Chapter 4 Research Methodology

This is a descriptive type of research carried out using primary data collected from the sample sets of Users of Technical Communication, Technical Communicators, and Corporate Managers. Their perception of value added by technical communication was measured on a Likert scale ranging between 1-5, where 1 represents no value added, and 5 represents very high value added.

4.1 Research Design

This is a descriptive type of research, where a cross-sectional study is undertaken to provide a quick snapshot of the current status of the variables of interest for the research problem – technical communication and corporate objectives.

The research was carried out using primary data collected directly from respondents of the survey designed for this research, along with personal interviews wherever possible; and secondary data from existing published information – either specifically from technical communication field, or from related fields such as IT industry and Indian industry.

To get a complete 360° view of technical communication, a representative sample size was selected using simple random sampling for each of the different groups - Users of Technical Communication, Technical Communicators, and Corporate Managers.

The users of technical communicators represent the general public and a random sample was selected.

For technical communicators, the sample size was selected based on the estimated number of technical communicators in India, taking reference of memberships of formal groups like STC India chapter and informal groups like TWIn and MITWA.

The sample selection of corporate managers of Indian IT companies was representative of the distribution of Indian IT companies over the types of activities they perform – IT services, IT products and R&D, hardware and support. It was also representative of the distribution of Indian IT companies according to their size and ownership, with reference to the Annual Report of NASSCOM (National Association of Software and Services Companies), the premier trade body and the chamber of commerce of the IT industry in India.

The area of study focuses on Information Technology Industry (IT) in India. To get a complete 360° view of technical communication, a representative sample size
was selected using simple random sampling for each of the different groups - Users of Technical Communication, Technical Communicators, and Corporate Managers.

The Users of Technical Communication are representative of general public and the sample covers urban population, focusing on major cities – New Delhi/NCR, Mumbai, Pune, Kolkata, Bangalore, and Chennai.

The area of study for the technical communicators typically employed by the IT companies as well as the corporate managers of the IT companies was designed with reference to the Annual Report of NASSCOM (National Association of Software and Services Companies), the premier trade body and the chamber of commerce of the IT industry in India. The survey accordingly covers the regions with the geographical distribution in the same proportion as the regional spread of the Indian IT companies presented in the NASSCOM Annual Report 2007.

For the users of technical communication, self-completed individual questionnaire method of data collection was selected, where the questionnaire was personally handed over and collected after completion.

For the technical communicators, self-completed individually emailed questionnaire method of data collection was selected, with personal interviews wherever possible.

For corporate managers, self-completed individually emailed questionnaire method of data collection was selected, with personal interviews wherever possible.

For each group — Users of Technical Communication, Technical Communicators, and Corporate Managers — separate questionnaires was designed.

For Users of technical communication, 9 individual questions were asked, representing different aspects of technical communication.

For Technical Communicators, a matrix was given for measuring how each of these six formats contributes towards each of the ten corporate objectives. They were also asked the same 9 questions of users of technical communications.

For Corporate Managers, a matrix was for measuring how each of these six formats contributes towards each of the ten corporate objectives.

For each question / combination of technical communication format and corporate objective, they were required to rate the value provided on a Likert scale ranging between 1-5, where 1 represents no value added, and 5 represents very high value added.
4.2 Type of Research

Original descriptive type of research using primary data collected directly form the respondents of the survey designed for this research.

4.3 Sample Selection

To get a complete 360° view of technical communication, a representative sample size was selected using simple random sampling for each of the following different groups:

- Users of technical communication
- Technical Communicators
- Corporate Managers

4.3.1 Users of Technical Communication

Users of technical communication are in other words the general public who receive and use the technical communication products such as brochures, manuals, and online help.

Almost every one of us uses the technical communication products and hence a representative random sample of 500 was selected across the general public.

4.3.2 Technical Communicators

Technical Communicators are those professionals practicing technical communication, who typically design and create the technical communication products such as brochures, sales material, product manuals, troubleshooting guides, online help, and internal process and quality documents.

The number of technical communicators in India is difficult to state accurately, since there is no national apex body that compulsorily registers all the technical communicators. However, from the membership of formal and informal groups, a rough estimation can be made.

- Society for Technical Communication (STC) India: Formal group with paid membership. Members are from India. 100+ members\(^8\)

• TWIn (Technical Writers of India) – One of the oldest groups, it is extremely popular. Free membership of the mailing list. Members are from India as well as from other countries. 1000+ members. 79

• MITWA - Mentors, Indexers, Technical Writers & Associates: Relatively new, but highly active group that has free membership. Members are from India as well as from other countries. 600+ members. 80

Many technical communicators subscribe to all three of them, and considering that the TWIn and MITWA has members from all over the world, the sample size for technical communicators from India is selected as 150. References are also drawn from the number of responses to earlier surveys, some of which are listed below.

• Society for Technical Communication (STC) Salary Survey 2003: In the STC India Annual Conference in Bangalore in December 2002, 240 questionnaires were distributed, out of which 82 were completed and returned. The questionnaire was put up on the STC India Web site, to which 149 respondents answered online. Of these responses, about 20 were discounted because of doubtful inputs, and the survey results were based on the collective inputs of 211 technical communicators. 81

• Society for Technical Communication (STC) Salary Survey 2005: This web based, anonymous survey was open to all Technical Communicators working in India including those who are not members of STC. A total of 455 respondents completed the survey. Finally, 7 responses were discarded for anomalous data and remaining 448 are considered for the analysis in this report. The survey comprised of two parts, one with compulsory questions and one with optional questions. Response to the optional questions varied from 383 to 408. 82

• Society for Technical Communication (STC) 2007: This web-based, anonymous survey was open to all Technical Communicators working in India including those who are not the members of STC. A total of 286 respondents completed the survey. Of the total responses received, 3 are discarded for anomalous data and remaining 283 are considered for the analysis in this report. The survey comprised of two parts, one with


81 Salary Survey of Indian Technical Communicators conducted by STC. *March 2003.*
compulsory questions and the other with optional questions. The number of responses to the optional questions varied from 145 to 176.\textsuperscript{83}

4.3.3 Corporate Managers

Corporate Managers are stakeholders who initiate, sponsor and evaluate technical communication products.

To give a correct representation of the Indian IT industry, data from NASSCOM (National Association of Software and Services Companies), the premier trade body and the chamber of commerce of the IT industry in India, was considered as reference.

NASSCOM has a total membership of 1200 + members, of which over 250 are global companies from across US, UK, EU and A-Pac\textsuperscript{84}. This statistics indicates about 1000 IT companies from India.

As per NASSCOM Annual Report\textsuperscript{85}, 24% companies provide IT products and R&D, 74% provide IT services, and 44% provide BPO operations, as shown in Figure 15.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{NASSCOM_Profile.png}
\caption{Profile of NASSCOM Member Companies}
\label{fig:nasscom_profile}
\end{figure}

\hspace{1cm}
\textit{(Source: NASSCOM Annual Report 2007)}

\textsuperscript{83} Salary Survey of Indian Technical Communicators conducted by STC. \textit{July 2007}. pp1.


Taking the largest of these groups, 74% companies providing IT services, which may be providing IT products and R&D, and / or other activities like hardware or support, the number of companies to be taken into account is estimated at 740. Hence the sample size for corporate manager / companies is considered as 100.

NASSCOM also indicates distribution of member companies by size as shown in Figure 16.

![Distribution by Size of NASSCOM Member Companies](image)

**Figure 16: Distribution by Size of NASSCOM Member Companies**

*(Source: NASSCOM Annual Report 2007)*

As the above figure demonstrates, larger companies with gross revenue of over Rs. 200 cr are only 7.4 %, while small companies with gross revenue of less than Rs. 50 cr, constitute a very large share of 74.4%. Interestingly, in the smaller companies, the corporate managers are much closer to the technical communication activities

---

To correctly represent the industry distribution, the distribution of the respondents is also aligned in the same proportion.

One representative corporate manager per company is considered for sample questionnaire to avoid any bias of larger companies providing larger number of respondents, and to retain the distribution of the companies close to the one displayed in Figure 16.

4.4 Area of Study

The area of study focuses on Information Technology Industry (IT) in India. To get a complete 360° view of technical communication, a representative sample size was selected using simple random sampling for each of the different groups - Users of Technical Communication, Technical Communicators, and Corporate Managers.

The Users of Technical Communication are representative of general public and the sample covers urban population, focusing on major cities – New Delhi/NCR, Mumbai, Pune, Kolkata, Bangalore, and Chennai.

The area of study for the technical communicators typically employed by the IT companies as well as the corporate managers of the IT companies was designed with reference to the Annual Report of NASSCOM (National Association of Software and Services Companies), the premier trade body and the chamber of commerce of the IT industry in India.

The regional spread of the Indian IT companies is represented in the NASSCOM Annual Report as shown in Figure 17.

The survey accordingly covers the regions with the geographical distribution as close as possible to the distribution shown in Figure 17.

4.5 Data Collection

The research was carried out using primary and secondary data.

- **Primary data**: data collected directly from respondents of the survey designed for this research, along with personal interviews wherever possible.

- **Secondary data**: data from existing published information – either specifically from technical communication field, or from related fields such as IT industry and Indian industry.

4.6 Method of Data Collection

To get a complete 360° view of technical communication, a representative sample size was selected using simple random sampling for each of the different groups - Users of Technical Communication, Technical Communicators, and Corporate Managers.
For the users of technical communication — in other words the general public—
self-completed individual questionnaire method was selected, where the
questionnaire was personally handed over and collected after completion.

The self-completed individual questionnaire completed in presence of researcher
method was selected primarily for the following reasons:

- The respondents can immediately clarify the doubts with the researcher.

- The respondents typically give better response as their willingness to
  participate is confirmed beforehand.

- The responses of the individual questionnaires guarantee no repetition of
  respondents, better validity of data, and the least number of invalid /
  anomalous / unusable responses.

For the technical communicators, and also for corporate managers, self-completed
individually emailed questionnaire method was selected, with personal interviews
wherever possible.

The self-completed individually emailed questionnaire method was selected
primarily for the following reasons:

- With this method, large numbers of questionnaires can be distributed in a
  short time.

- It provides an easy opportunity to contact geographically distributed
  people, who may be hard-to-reach otherwise.

- The respondents are able to complete the questionnaire in their own time,
  reducing burden on their time and availability.

- The privacy of respondents is protected better.

- The respondents do not feel pressurized or influenced to answer certain
  questions in a certain way.

- The individually emailed questionnaires typically gives better response
  as only the willing respondents ask for the questionnaire.

- The response of the individually emailed questionnaires guarantees no
  repetition of respondents, better validity of data, and the least number of
  invalid / anomalous / unusable responses.

An introductory email was sent to formal / informal groups or individuals
outlining the research project, objectives, and methodology. Since technical
communication is a specialized field, ample description was provided about it. At
the end, respondents were requested to reply and get the questionnaire delivered by
email. Some respondents wrote back or called clarifying their doubts. The respondents then completed the questionnaire as per their own convenience and sent them back.

No questions and no demographic data were made mandatory to establish trust and confidence. However, many respondents provided the information willingly.

4.7 Questionnaire Design

For each group a separate questionnaire was designed.

- For **Users** of technical communication, first the field of technical communication was described in a user-friendly manner, and the reason for survey was explained briefly.

  Then they were asked 9 individual questions, representing different aspects of technical communication. For each of the questions, they were required to rate the value provided by technical communication, on a Likert scale ranging between 1-5, where 1 represents no value added, and 5 represents very high value added.

- For **Technical Communicators**, the research objectives were explained in detail, along with the reason for study. There were also described the corporate objectives, and their linking to the technical communication formats.

  Then they were given a matrix for measuring how each of these six formats contributes towards each of the ten corporate objectives. For each combination of technical communication format and corporate objective, they were required to rate the value provided on a Likert scale ranging between 1-5, where 1 represents no value added, and 5 represents very high value added.

- For **Corporate Managers**, the research objectives were explained in detail, along with the reason for study. There were also described the corporate objectives, and their linking to the technical communication formats.

  Then they were given a matrix for measuring how each of these six formats contributes towards each of the ten corporate objectives. For each combination of technical communication format and corporate objective, they were required to rate the value provided on a Likert scale ranging between 1-5, where 1 represents no value added, and 5 represents very high value added.

The individual questionnaires are included in Appendix A.
4.8 Statistical Design

The stated null and alternate hypotheses are:

- **H₀**: There is no significant contribution of Technical Communication in towards achieving Corporate Objectives in the Information Technology industry.

- **Hₐ**: There is a significant contribution of Technical Communication in towards achieving Corporate Objectives in the Information Technology industry.

With the use of Likert scale ranging between 1-5, where 1 represents no value added and 5 represents very high value added; the defined value of μ is 1.

Hence,

\[ H₀: \mu = 1 \]
\[ Hₐ: \mu > 1 \]

Since the hypothesis is directional, the statistical tools will use single tailed tests including:

- Standard error and standard deviation
- z-test, as the sample size is greater than 30
- Variance and ANOVA

4.9 Significance Level

The study is undertaken to find out if the null hypothesis Ho is proven true. The significance level for rejecting the null hypothesis α is selected as 5%. At 5% level, there is 95% confidence that the result is a reflection of the reality and there is only a 5% probability of rejecting the null hypothesis when the null hypothesis is actually true (Type I error).

The significance level α is selected at 5%, which is a norm for social science / management / behavioral studies**, allowing the scope of human error in data collection.

\[ \alpha = 5\% \]

Hence, when hypothesis tests are conducted on the collected data, if p value (probability value) is less than the 5% significance level, the null hypothesis $H_0$ is rejected and the alternate hypothesis $H_a$ is accepted.

Therefore,

If $p < 5\%$ significance level, there is significant contribution of Technical Communication in towards achieving Corporate Objectives in the Information Technology industry.

If $p \geq 5\%$ significance level, there is no significant contribution of Technical Communication in towards achieving Corporate Objectives in the Information Technology industry.

### 4.10 Summary

This descriptive type of research was carried out using primary data collected directly from respondents of the survey designed for this research, along with personal interviews wherever possible; and secondary data from existing published information – either specifically from technical communication field, or from related fields such as IT industry and Indian industry.

To get a complete $360^\circ$ view of technical communication, a representative sample size was selected using simple random sampling for each of the different groups - Users of Technical Communication, Technical Communicators, and Corporate Managers.

The self-completed individual questionnaire method of data collection was selected. For each group — Users of Technical Communication, Technical Communicators, and Corporate Managers — separate questionnaires was designed.

For statistical design, the significance level $\alpha$ is selected at 5%, with the statistical tools – standard error, standard deviation, z-test and ANOVA.