CHAPTER IV

FINDINGS AND SUGGESTIONS

4.1 The Study in Retrospect

This study was undertaken to understand the problems existing in Kerala which hinder the State from advancing in the field of IT industry as well as to assess the prospects of the industry in the State. The State has got several merits which make it highly conducive for the growth of this industry. But the fact is that the State and its IT industry is lagging behind unable to utilise its potential. The study has made an attempt to evaluate six major factors, namely (i) manpower supply for the industry (ii) availability of infrastructure facilities (iii) government policies and support (iv) contribution of the promotional agencies (v) investment climate prevailing in the State and (vi) the competition existing in this field, to get a clear view of the problems and prospects of IT industry in Kerala. From the findings based on the primary and secondary data, certain conclusions are drawn and certain concrete suggestions are made which would foster the proper growth and development of this industry in the State, especially where inadequacies are found and where immediate attention is needed. The researcher has also pointed out certain specific areas where further research is needed.

A major handicap in the study of IT industry in Kerala is the lack of specific literature relating to the general and specific problems of this industry in the State. Authentic literature regarding the various dimensions of IT industry in the State are very limited. No specific studies with special reference to the problems and prospects of IT industry of the State have been conducted. The
present study has attempted to bridge this gap by focusing attention on the problems faced by this industry in the State with the following objectives in view.

The main objective was to make a study on the IT industry of the State to find out the critical issues hindering its growth and development as well as to assess its future potential. To achieve this main objective the following specific objectives were addressed in this study.

1. To make an overview of IT industry and identify the major factors influencing the growth of IT industry in Kerala.
2. To study the suitability of manpower supply for IT industry in the State.
3. To evaluate the available infrastructure facilities in the State for IT industry.
4. To examine the effectiveness of the policies and support extended by the State government to this industry.
5. To appraise the contribution made by the promotional agencies for the growth of IT industry in the State.
6. To review the investment climate prevailing in the State from the perspective of IT industry.
7. To analyse the influence of the competition existing in this field on the IT industry of the State.
8. To make suggestions and recommendations on the basis of the findings of the study.

With reference to these objectives, the following hypotheses were formulated and tested.

\[ H_{01} \quad \text{The manpower supply in Kerala is neither supportive nor obstructive to the growth of IT industry in the State.} \]

\[ H_{02} \quad \text{The infrastructure facilities in Kerala are neither supportive nor obstructive to the growth of this industry.} \]
H_{03}. The policies and support of the Government of Kerala is neither effective nor ineffective for the growth of this industry.

H_{04}. The contribution of IT promotional agencies in the State are neither significant nor insignificant to the growth of this industry.

H_{05}. The investment climate in Kerala is neither supportive nor obstructive to the growth of IT industry in the State.

H_{06}. The multi-layered competition prevailing in the IT field has neither positive nor negative influence on the growth of this industry in the State.

4.1.1 Analysis of the Data

The data for the study were collected from both primary and secondary sources. The primary data were collected by interviewing 112 randomly selected middle and top level managers of IT industrial units functioning in the State. The analysis of the collected data was conducted in four different sections.

The first section is the profile analysis which includes two aspects (i) a brief analysis of the general profile of the sample respondents and (ii) the details of the five classifications of the respondents made for analysing the data in the second section. The basis of the classifications and the different independent sub groups included in each of them were (i) organisational status (middle and top level managers), (ii) level of experience in the industry (low, medium and high), (iii) size of the company (small, medium and large), (iv) location of the company (Technopark, Infopark and outside the parks), and (v) industry segment (IT services and software companies and ITES/BPO companies).

In the second section, based on the classifications of the respondents mentioned above, the collective responses about each factor under study was analysed in depth and the hypotheses formed at the outset were put to statistical testing. Each of the six null hypothesis were put to test with respect to the five
categorizations of the respondents. For that the following two sub null hypotheses were formed and tested in the case of all the independent sample groups.

\( (H_{0(i)}): \) The Means are not significantly different from the central value.

\( (H_{0(ii)}): \) There is no significant difference between the sub groups regarding their response about the factor.

Various statistical tools such as percentage, Mean, one sample t test, student’s t test and the one way ANOVA were extensively used for the analysis of the five factors whose reliability score was equal to or more than 0.7. In the case of the sixth factor - competition in the industry - whose reliability score was a bit less than 0.7 (i.e. 0.5899), analysis based on the Median by using non-parametric tests like runs test, Kolmogorov-Smirnov test and Kruskal Wallis test were conducted. The level of significance was fixed at 5 % to accept or reject the sub null hypotheses.

In the third section, an analysis based on the Mean scores of each of the individual variables constituting the respective factor was conducted using tools like Ranking, Graphs, and Multi-Dimensional Scaling (MDS) so as to obtain deeper insights supplementing the inferences received about the factor in the previous section.

In the fourth section of the analysis, a structural equation modeling (SEM) of the factors influencing the IT industrial scenario of the State was conducted. The SEM reaffirmed the inferences emerged in the earlier stages of the analysis and brought to light the nature and extent of contribution of each of these factors to the IT industrial development of the State, their interconnections and interdependence and the areas which need improvement.

Majority of the statistical results, tables, and diagrams used in the analysis have been derived with the help of the computer software package known as Statistical Package for Social Sciences (SPSS). The structural equation modeling
was done by using the software package called Analysis of Moment Structures (AMOS).

4.1.2 Profile of the Sample

The analysis of the profile of the respondents selected for the study revealed the following features of the sample (Table 10).

Respondents aged below 30 years constitute 25% of the sample while those between 30 and 40 years are the major group (45.50%) followed by those above 40 years (29.50%). Males constitute the lion’s majority (87.50%) of the sample. Females form only one-eighth (12.50%) of the sample marking their very low representation in the managerial level of the industry. Basically the respondents hail from two academic backgrounds: those with arts and science qualification and those with technical qualification. All have graduation or higher qualification. 53 of them (47.30%) have technical qualification like M.C.A., B.Tech, or M.Tech while 39 (34.80%) are from the arts and science stream. Among the remaining 20 (17.90%) four are C.A.s and 16 are M.B.A. holders.

Considering the specialities of IT industry, age, sex or educational background of the respondents are not much significant in influencing their opinion about its problems or prospects. Rather the response of the informants will be more dependent on several industry related aspects. From among the several such aspects existing, five significant ones were identified and the respondents were categorised accordingly. The profile of respondents belonging to each of such classification are summarised below.

Of the two classes of managers, the 62 middle level managers form the majority of the sample size (55.40%). The 50 top managers constitute the remaining 44.60% (Table 11).

Based on their level of experience in the industry, the respondents with high experience are the major group (36.60%) followed by the medium experienced group (33.90%) and the low experienced group (29.50%) (Table 12).
Based on the size of the company from which the sample is drawn, the 41 respondents from large companies form the major group (36.60 %) followed by the 37 representing medium sized companies (33 %) and the remaining 34 representing small companies (30.40 %) respectively (Table 14).

On the basis of the location of their employment, the 48 respondents working in Technopark based companies form the major group with 42.80 % of the sample size. The 34 respondents working in Infopark based companies constitute 30.40 % of the sample. The remaining 30 constituting 26.80 % of the sample are working in companies functioning from outside these two IT parks (Table 15).

Based on the industry segment to which they belong, the 78 respondents from the IT services and software segment constitute more than two-third (69.60 %) of the sample and rest 34 from the ITES/BPO segment accounts for nearly one-third (30.40 %) of the sample size (Table 16).

4.2 Findings of the Study

The following section deals with the specific findings which emerged from the analysis of each of the six factors included in this study.

4.2.1 Manpower for IT industry

The major findings which emerged from the analysis about the manpower scenario in Kerala for the IT industry are the following.

1. The responses of all the independent sub groups belonging to the five classifications of respondents resulted in Mean scores significantly greater than the central value indicating their opinion that the manpower supply in the State for IT industry is good and supportive for its growth (Tables 21 to 31). At the same time, none of them rated the manpower supply in the State as very good to the requirements of the industry which indicate the need for retraining the State’s manpower.
2. The analysis of the individual Mean scores of the twelve variables which constituted the factor (Table 93) showed that only in the case of one aspect (academic knowledge) the State’s talent pool is considered as very good by the industry. In the case of linguistic and communication skill in English, the manpower supply is rated as poor. Since English has become the language of global business, especially in IT, this is a serious limitation of the State’s human resource. The State’s manpower supply is rated as good in the case of the remaining ten variables, namely (i) cost competitiveness (ii) logical thinking (iii) aptitude for team work (iv) values required for the profession (v) human relations skills (vi) retention rate (vii) managerial ability (viii) leadership skills (ix) domain expertise and (x) work experience.

3. The multi-dimensional scaling which evaluated the variables on two dimensions (attractions and soft skills) showed that cost competitiveness followed by retention rate are the primary attractions of the State’s IT manpower supply. The four items, namely academic knowledge (which is the major attraction if dimension one alone is considered), logical thinking, aptitude for team work and values needed for the exercise of the profession, indicate that though these variables also are attractions of the State’s IT manpower, there is further scope for improvement in these skills. The three variables namely managerial ability, work experience and domain expertise have positive values on the soft skills dimension and negative values on the attractions dimension. It shows that though the talent pool in the State is good in these skill sets, due to the migration of people with these traits to the more advanced IT destinations, these variables are presently not serving as an attraction for the State. The three items, namely human relations skills, leadership skills and linguistic and communication skills in English, with negative values on both dimensions indicate that they are the weakest aspects among all (Table 94 and Figure 4).
4. The variance estimate measure of the structural equation modeling shows that the latent variable manpower is playing a significant role in the IT industrial scenario of the State (Table 103).

5. The SEM also shows that manpower has significant positive covariance with infrastructural facilities and promotional agencies (Table 104). This indicates that making available better infrastructural facilities is a pre condition to create, attract and retain better manpower pool in the State. Similarly the promotional agencies could also improve the manpower scenario if they are effective in their performance. In return better manpower supply in the State can make the promotional efforts easy and effective. The covariance of manpower with government policy and support system as well as investment climate are insignificant and negative which indicate the inability of the two factors in the development and retention of a suitable talent pool in the State.

6. Among the various indicators of the SEM constituting the latent variable manpower, ‘soft skills’ and ‘experience’ are 4.122 times and 2.684 times respectively more important than the reference indicator ‘academic knowledge’ (Table 105).

4.2.2 Infrastructure Facilities

Analysis about the position of the State regarding the infrastructure facilities required by the industry resulted in the following findings.

1. All the sub groups belonging to the five classifications of the respondents gave Mean scores significantly higher than the central value. This indicated the unanimous opinion of the respondents that the infrastructural facilities available in the State are good and supportive for the growth of this industry (Tables 34 to 44). The respondents from the ITES/BPO segment of the industry expressed a stronger agreement to this view than their counterparts from the IT services and software segment. But at the same time none of the
sample groups rated the factor infrastructure facilities in the State as very good to the requirements of the industry, indicating the need for further improvement in this field.

2. The individual Mean scores of the nineteen variables which constituted the factor show that the availability of not even a single element of infrastructure is rated as very good (Table 95) by the industry representatives.

3. The availability of fourteen variables out of the nineteen are graded as good. These items are (i) the telecommunication facilities (ii) hospitals and health care system (iii) bandwidth speed and connectivity (iv) water availability (v) quality and facilities in IT Parks (vi) good schools (vii) availability of computer peripherals (viii) personal computer and internet penetration (ix) hotels for accommodation (x) power supply (xi) land availability (xii) IT education and training facilities (xiii) space availability in IT Parks according to demand and (xiv) incubation facilities for start-up companies in that order.

4. The position of the State in the case of three basic infrastructure variables like (i) urban transportation (ii) roads and railways and (iii) airline connectivity with major IT export markets in the world are rated as average only.

5. The supply of two items namely (i) airline connectivity with other IT destinations in India and (ii) entertainment facilities in the State are rated as poor by all the respondents.

6. The variance estimates of SEM show that infrastructure plays the most significant role in the IT industrial system of the State (Table 103).

7. The SEM also shows that the latent variable infrastructure has significant positive covariance with manpower and promotional agencies (Table 104) indicating that every improvement in infrastructure will result in the availability of better manpower and also would make the efforts of the promotional agencies easy and more effective. The covariance of infrastructure with government policy and investment climate are insignificant and negative.
indicating those two factor’s ineffectiveness in improving infrastructural facilities in the State.

8. The regression path coefficients of the SEM revealed that the influence of the indicators ‘social infrastructure’ and ‘transportation infrastructure’ are higher in the latent variable than the reference item ‘IT infrastructure’ (Table 105). This points towards the need for improving the facilities grouped under those two heads; especially the roads and railways as well as airline connectivity. The influence of the indicator ‘general infrastructure’ consisting of land, water and power are less compared to the reference indicator.

4.2.3 Government Policies and Support

The important inferences which emerged from the analysis about the policies and support of the State government towards the industry are listed below.

1. All the sub groups belonging to the five classifications of the respondents gave Mean values significantly higher than the central value. This shows that the policies and support of the State government were not effective enough for the proper growth of this industry (Tables 46 to 56). In two cases there was significant difference between the groups in their degree of agreement to this view. The respondents from the small companies and medium companies registered a stronger agreement to this view than their counterparts from the large companies. The reason is that, since the small and medium companies primarily operate from within the State, the policies and the supportive measures adopted by the State government have got higher impact on them. On the other hand for large companies Kerala is only one among the several destinations from which they operate and therefore the impact of the factor is less on them. Similarly the representatives from companies located outside the IT parks have the strongest agreement to the view followed by those from the Technopark than their counterparts from Infopark. The representatives from
companies outside the parks are of the opinion that the government gives more thrust to IT Park based development strategy. The representatives of the Technopark based companies feel that since Infopark is of recent origin, the government’s attention for its promotion is slowing down the development of Technopark.

2. The analysis based on the Mean scores of the individual variables included in the factor (Table 96) showed that laxity from the part of the bureaucracy is the major hindrance in the proper implementation of the policies and support measures of the government for the industry. Their lack of proper attitude led to the non-achievement of most of the developmental plans envisaged in the IT policy as well as the labour policy. Similarly the respondents are of the view that the various policies and supportive measures adopted so far by the government were not successful in creating confidence among the investor community to invest in the State. Further they believe that the concessions and incentives offered by the State to this sector are insufficient to attract IT industrialists to the State.

3. The variance estimates of the structural equation modeling regarding the government policies and support show that the factor is at present unable to play a significant role in the IT industrial scenario of the State (Table 103).

4. The SEM reveals that the covariance of ‘government policies and support’ with the ‘contribution of the promotional agencies’ is significant but negative (Table 104). This indicates the failure of the government policies and support system in ensuring the effectiveness of the performance of the IT promotional agencies in the State. Similarly the factor’s covariance with ‘investment climate’ is not significant indicating its inability in improving the investment climate in the State.
5. Based on the reference item ‘bureaucratic influence’ the SEM shows that the indicator ‘IT policy’ has got the highest influence on the latent variable followed by ‘investor’s confidence’ and ‘labour policy’ (Table 105).

4.2.4 Contribution of the Promotional Agencies

The important inferences which emerged about the contributions of the six major IT promotional agencies in the State are given below.

1. The respondents belonging to all the sub groups of the five classifications gave Mean scores significantly higher than the central value indicating their opinion that the contribution of the IT promotional agencies were significant and good for the growth of this industry in the State (Tables 58 to 68). In the case of classifications based on experience level, location of the companies and industry segment, there was significant difference between the groups in their degree of agreement to this view. In the case of classification based on experience level, the strength of their agreement to the view decreased with the increase in experience. The respondents from Technopark followed by those from outside the parks adopt a weaker agreement to the view than their counterparts from Infopark. The informants from the ITES/BPO companies hold a more positive view in this regard than their counterparts from the services and software companies.

2. The analysis based on the Mean scores of the individual agencies showed that Technopark Thiruvananthapuram has made the highest contribution to the growth of IT industry in the State which is rated as very good by the respondents (Figure 5). The contribution of the other five agencies were rated as good. Infopark Kochi has done the second best contribution followed by STPI-T, the Department of IT of the State government, the IT Mission and the SEZ Kochi in that order.

3. The analysis to identify the reasons that prevent these agencies from achieving excellence in their promotional efforts showed that the bureaucratic approach
(than professionalism) prevailing in these agencies is the foremost reason (Table 97). Their lack of pro-active approach towards the issues of the industry, absence of a concerted effort to build a strong positive brand image for the State in this industry, lack of proper understanding of the industry’s requirements and the lack of co-ordination between these agencies are the other major reasons.

4. The poor follow up of developmental proposals for the sector, absence of functional autonomy, the ineffectiveness of the single window system operating at these agencies, frequent changes in the key personnel heading them and financial constraints also affect the effectiveness of the promotional measures adopted by these agencies.

5. The estimate of the variance shown by the SEM established that the contribution of the promotional agencies play a significant role in the IT industrial scenario of the State (Table 103).

6. The SEM also shows that the factor has significant and positive covariance with infrastructure and manpower (Table 104). This indicates the potential of the promotional agencies in improving the availability of infrastructure and manpower required by the industry. The significant but negative covariance of the factor with ‘government policies and support’ shows the inability of the promotional agencies in the effective implementation of the policies and support of the State government to this industry.

7. The regression path coefficients of the SEM showed that in comparison to the reference indicator Technopark, SEZ Kochi, Infopark and the other IT promotional agencies require more attention from the government to improve their performance (Table 105).
4.2.5 Investment Climate

The major inferences which emerged from the analysis about the factor investment climate for the IT industry in Kerala are the following.

1. All the sub groups belonging to the five classifications of the respondents gave Mean values significantly higher than the central value. This shows their unanimous opinion that the investment climate prevailing in the State is obstructive to the proper growth of the industry (Tables 70 to 80). In the case of the classification based on organizational status, there was significant difference between the middle and top managers in their degree of agreement to this view. The top managers expressed a stronger agreement to the view.

2. The analysis based on the Mean scores of the ten variables which constituted the factor (Table 98) showed that six of them are exerting strong negative influence on the investment climate of the State. These items in the order of their impact are (i) bandhs, hartals and other strikes (ii) industrial image of the State (iii) legacy of militant trade unionism (iv) allegations and controversies on major investment proposals (v) insufficiency of political patronage and (vi) sour experiences of the entrepreneurs in the past.

3. The four variables such as (i) indifferent attitude of the people towards industrialization (ii) dichotomy in the work attitude of Malayalees inside and outside the State (iii) shortage of native entrepreneurs and (iv) absence of metropolitan cities in the State are exerting only lesser impact in making the State unattractive to the investors (Table 98).

4. The multi-dimensional scaling (Table 99 and Figure 6) done with the variables reconfirmed the findings of the analysis based on their Mean scores. The MDS graph identified the same set of six variables as the primary factors tarnishing the investment climate of the State. Similarly the remaining four variables are found to be exerting only lesser influence on making the investment climate of the State unattractive.
5. The multi-dimensional scaling graph, used to determine the investment attractiveness of Thiruvananthapuram and Kochi in comparison to eight other prominent IT destinations of the country, showed that these two IT centres of the State are behind Bangalore, Chennai, Hyderabad, Delhi/Noida and Pune and ahead of Mumbai, Mysore and Kolkata (Table 100 and Figure 7). The graph also indicated that at present the IT centres of the State can be said as attractive tier two cities only and it requires lot of effort to make these destinations as attractive as the leading tier one IT hubs in the country.

6. The variance estimate of the SEM shows that investment climate is a factor capable of playing a significant role in the IT industrial scenario of the State (Table 103).

7. But the covariance of investment climate with the other factors as shown by the SEM indicates that at present the investment climate in the State is not having significant positive covariance with any of the other factors (Table 104). Its covariance with ‘contribution of the promotional agencies’ and ‘government policies and support’ are insignificant, which shows the very poor contribution of the investment climate in supporting the promotional efforts of the agencies or the proper implementation of the government policies. The covariance of investment climate with manpower and infrastructure are not only insignificant but also negative. These negative covariances show the impact of the investment climate prevailing in the State in hindering the infrastructural developments and improvements in the manpower scenario.

8. The SEM also shows that compared to the reference indicator peoples’ attitude, the lack of metropolitan cities or shortage of entrepreneurship in the State are exerting less influence on the investment climate of the State. But the indicator ‘business environment’ consisting of the variables like bandhs, hartals and strikes, industrial image of the State, trade unionism, experiences of the entrepreneurs in the past, lack of political patronage and allegations and
controversies related to major investment proposals is exerting strong influence in making the investment climate of the State unattractive for the IT industry (Table 105).

4.2.6 Competition in the Industry

The outcome of the analysis of the different aspects of the multi-faceted competition existing in this industry are presented below.

1. The Medians of all the sub groups belonging to the five different classifications of the respondents do not vary significantly from the central value, indicating that the competition existing in the field has not influenced the IT industry in the State either negatively or positively (Tables 82 to 91). There was uniformity among all the respondent groups regarding this view.

2. The neutral stand adopted by all the sub groups of the respondents regarding the negative or positive impact of the competition prevailing in the field, indicates that since the global IT industry is growing at a high speed, there is enough scope for growth for the State’s IT industrial destinations if they are otherwise suitable.

3. The analysis disproves the popular belief that IT industry in Kerala is affected by the competition from the other more developed IT destinations of the country and the IT industrial centres outside the country. The captive centres established by MNCs to meet their in-house requirements also do not affect the business opportunities of the native units. Similarly the competition among the companies to canvas business also haven’t made any negative impact on the growth of this sector.

4. At the same time the analysis also indicates that the multi-faceted competition existing in the field has not made any noticeable positive impact as well on the industry of the State. The factor has not become instrumental in increasing efficiency in the various fields related to this industry.
4.3 Suggestions of the Study

Based on the findings of the study the following suggestions and recommendations are made for the development of IT industry in Kerala.

4.3.1 Suggestions to Improve the Manpower Scenario

The study about the manpower scenario in the State for this industry shows that it has a potential talent pool which needs to be trained and improved so as to be employable, to facilitate the fast growth of the IT industry in the State. The following suggestions are put forward for the purpose.

1. To overcome the lack of soft skills training mechanism and thereby improving the quality of our manpower adequate number of ‘Finishing Schools’ should be started in the State. A finishing school is an institution that primarily aims at filling the gap in the formal education system and completing the educational experience. It focuses on developing a range of academic and social skills such as language and communication, logical thinking, presentation skills, interpersonal skills, trouble shooting skills and business and social etiquette. Finishing schools can help the trainees to realize their full potential so that they are made more efficient and employable in the industry.

2. Today the industry has to spend much time, effort and other resources in identifying suitable candidates from the huge number of applicants, especially at the entry levels. This can be avoided to a great extent if there is an arrangement for the job seekers to undergo some assessment process and come out with certifications showing the extent of different IT industry relevant skills possessed by them. The IT promotional agencies functioning in the State could take initiative for this.

3. Since the student community is the main source of the future talent pool, efforts to improve the quality and skill of manpower supply should focus on them.
4. Special care is needed for developing the linguistic and communication skills in English of the manpower. The student community who are the prospective job seekers should be made aware of the gravity of this limitation and motivated to improve their skill in this area. Establishing language labs in educational institutions can help the students to improve their linguistic skills to a great extent.

5. The State higher education sector in general and IT education and training in particular shall be renewed and updated by taking into account the changing pattern in the demand for manpower. For this syllabus revision and curriculum upgradation shall be made an on going process.

6. Soft skills development and training shall be included as a part of the course curriculum. Relevant ‘add-on courses’ and training shall be provided to the students along with their main course of study.

7. Industry-academia interaction shall be strengthened in the field of IT education and training. Opportunities for experienced people from the industry to serve as guest/part time faculty should be made. Seminars and lectures of experienced people from the industry should become integral part of the courses. Experienced industrialists should be included in the relevant academic bodies of the universities and other institutions of higher education.

8. Educational infrastructure should be improved. Facilities for video conferencing, round the clock availability of broadband internet connectivity throughout the campus, class rooms equipped with multimedia presentation facilities, students equipped with laptops, and libraries with rich digital contents shall be implemented.

9. Steps shall be taken to establish or upgrade more higher educational institutions in the State modeled on the Indian Institute of Technologies (IITs) and the Indian Institute of Managements (IIMs). This will improve the quality of human resource supply in technical and managerial fields.
10. Academic autonomy shall be given to higher educational institutions in the State in a phased manner so that they are enabled to incorporate strategies needed to impart quality training to the student community.

4.3.2 Suggestions to Improve Infrastructure Facilities

The study brought to light the fact that at present the State has a potential base of several items of infrastructure and at the same time many of them need to be improved for the betterment of this industry in the State. The following suggestions are put forward to improve the availability of infrastructure in the State so as to enable the fast growth IT industry.

1. More IT parks should be established in the State especially in districts other than Thiruvananthapuram and Eranakulam. Kozhikode, the main commercial centre in the ‘Malabar’ region of the State is highly suitable for being developed as an IT industrial destination due to its attractions like the international air port, Indian Institute of Management (IIM), National Institute of Technology (NIT) and the presence of a high proportion of Non Resident Indians (NRIs). Similarly most of the other districts of the State also have the potential to establish IT parks.

2. The private sector should be encouraged to build IT parks in the State.

3. The long pending proposals for the expansion of Technopark, Thiruvananthapuram into ‘Technocity’ by acquiring more land shall be implemented immediately.

4. The pace of implementation of the agreement signed between the Government of Kerala and the Dubai-based Technology and Media Free Zone Authority (TECOM) for the establishment of the ‘Smart City’ project at Kochi should be accelerated.
5. Steps should be taken to materialise the proposal for the establishment of an IT park by the Cochin International Airport Authority Ltd. (CIAAL) in its premises.

6. The Infrastructure Development Corporation proposed to be commenced by the State government for the development of the basic infrastructural facilities should start functioning effectively.

7. The proposed Metro rail project at Kochi that aims at increasing the urban transportation facility in the city should be materialized at the earliest.

8. The quality and availability of roads in the State should be improved significantly. The State highways should be upgraded and maintained on a par with the National Highways. More bye-passes and ring roads shall be constructed at least in district headquarters to reduce the pressure on the existing roads and to make the urban traffic hassle free.

9. Railway traffic facilities in the State shall be improved significantly. More train services suiting the requirements of the IT workforce of the State should be commenced.

10. Availability of business incubation facilities in the IT parks of the State shall be improved. Such facilities shall be made available in the universities and selected higher educational institutions of high standard so that potential students with innovative ideas can experiment the feasibility of their ideas.

11. Availability of Venture Capital for start up entrepreneurs to implement their innovative ideas should increase in the State.

12. Facilities for entertainment and relaxation of the IT professionals should be increased considerably. The IT parks or the individual companies should have sufficient facilities for doing yoga, playing indoor and outdoor games, health clubs and gymnasiums, good restaurants, and shopping malls. Sight seeing trips and conducted tours should be arranged for the employees.
13. Better airline connectivity, both in domestic and international sectors, should be provided. Steps shall be taken to ensure morning and evening flights in and out of the State to the Indian metros, as well as flights to major European and American destinations.

14. Active participation of the Non Resident Keralites should be sought in the development of infrastructure facilities in the State.

4.3.3 Suggestions to Improve the Government Policies and Support

1. The approach of the bureaucracy should be made investor friendly. They should be made the change agents in the IT industrial scenario by implementing the policies of the government in the true spirit of the law rather than the letter of the law.

2. Steps should be adopted for the effective implementation of the IT policy. Only realistic and achievable developmental plans and targets shall be adopted by the government through the policy. Mere inclusion of unrealistic goals in the policy will not do any good.

3. Steps to revamp the labour policy also require priority. It should be modified with foresight taking into account the specific requirements of this industry.

4. The implementation of the IT and labour policies should be periodically evaluated to see if they are as effective as desired. If needed, corrective steps shall be adopted as and when necessary.

5. Steps should be taken to develop confidence among the investor community to focus on the IT sector of the State.

6. Investments in this field cannot be attracted by offering small incentives and concessions. At the same time the government should not declare big offers which it cannot fulfill. Therefore it is necessary to understand the nature and extent of concessions that will exactly suit the IT industrial growth of the State.
and will attract investors to the State and declare such incentives rather than adapting from the offers made by other States.

7. Policies once adopted should have continuity. It should not change with the change of government in power.

8. Many a time the government policies in this field have aimed at attracting large scale players. Special schemes for small and medium enterprises (SMEs) shall be formulated.

9. With the advent of cyber technology, cyber crimes are also on the increase. The provisions of the relevant laws should be updated, police and other enforcement agencies should be trained and equipped to fight cyber crimes.

4.3.4 Suggestions to Improve the Contribution of the Promotional Agencies

1. The promotional agencies shall be made more professional in their approach and functioning, by completely removing the element of bureaucracy prevailing in them.

2. The requirements of this industry in the context of the State should be properly understood and specifically addressed. For this the promotional agencies should be empowered to take pro-active steps by identifying the requirements of the industry well in advance and act on it.

3. Sincere efforts should be made to establish and popularize a positive brand image for the State of Kerala in respect of IT industry. All the stakeholders of the industry should join hands for this purpose.

4. It should be ensured that all the IT promotional agencies in the State function in co-ordination with each other.

5. Arrangements for the proper follow up to ensure timely implementation of the developmental proposals adopted by these agencies should be made.
6. The promotional agencies should be given functional autonomy in the discharge of their duties and responsibilities.

7. The single window system which was declared as a solution to save the entrepreneurs from the evils of red-tapism associated with getting various licenses and permissions should be made effective.

8. The frequent changes in the key personnel in the promotional agencies like the IT secretary, CEOs of the IT parks and heads of other promotional agencies shall be avoided. These key personnel may be appointed for a reasonable term.

9. Sufficient funds shall be sanctioned to these agencies to implement their developmental programmes. If the government finds it difficult to spare money due to financial constraints, the agencies shall be permitted to raise funds ensuring government supervision and transparency.

4.3.5 Suggestions to Improve the Investment Climate in the State

1. The occurrence of hartals, bandhs and other similar strikes which affect normal social life shall be put to an end. Awareness about the extent of damages caused by this factor to the State should be created among the society. In the larger interest of the State a consensus on abstaining from adopting such unhealthy practices should be arrived at by the ruling front, the opposition, trade unions and such similar groups.

2. The Honorable High Court of Kerala may issue further directions to the State government to see that their decree which banned bandhs in the State is enforced properly so that in no case the right to work or travel are affected.

3. To enable IT professionals to come for work without distraction even in the days of bandhs or hartals, hostels for their accommodation shall be constructed within walkable distance from the company’s campus.

4. Steps should be taken to improve the industrial image of the State. Different methods could be adopted for this. One method could be to select brand
ambassadors by the State for the purpose. These brand ambassadors can be prominent industrialists from the IT field of the State or renowned Non Resident Keralites (NRKs) or such similar personalities. Among the investors the words of these brand ambassadors may carry more weight than that of the political leaders or bureaucrats.

5. An association for propagating the suitability of the State for IT industry shall be formed by including entrepreneurs or chief functionaries of IT industrial units from the State and representatives from the promotional agencies. This body should do for the State what NASSCOM is doing for India. It can propagate the advantages of Kerala for this industry among investors around the world. It can motivate NRKs and NRIs to invest in the IT industry of the State. Also they can appraise the government of the requirements of the industry, the current developments in the field and contribute their views while framing policies related to this industry.

6. The proposals for major developmental plans and projects concerning the State should be placed open for discussion in the society before they are finalized and adopted. The aims and objectives of the proposed project, the advantages expected out of it, impact on the environment, and cost involved should be propagated through the media and feedback from different sections of the society shall be obtained. Considering the feedback and suggestions received, the projects shall be finalized in consensus with all the stakeholders, in such a way that it reflects the best interest of the State. This type of transparency shall avoid unnecessary controversies on major projects proposed which later on may lead to keeping in abeyance of the project itself.

7. Trade unions in the State shall discharge a more responsible role in enhancing the investment attractiveness of the State. The role of trade unions in the State needs a paradigm shift in their mode of operation. They should play a key role in making a cordial industrial environment in the State by improving the
employee-employer relationship. At the same time they should argue for statutory arrangements in the IT parks and other IT industrial units to ensure that labour laws and rights of the employees are properly upheld and implemented.

8. Now that the major IT companies have started focusing on suitable tier two cities in the country for establishing their new units, Kochi and Thiruvananthapuram should be projected as the best tier two cities in the country. This will reduce the chance of these two cities being compared with the other major IT destinations in the country. This strategy will give good mileage to the two IT hubs of the State.

4.3.6 Suggestions about Competition in the Industry

1. Since the competition from national and international IT destinations existing in the field has not significantly affected the industry in Kerala, the State need not have to chase IT industrialists for making investment here. Rather, what is more important is to use competition as a catalyst to provide what the industry needs. This includes making the investment climate in the State attractive for the industry, ensuring better government policies and support, and achieving excellence in the manpower supply and infrastructure facilities among other things. If these can be done the industrialists and investments would naturally flow into the State since the industry too is looking for such suitable destinations.

4.4 Conclusion

The conclusion emerging from the study is that the IT industry in the State is at present thriving on the rather suitable manpower, infrastructural facilities and the reasonably good promotional efforts of the various agencies. The government policies and support are not effective enough for the proper growth of this industry. The investment climate existing in the State is negatively oriented and
obstructive to its growth. The multilayered competition existing in this field is not affecting or helping its growth. The future prospect of the State will be brighter if it is able to rectify the drawbacks identified in the areas of manpower, infrastructure and promotional efforts as well as to create an attractive investment climate along with the adoption of effective policy measures and support system by the government.

4.5 Scope for Further Research

The present study on the problems and prospects of IT industry is based on the responses of the industry representatives about the six selected factors only. Therefore there is a need to investigate separately and specifically the other aspects and dimensions of IT the industry in the State. The researcher would like to suggest the following prominent areas for further research.

1. The socio-economic impact of IT industry in Kerala.
2. The human resource management practices in the IT industry in Kerala.
3. Quality of work life among the IT professionals in Kerala.
4. A comparative study of IT industry in Kerala with that of the neighboring States in South India.
5. The potential of IT as a tool for development of other sunrise industries of the State (like Tourism, Ayurveda etc.).
6. The problems and prospects of E-governance in Kerala.
7. The role of venture capital in the development of IT industry in Kerala.

It is hoped that the present study would provide a base for further research in the above areas. Systematic studies on these various aspects of IT industry in Kerala would definitely give the various stakeholders better insight into this area so that the State can fast progress in the right direction.