CHAPTER – 6
CONCLUSIONS

6.1. INTRODUCTION

This chapter speaks about the general conclusions of this research work, the limitations of the study and certain recommendations for further study. A few words are included to inform about what was envisaged earlier regarding this investigative study and what has really been studied.

6.2. DIFFICULTIES ENCOUNTERED IN THE PRESENT RESEARCH AND IDENTIFICATION OF RESEARCH THEME

The research work commenced with the identified objectives but subsequently the objectives had to be revised in view of certain practical constraints. The objective was modified to include a general survey on benchmarking practices in select manufacturing organisations in the local region, instead of studying any one organisation in particular.

The aim of this survey was to throw light on issues like:

- Whether benchmarking practices are being followed by industries,
- How benchmarking helps the industry’s growth,
- Management’s commitment towards a benchmarking programme,
- Clarifying misconceptions about benchmarking if any,

The first part of the research included data gathering from the select organisations with the help of two rounds of surveys followed by in-depth interviews with managers.

The second part of this investigation was to select a financial service organisation such as a bank and look at the possibilities for bringing about improvements by conducting a full-fledged benchmarking programme.

None of the Nationalised banks or even the private banks were ready to give their performance data to a third person for research/academic purpose. Also, when the managers in banks were contacted, they were not ready to spare time for benchmarking activity amidst their busy routine work. Similar constraints existed when the author contacted other financial institutions. Hence a non-financial service sector was considered for research work.
Then, the focus was to look at a service sector for benchmarking which is easily accessible to the author. At this point, the idea of benchmarking engineering education in the state of Karnataka was identified as the theme for benchmarking services. A sub-theme wherein a full-depth benchmarking study could be conducted was identified after considering the availability of data.

Since the researcher is coordinating a very important function namely ‘Training and Placement’ in the institute where he works, the theme “benchmarking the training and placement function across engineering colleges in Karnataka state” was identified for study. The successful applicability of an existing model to the training and placement function rather than developing a generic benchmarking model was the objective of this study. Thus the second part of the study included the in-depth analysis of training and placement function as a part of benchmarking the service sector.

6.3. CONCLUSIONS SPECIFIC TO THE STUDY

The conclusions from the present work are categorised into two groups as follows:

6.3.1. Conclusions on the application of benchmarking in the manufacturing sector

This research included making visits to industries in and around the city and professional bodies/agencies. The visits yielded substantial data on the utility of benchmarking technique. After the two levels of surveys were conducted, it became evident that benchmarking was not practiced in many of the local organisations in any formalised or scientific way. The first survey had a sample size of 77 organisations. Of them, 52 organisations were located in Bangalore and Mysore regions. This survey revealed that about 63% of the survey respondents were not aware of this technique. At this point, the investigation proceeded to have an understanding as to why this tool is not being widely practiced among the local industries. This became a major research question and in order to explore this, interviews with quality managers in the local organisations were conducted. The results of the interactions are consolidated into the following points:
Benchmarking procedures and systems still appear abstract and sometimes obscure.
Companies were not willing to share business secrets
Cost assessment and time schedules for the implementation are not clear
Difficulty in getting benchmark figures from competitors
Lack of transparency in business
Non existence of certifying agencies to certify benchmarking practices
Resistance to change
Lack of external/internal pressure to go for benchmarking

Also, quality managers expressed that non-formal benchmarking is definitely done in the organisations. This meant that the organisations always look at the competitors’ products in terms of pricing and product attributes through secondary sources. Further, on issues regarding existence of benchmarking models and ethics of benchmarking, all the quality managers interviewed were not aware of those issues.

Another concern was to understand the organisation’s commitment to an on-going benchmarking programme. In this direction, the survey results inform that organisations’ show only initial commitment and do not continue the same during the complete benchmarking cycle.

The research also investigated regarding hurdles in a benchmarking study. The hurdles can be seen from two perspectives. First, it can be concluded that in the context of the local industries, benchmarking was not the first option for quality improvement for the following reasons:

- No sustained management commitment
- No sharing of Business secrets
- Difficulty in finding benchmarks
- Loss of time for training in benchmarking
- Non-availability of data on cost aspects of benchmarking.

The second perspective is from the researcher’s side. Organisations look for different tools and techniques in order to continuously improve and stay in the market. Given this dynamic situation, it was extremely difficult to conduct a full depth benchmarking study in an identified organisation.
6.3.2. Conclusions on the application of benchmarking in the service sector

Engineering education was made the focus of the study within the framework of the service sector. Specifically, the ‘Training and Placement’ function was chosen for extensive investigation, as the author is in-charge of this cell in his institution. The ‘Training and Placement’ function was benchmarked based on the criteria ‘input quality of students’ to engineering colleges. The study included different engineering colleges in Karnataka State where the department of training and placement was active and functional. Among the 108 engineering colleges that exist in the state, the author of this thesis was able to identify 21 engineering colleges having active and functional placement cells including the college where the author works. The author’s college was designated as ‘Host Institute’.

Among the various benchmarking models discussed in the thesis, the APQC generic benchmarking model was found to be more appropriate and therefore, this model has been used for benchmarking the training and placement function. In order to identify the parameter for benchmarking, namely ‘Input quality of students’, a statistical correlation of views expressed by placement officers and human resource personnel in the industry was made. A factor-rating questionnaire was sent to these two parties and their assessment helped in the identification of this benchmarking parameter.

Using this parameter, various other placements related metrics detailed below were developed:

- Percentage of students registered with the placement cell securing greater than 70% Marks till the pre-final year engineering.
- Average number of organisations that visit a college
- Placement Performance expressed as a percentage
  \[
  \text{Placement Performance} = \frac{\text{Number of students placed}}{\text{Number of Students registered for placements}}
  \]
- Average numbers of jobs / Company. [From all the engineering disciplines]

Based on the data collected from the individual colleges here in referred by letters A to Q (in alphabetical order) and after thorough review of data, a certain college – B was identified as the benchmark college.

Comparisons based on the placement data were made between the host institute and the benchmark college and the following were the gaps discovered between the two colleges.
• The quality of incoming students to the host institute is far lower in comparison to the benchmark college.
• Academic discipline in terms of monitoring every student’s academic progress in each semester is not followed in the host institute.
• The Internet facility in the institute is insufficient in terms the number of terminals. This has to be upgraded.
• Further, the host institute has only a few partnership programmes/tie-ups’ with organisations and R&D (Research and Development) institutes.

This study clearly demonstrated the viability of benchmarking process as a quality improvement tool to the ‘training and placement’ function, compared the on-campus placement performance of different colleges on common metrics and also helped in identifying the positions of different colleges in terms of the placement outcomes.

Thereafter, it was explored to find out the correlation between the ‘expenditure incurred on training students’ and the ‘placement performance’. After collecting and analyzing the data from the surveyed colleges, the fact that there is no correlation between these two parameters became evident. Also, the investment on training students to impart additional skills is purely at the discretion of the respective colleges or the person in-charge of the placement cell in each institute.

The research has demonstrated the applicability of a generalised benchmarking model to the context of ‘training and placement’. It also gave a new dimension to standardise successful placement data in colleges. The placement officers of individual colleges can keep track of recruitment fluctuations based on the developed metrics. If the placement offices’ graphically illustrate data based on metrics developed in this research, any decision maker can picturise the placement scenario in a particular institute/college. This additionally enables in planning the appropriate improvement initiative.

6.4. UTILITY OF THE PRESENT RESEARCH

In this section, the applicability in an actual situation is illustrated to highlight the worthiness of this research work. In the context of the study undertaken in the local industries, the study findings are rather general and therefore the author intends to make concise reports of the findings and personally appraise the quality personnel of the salient issues connected with benchmarking process in all those organisations that have no
awareness of this technique. This is one way by which information about the efficacy of benchmarking could be disseminated.

The extensive literature survey carried out as a part of this research work is more exhaustive than the previously conducted similar surveys. It spans nearly 400 published articles and comes out with categorisation and analysis. This should be a very useful resource for any subsequent research in the field of benchmarking.

The research has also revealed that benchmarking has been successfully adopted in a few organisations. Such success stories imbibe confidence in the management and the senior managers in such of those organisations, which don’t benchmark, to try the utility of this technique.

For readers in the academia, this study throws light on the acceptance of benchmarking in the local industries. A subject titled ‘benchmarking and re-engineering’ has now been introduced by the university to which the author is attached, as an elective subject, for students in the undergraduate course in Mechanical Engineering and Industrial Engineering disciplines. The outcome of this research can be used as case presentations thereby enhancing the learning ability in the minds of the students studying this subject.

Many interesting findings from this research have already been published in conferences and journals, including a reputed international journal. A list of publications is included at the end of this report. Further, it is also envisaged that later part of the industry findings are consolidated and sent for journal publications. This would further enhance the field of literature in benchmarking and also inform the world about its application status in this specific context.

The research work discovered some very important factors that help the process of campus recruitment. These are:

- Analytical Skill and depth of knowledge in students
- Commitment towards job
- Input quality of students
- Interpersonal communication skills in students
- Logical thinking capability on the part of the students
- Marks scored in the previous semesters
- Quality Education Imparted
- Reputation of the college/institute in the region
- Self confidence/Dynamism but not arrogance
- Sincerity of Students
These are some of the factors that have a bearing on campus recruitment and each one of these factors can be individually benchmarked. This enables a college/institute to know its position in relation to other colleges. The campus placement performance metrics developed would help the heads of placement cells in different institutes as an appraisal measure.

6.5. LIMITATIONS OF THE PRESENT RESEARCH

Research objectives had to be modified because of non-supportive environment as far as responses for initiating research were concerned. Notwithstanding this, the research was taken up with full spirit though some compromises had to be made at various stages. These could perhaps be viewed as limitations in the present study.

- As far as the first part of research work is concerned, it is not specific to any organisation. Hence conclusions are more general in nature.
- For reasons spelt out earlier, a full depth benchmarking study has not been undertaken.
- Study being confined to the local region may not necessarily reflect the situation on a statewide or a nationwide basis.
- As the study was focused on ISO certified organisations, the non-ISO organisations have not been studied and as such no conclusions can be drawn on the adoption of benchmarking in these organisations.

Specific to the second part of study, the following limitations can be observed:

- The study has confined itself to identification of gaps between the host institute and a benchmark college, using the generalised benchmarking model.
- The focus was mostly on the training and placement cell disregarding the age of the institution. It is imperative that older colleges have an edge over the newly started institutes in terms of their overall infrastructure.

6.6. RECOMMENDATIONS FOR FUTURE RESEARCH

This section deals with certain additional possibilities that may be viewed as extensions of this research work. Future research could be based on extensions of current work and general recommendations.

With regard to the work on manufacturing organisations, identifying one business function say Product Development for a benchmarking study could extend the current research. Another benchmarking activity could be taken up in local manufacturing organisations, in the area of engineering applications like investigation about the extent of automation in process
planning and control or utility of Computer Aided Drafting/Design for all its activities. Based on a function or a theme, data could be gathered from the identified organisations, and analysis of data gathered may reveal a best practice and this knowledge may be fed-back to the other respondent organisations for their benefit. It is recommended that a project of this nature be taken up jointly by the Confederation of Indian Industry (CII), local zone and the host institute. The outcome of this work would be beneficial to all the parties. Further, accessing data would be easier since most of the local manufacturing organisations are members of CII.

As a general recommendation, another area of investigation would be to benchmark product quality in organisations that are not ISO certified.

Concerning benchmarking the ‘training and placement function’, apart from the four metrics that have been developed, the following additional factors can be taken for the purpose of benchmarking:

1. The ‘Overall Placement Index’ for the college or institute which can be defined as:

   \[
   \frac{\text{Number of students placed}}{\text{Number of Students passing out of the college/institute}}
   \]

2. ‘Joining Ratio’ can be computed as:

   \[
   \frac{\text{Total number of campus selected students joining the organisations}}{\text{Total number of students selected during campus placement process}}
   \]

There are instances where a student who gets selected on campus may not wish join the organisation. It demands continuous interaction with all the organisations that visit a campus, in order to ascertain how many students actually joined the company to which they were previously selected. Though the present research has not explored this issue, it would be taken up for further investigation.
3. Number of students placed in different compensatory packages across colleges

This metric would give information about the colleges which attract top paymasters in the industry and to other recruiting organizations, this metric would signal the availability of good talent-pool in a particular college.

As a general recommendation, benchmarking studies can be undertaken to compare State Financial Corporations (SFCs) versus private banks in areas like loan clearances, speed of service, etc.

Finally, benchmarking exercise gives a very rewarding and refreshing experience as it exposes both strengths and weaknesses of the process being analysed.

Wess Roberts, Author of *Leadership Secrets of Attila and Hun*, quotes:

“Benchmarking is a proven management technique that can propel any organisation to higher levels of performance”