one. The industry was in the dumps, as it had been given a bad name by unscrupulous companies that lured customers with the bait of tax breaks. But projects were ill-conceived, often left incomplete with no maintenance or service support to speak of. Banks wised up and stopped lending for wind power projects.

The brothers saw the opportunity for a producer, not only to build the wind turbine but to provide maintenance and service support—even operation—as well. The experience seems to have kept the brothers tight. "We have a common store, but our kitchens are separate," is how Tulsi Tanti puts it, though even today, they host each other daily at their respective flats.

Selling some family property, the Tantis put together $600,000 as seed capital to start Suzlon. They shopped around for technology in Europe, but no one was willing to give it without having an equity stake in the venture. Finally, Sudwind, a small German company agreed, provided Suzlon bought ten turbines. Tanti convinced IPCL, a petrochemicals company that had been supplying raw materials for his yarn business, to sign up as Suzlon's first customer. Suzlon completed IPCL's 3.5-megawatt project using Sudwind's turbines within the three-month deadline. Tanti claims that ten years on, this first wind farm continues to run at 97 percent efficiency.

But the brothers, all four engineers, wanted to prove their technical prowess by crafting their own turbine. Their research efforts got a boost when Sudwind went bust in 1997. They hired Sudwind's engineers and created an R&D center in Germany. The subsequent acquisition of a manufacturer of rotor blades in the Netherlands gave them access to technology for a key component.

By 1999 Suzlon had introduced its partly homegrown turbine into the market. Today the company has three research sites in Germany, the Netherlands, and India, which are linked together. One important mission is: To find ways of increasing output so that the cost per kilowatt of energy-generated decreases.

At the same time, Tulsi Tanti is shrewdly consolidating his hold on component supplies, a

critical success factor in this business. Recently, Suzlon acquired Hansen Transmissions Intl., a Belgian maker of wind turbine gearboxes, for $565 million, thereby securing supplies of another key component. (Suzlon now makes two-thirds of its turbines in India; the remaining third are imported.)

Traditionally, wind power has depended on tax breaks to make it an attractive alternative to conventional energy. But Tanti insists that with the price of conventional power climbing, production costs today are almost the same. Suzlon's technology innovations and ability to substitute for expensive imports with cheaper domestic components has reduced costs in the last ten years. "We don't need government handouts to survive," he declares.

Wind power has its critics, one beef being the noise that neighbours of turbines have to endure. But densely populated India in fact has large tracts of open land, mostly in remote rural areas. About 15 to 20 acres are needed for a 1-megawatt installation.

Suzlon has built Asia's largest wind farm, with an installed capacity of 500 megawatts, near Kanyakumari, on India's southernmost tip, where trade winds of 15mph are common. The ministry of non-conventional energy has created a "wind atlas" for picking the best sites.

Suzlon Energy, the company Tanti founded in 1995, is already the world's fifth-largest wind turbine manufacturer, and Tanti himself, who is worth $3 billion (€1.9 billion), is one of India's richest men. In 2005, Tanti converted his advantages over the competition into cash when he orchestrated a brilliant initial public offering. Suzlon raised $340 million (€219 million) and, from one day to the next, catapulted its founder and his family in the realm of the subcontinent's ultra-rich. Tanti himself currently owns 16 percent of Suzlon, while the family owns 66 percent.

Acquisitions have made the company reach fifth place on the list, helped along by perhaps its greatest coup of all: In 2007, Tanti suddenly entered the bidding for Repower, a major German wind turbine producer, and ended up outbidding the French nuclear energy giant Areva. It wasn't cheap, but it was a sensation. In May 2007, Suzlon paid €450 million ($698 million) for 33.6 percent of Repower. It was the largest acquisition an Indian company had ever made in Germany. In December 2008, Tanti bought more shares of Repower held by Areva for $543 million. In addition, Tantis have quietly bought Repower shares on the market in recent days, bringing their stake in the company to 66 percent of its stock (Schiessl, 2008).

On 18 April 2009, Tanti received the CIF Chanchlani Global India award 2009, instituted by Canada India Foundation, from Montek Singh Ahluwalia, Deputy Chairman of the Planning Commission of India for his pioneering work globally to promote non-conventional sources of energy.

Discussion questions

1. Do you think that tax breaks by the government in the wind power energy sector were instrumental in attracting Tanti to this business?
2. How important according to you is research and development to survive in this business of wind power energy?

Avoiding the mention of potential threats and internal weaknesses. A "feel-good" report may not go down well with the investors, as their job is to critically examine all aspects of the proposed venture for its viability. A complete absence of potential threats and mitigation methods may be perceived negatively by them. Similarly, no organization is perfect in all respects and therefore, the investors expect the entrepreneur to highlight the internal weaknesses of the proposed venture.

Incorporating financial information without knowing its full implications. Often, the entrepreneurs take help of financial experts/chartered accountants in compiling the financial part of the project report. It is imperative that the entrepreneur understands all the implications of all such information incorporated in the report as during the project presentation, if (s)he is unable to promptly respond to the investor's queries on these aspects, it would reflect badly on her/him.

Absence of what-if scenarios. The business environment today is highly dynamic. It cannot be presumed that the existing competitors in the marketplace would not retaliate to the moves and strategies proposed to be pursued by the new venture. Often, the project reports miss out to include the what–if scenarios to highlight the steps to be taken in case a strategy does not work as expected. All the assumptions made should be backed by suitable reasoning and alternative courses of action in various scenarios should be suggested in the report to impress the potential investors/financiers with the knowledge and prudence on part of the entrepreneur with respect to the macro-economic environment.

NARESH GOYAL AND JET AIRWAYS

Naresh Goyal was born in 1949 in Patiala, Punjab. His father, a jewellery dealer, died when he was a child. Naresh was 10 years of age and his mother had to struggle to pay for his school fees. Naresh used to walk miles to go to his school as he couldn't afford a bicycle. Some people supported him to get his basic education and after that he didn't know if he could do graduation. Again his mother struggled and with the help from her brother and other family members, Naresh was able to get his basic education. Naresh earned a Bachelors of Commerce in 1967.

Many of his friends went to London for higher education and he had a desire to do the same. There was hardly any money for that kind of education for him. His mother advised him that her uncle might help him to get a job. He used to run some cinema theatres in India and had an agency with Lebanese International Airline.

Naresh heeded to his mother's advice and her uncle gave him a job as a cashier in his Delhi-based agency called Continental Travels. For three years, he slept in the office and earned about Rs 2000 a month. Later, due

to his contacts developed here, he joined as a general sales agent for Lebanese International Airlines. Subsequently, he was appointed the public relation manager of Iraqi Airways in 1969 and from 1971 to 1974, he was the regional manager for Royal Jordanian Airlines. During this period, he also worked with the Indian offices of Middle Eastern Airline, where he gained experience in various areas including ticketing, reservations, and sales.

He began to build contacts and, in 1974, with Rs 40,000 from his mother, he floated his own Jetair Private Ltd (then known as Jetair Transportation Private Ltd) to provide sales and marketing representation to the likes of Air France, Austrian Airlines, and Cathay Pacific in India. Shortly thereafter in 1975, he was appointed regional manager of Philippine Airline where he handled the commercial operations of the airline in India.

Naresh's wife, Anita, used to work for the Oberoi hotels in India before marriage. In 1979, she joined the marketing department of Jetair. This is when Naresh met her first time and later got married to her. Over the years, she grew from a market analyst to a general manager to a vice-president in Jet Airways. She has been looking after pricing, scheduling, network, revenue management, sales, and marketing.

The Indian government had nationalized the airline industry in 1953, leaving only Indian Airlines domestically and Air India on international routes. But in 1991, the market began to open up. The government allowed what it described as air taxis to operate—private carriers could fly but they could not print time tables. Naresh spotted an opportunity. With backing from Gulf Air and Kuwaiti Air, he leased four Boeing 737 aircrafts and began Jet Airways in 1993.

Jet Airways started commercial operations on 05 May 1993. Naresh hired talent from airlines he admired and overcame the constraints of not being able to publish a schedule with inventive zeal. These professionals see him as a man who possessed a vision.

Back in 1993, when other start-ups were inducting Boeing 737-200 aircrafts, Naresh bought new generation Boeing 737-400s. He understood the value of quality and made sure that he hired the best professional talent in the international market. Jet Airways was granted scheduled airline status on 14 January 1995. It became a deemed public company on 1 July 1996. On 19 January 2001, it was reconverted into a private company. Jet Airways became a public company again on 28 December 2004.

The government of India came with a civil aviation policy on 29 December 2004 that the private airlines could fly overseas anywhere in the world except Gulf for three years. Jet Airways started its operations to Singapore on 18 April 2005 and to London on 23 May 2005 (between Mumbai-London Heathrow), shortly followed by its Delhi-London-Delhi service. It also started flights to Kuala Lumpur on 18 May 2005.

In its first year of operation, Jet carried 730,000 passengers. In 2005, the company had a fleet of 55 aircraft and carried 10 million people and generated revenue of $1.4bn. Naresh Goyal has an elegant house in a posh locality across Regent's Park in London. The Sunday Times (in London) ranked him in 2006 as the sixth richest Asian living in Britain, estimating his wealth at £780m.

He has lived in London since 1991. Being an NRI based in London only adds to his enigma. He is also said to be a nervous flier who prays before take-off. And in his spare time, Goyal is known to be glued to Bollywood films. No wonders that film personalities like Shatrughan Sinha and Javed Akhtar

have served as Independent Directors on the Board of Jet Airways.

Naresh considers Reliance Industries founder Dhirubhai Ambani his role model. In the airline industry, he is a great admirer of Lord Marshall, the former boss of British Airways and J Y Pillay, the former chairman of Singapore Airlines.

Since its inception, Jet Airways had a clear strategy of focusing upon the business traveler in India. It offers several services directed towards the convenience of the business traveler, including telephone check-in facilities, priority baggage service, high-frequency services on major routes, same-day return flights on major routes at convenient timings, point-to-point connections, providing flight information on cellular phones of customers, its customer loyalty program, e-ticketing, business class section on almost all flights, and airport lounges for business class passengers at most airports. These facilities and its focus on providing high-quality reliable service have contributed to it becoming the preferred airline for business travelers in India.

Goyal, along with his wife, received the "International Entrepreneurs of the Year" award at the House of Commons, UK in 2008.

Discussion questions

1. Do you think it is important to have organizations to back you in the industry like Naresh Goyal was supported by Gulf Air and Kuwati Air while starting Jet Airways?
2. How useful is it to have a clear understanding of various facets of a business like Naresh Goyal had of the airline industry before embarking upon an entrepreneurial project?

■■ NETWORK ANALYSIS

A network diagram represents the various activities of a project. An event or node marks the beginning or end of an activity and is represented by a small circle in the network diagram. An activity is represented by an arrow, preferably a straight line arrow. There can be only one activity between any two nodes. Therefore, the representation shown in Fig. 8.6 is not permitted for two activities X and Y between the same two events 1 and 2.

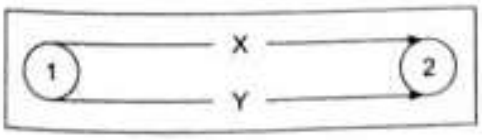

Figure 8.6
An invalid network diagram

The same situation can be represented by using a special activity called a *dummy activity*. A dummy activity is a hypothetical activity (i.e., does not exist practically), which does not require any type of resource (man, machine, materials, capital, etc.). Also, the duration of a dummy activity is always zero. Similarly, a dummy event is an imaginary event. The situation shown in Fig. 8.6 can thus be shown by using a dummy activity and a dummy event as in Fig. 8.7(a).