Chapter 1  Introduction

Imagine having a brand-new gadget and struggling to make it work! Or in a corporate group, imagine an expensive software package recently purchased, and being totally at loss about its operation. On a much serious note, think of a medical professional with a complex medical diagnostic system not able to set it correctly.

Why the complex technological wonders fail to deliver? The key is the missing instructions guide. Get a small booklet with the gadget that explains settings and working, and the gadget suddenly comes to life. Or get a user’s manual for the software package and immediately the ROI becomes apparent. And yes, the criticality of the instructions for the life-saving medical equipment need not be stressed further.

That, in essence, is the power of technical communication.

Today we all encounter large number of complex systems at home and at work. From computers to cars, communication gadgets to medical equipments, consumer products to business processes – all present unforeseen level of complexity for all of us. These technologies have evolved fast and have penetrated our lives even faster. They need high expertise to understand and apply the techniques, which often appear to be beyond users who are not from that field. And hence the need for accurate and accessible ways to explain them has never been greater.

Communication has always been an essential factor for the success and quality of any product, service or business - more so in case of technically complex products, applications and processes, which highlights the need and demand for technical communication.

Technical communication explains and details the working of technological products that helps the users to a great extent. It can also be extended much beyond the basic communication to the users, to the sales and internal communication as well. In that case, up to what extent does it help the corporate groups? Does it make better products? Does it help save costs? Does it improve company image? In short, does it contribute to the corporate objectives?

This research is an attempt to find answers to those queries. For that purpose, it is first necessary to learn about technical communication and corporate objectives.
1.1 Technical Communication

In his famous poem, The Eagle: A Fragment¹, Lord Tennyson writes:

He clasps the crag with crooked hands;
Close to the sun in lonely lands
Ringed with the azure world he stands.
The wrinkled sea beneath him crawls;
He watches from his mountain walls
And like a thunderbolt he falls.

The same subject, Eagle, in a technical encyclopedia² reads:

Eagle, large bird of prey that is active during the daytime. Like other birds of prey, such as hawks and vultures, eagles hunt, kill, and eat other animals. Eagles are found throughout the world except in Antarctica and on some remote ocean islands.

Only two kinds of eagles live in North America: the golden eagle and the bald eagle. Among the largest eagles in the world are the harpy eagle of Latin America and the Philippine eagle of Asia. These birds have wingspans as great as 2.5 m (8 ft) and weigh as much as 9 kg (20 lbs). In most eagle species, the female is slightly larger than the male.

The sheer contrast between poetic communication and technical communication establishes what technical communication focuses on. Technical communication is always:

• Impersonal
• Objective
• Descriptive
• Unambiguous

Technical communication is always expected to convey one and only one meaning, which is factual, and is expected to allow only one interpretation.

Technical communication bridges the gap between complex technology and its users. It provides the background information about technology in a simple manner and makes it appealing to the users. The fast advancement of technology and its quick penetration in our daily life poses several confusing and stressful questions to the users. Technical communication attempts to answer those questions reassuringly.

In other words, technical communication is a field involving designing and developing communication products that transfer technical or specialized information from the experts who know it to others who need to know it.

Figure 1 presents this significance of technical communication.

![Figure 1: Technical Communication](image)

On a more elaborate level, technical communication involves creating effective knowledge transfer, in appropriate format, suitable to the profile of the users, to help improve their efficiency.

Technical communication is a constantly evolving field with continuously revised definition and scope. It has a long history and a significant presence in the last fifty years. A number of formal and informal groups and forums regularly share knowledge to enrich strengthen this specialized field.

Technical communication involves innovative use of communication modes such as:

- Verbal: audio training, audio CDs and video commentary
- Written: proposals, papers, manuals, publications, training handbooks
- Visual: demos, training videos, personal presentations
In an interesting discussion on agile documentation, Scott W. Ambler\(^3\) describes the various formats of technical communication from their richness and effectiveness aspect. The illustration of this discussion is presented in Figure 2.

![Figure 2: Effectiveness of Communication Formats](Source: Ambler, Scott (2006). Best Practices for Agile/Lean Documentation)

As Ambler discusses in this article, face-to-face discussion at whiteboard features on the top, highlighting the effectiveness of non-verbal clues (body language and illustrations) in verbal communication.

Paper, which conveys printed matter as a communication format, scores the lowest in the effectiveness. However, this format of the communication is perhaps the most widely used format. The reason is rather simple and straightforward—paper communication is permanent and requires no real time synchronization of the writer and the reader.

Video conversations which is medium effective and medium rich, at relatively low expense and low preparation time, is nowadays the preferred format for business discussions and negotiations.

Figure 3 shows a typical workflow of the technical communication process.

![Figure 3: Technical Communication Workflow](Source: Technical Communication Solutions at Adobe)

After the content is created, compiled, updated, or edited, the next step is to enrich the content. At this stage, the graphics, images, charts, photos, illustrations, and multimedia content such as embedded power point presentations or videos are added. These elements enrich the content and increase its effectiveness to reach the audience. Some of these elements can be made as explanatory demos or self-learning modules.

The content so far is handled by an individual technical communicator. However, the next stage, the collaboration/manager stage presents a more complex activity of active collaboration with other technical communicators, other members of the project team, and often with other teams as well. This stage involves project management skills and teamwork much more than the basic technical communication skills.

The final stage is of publishing and delivering the output, which may be in the form of printed matter, PDF copies, presentations, papers, online help, embedded help, knowledgebase content, training material, marketing material, or even multimedia CDs.

Professional technical communicators are highly skilled experts, experienced in preparing instructional and descriptive material for everyday use and include Information Designers, Technical Authors, Illustrators, Translators, Editors, Instructors, Graphic Designers, Technical Communicators, Indexers, Multimedia Designers, Trainers, Webmasters, and more recently User Experience Designers.

Technical communicators use different tools to create content. The choice of tools depends on the platform and the format of the deliverables. Some of the tools used can be categorized as:

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• Word processors: Microsoft Word and Office Suite, Adobe FrameMaker, OpenOffice, StarOffice

• HTML Editors: MS Word, MS FrontPage, Adobe GoLive, Adobe Dreamweaver

• Desktop Publishing Tools: Framemaker, Interleaf, QuarkXpress, InDesign

• Graphics Tools: Adobe PhotoShop, CorelDraw, PaintShop Pro, Flash, Adobe Captivate

• Online Help Authoring Tools: RoboHelp, Author.IT, DoctoHelp, MadCap Flare

As an interesting side note, the help and manuals that accompany these tools often have to face high scrutiny from the users who happen to be technical communicators themselves specializing in creating help and manuals!

1.1.1 Definition

Technical communication is primarily a field of practitioners and is highly result-oriented. Consequently, the practitioners have not focused much on the conceptual or the theoretical aspect of the field.

A number of researchers seem to agree that the evolving nature of technical communication makes defining a tough task, as the field is in constant phase of reinvention, remodeling and restructuring.

• Wikipedia\(^5\) defines:

  Technical communication is the process of conveying usable information through writing or speech about a specific domain to an intended audience.

• The Society of Technical Communicators (STC)\(^6\) defines technical communication as:

  The process of gathering information from experts and presenting it to an audience in a clear, easily understandable form.


• Besides the above definition, STC has proposed a more comprehensive definition of a technical communicator, from the occupational aspect:

Technical Communicator, which includes those who develop and design instructional and informational tools needed to assure safe, easy, proper and complete use of technical goods. (It) combines multimedia knowledge and strong communication skills with technical expertise to educate across the entire spectrum of users’ abilities, technical experience, and visual and auditory capabilities.

This definition is consistent with the consumer protection legislation currently promoted both in the U.S.A, and E.U.

• Kit Brown⁷, a senior technical communication consultant and localization specialist prefers to define technical communication as:

Technical communicators take complex data and information, then distill it down to its essential elements and present it in such a way that people can make use of it.

• A very thorough and insightful definition is included in the National Digital Repository⁹, which is a major initiative of the Indira Gandhi National Open University:

Technical Communication is always considered as highly complex because it is a hybrid field drawing knowledge from a social science built from foundations in rhetoric, communication theory, technology transfer, linguistics, educational psychology and library and information science.

Technical communication may be viewed as both a discipline and a profession. As a discipline it concerns itself with the pursuit of knowledge and the development of theory. As a profession it meets the needs of individuals through the application of knowledge and theory.

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Illinois Institute of Technology[^10] defines technical communication in the following way:

Technical communication is a field of study that analyzes, recommends, and implements methods of conveying usable information from experts in a technological or scientific area to non-experts or to experts in another area.


The purpose of Technical Communication is to serve as the primary communication line between technology and its users, and between scientists and the users of scientific information. Its goal is to make technologies more useful and meaningful and scientific information more accessible.

The Australian Society for Technical Communication[^12] tries to contrast technical communication with scientific communication as:

Technical communicators produce factual information regarding businesses, products and services. The purpose of technical communication is generally to instruct the reader (as opposed to scientific communication or journalism, which informs the reader).

TCEurope[^13], the European umbrella organization for technical communication chooses to describe technical communication in a much limited sense as:

Technical Documentation comprises all activities, means and systems providing information about how to use a product. It enables the user to understand the functioning of the product, to handle, maintain, repair and dispose it correctly and safely.


• Missouri S&T (University of Missouri-Rolla) defines technical communication as:

Technical communication, whether written, oral, or visual, enables people to use technology effectively, to understand technology, or to make effective decisions about real-world problems. In this context "technical" refers to technology in the broadest sense—that is, any materials or human-created processes that help people act or think. Thus, instruments and equipment are technologies, but so are methods of farming and systems of information.

• Mathematics site NumberNut explains technical writing, which is seen as a subset of technical communication as:

Technical writing is a style of writing used to describe, explain, or defend a mathematical idea, reasoning, or process. The term "technical" refers to knowledge that is not widespread, that is more the territory of experts and specialists and whenever one attempts to write or say anything about a particular field of study, one is engaged in technical writing.

Technical writing is the delivery of technical information to readers (or listeners or viewers) in a manner that is adapted to their needs, level of understanding, and background; this ability to "translate" technical information to non-specialists is a key skill to any technical communicator.

1.1.2 Scope

In the initial stage, the technical communication was mainly through printed pages, and occasionally through live demonstrations. However, as technology progressed, it started encompassing various other modes of communication such as audio, video, and CD-ROMs. With the growth and spread of Internet and World Wide Web, technical communication has expanded its scope and now covers one or more categories of content as described in Table 1.

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<table>
<thead>
<tr>
<th>Category of Technical Communication</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Manuals</td>
<td>User's Guides, Operating Manuals, Installation/Service Manuals, Troubleshooting Guides</td>
</tr>
<tr>
<td>System/Application Documentation</td>
<td>Technical Reference Guides, Configuration Guides, Troubleshooting Guides, Customization Guides, Networking Guides, Integration Guides, API Guides</td>
</tr>
<tr>
<td>Researched Papers</td>
<td>Concept Papers, White Papers, Feasibility Study Reports, Comparative Analysis, Case Studies</td>
</tr>
<tr>
<td>Quality Documentation</td>
<td>Quality Manuals, Procedure Templates, Report Templates, Certification And Accreditation Activities</td>
</tr>
<tr>
<td>Process Documentation</td>
<td>Policies, Procedures, Templates, Standards, Certification And Accreditation Activities</td>
</tr>
<tr>
<td>Presentations</td>
<td>Personal Presentations Content, Audio / Video/Flash presentations, Web-Based Presentations, Demos</td>
</tr>
<tr>
<td>Website Content</td>
<td>Product Description, Features, and Specifications; Comparative Studies, Background Information, Case Studies, Product Demos, Newsletters</td>
</tr>
<tr>
<td>Techno-Commercial Content</td>
<td>Product Brochures, Detailed Technical Specifications, Product Demos, Case Studies, Invitations, Newsletters</td>
</tr>
</tbody>
</table>
As a direct result of globalization, technical communication scope now also incorporates the following processes:

- Internationalization
- Localization
- Translation

Besides working on these deliverables, the technical communication professionals carry out variety of cross-functional and management tasks including:

- Information Design
- Documentation Project Management
- Cost Estimation and Scheduling
- Designing Standards, Templates, and Processes
- Contributing to User Interface design
- Participating In Usability Design And Testing

Technical communication has a strong visibility in the fields of electronics, computers, information technology, medical engineering, pharmacy, and the shipping industry. The proposed study is about the contribution of technical communication in the field of information technology.

1.1.3 History

The history of technical communication\textsuperscript{16} can be traced to ancient civilizations, with their instructional and descriptive documents. A number of scientific observations and technological notes are available as early writings and illustrations. Astronomical information is especially detailed and complemented with models. Several artifacts of cultures ranging from the Aztecs, Egyptians, and Babylonians record such information.

Later in the 14th century, western culture saw an upsurge in the fields of medicine, science, religion, and mechanics. This was also the beginning of an era that thrived on communication through literature and arts. This period lasting till 17th century, considered as the Renaissance, highlights the spirit of inquisitiveness, explorations and bold innovations.

In the later part of the Renaissance period, plain style of writing became the style of scientific discourse. The use of diagrams and pictures were also advocated to promote economy and clarity. Both these facts contributed to make scientific and technical knowledge within reach of common people.

The 18th century witnessed a systematic approach to scientific and technological study that can be demonstrated practically and presented in the scientific journals. The first of these scientific journals, the Journal des Scavans, along with the Philosophical Transactions of the Royal Society, were prestigious platforms, presenting a moment of glory to scientific writers, which was till then reserved only for fiction writers. Suddenly it was important to be a scientific writer and getting discussed in the social circles. By 1830, the number of scientific journals worldwide exceeded 500 presenting ample opportunities to interested science and technology writers.

As Frederick M. O’Hara, Jr. (1999) notes in his paper A Brief History of Technical Communication, “During the late nineteenth century and early twentieth century, a standard outline was adopted for reporting research:

1. State the problem
2. Describe the method
3. Display the results
4. Draw the conclusions”

This was perhaps a concrete establishment of instructional writing, that took scientific approach, clear direction, and simple concise communication that is considered as the fundamentals of technical communication.

Early metal and manufacturing industries in the nineteenth century also record use of technical communication in a rudimentary form. Majority of this

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communication is in the form of illustrations, which interestingly is still the preferred format for in the manufacturing industry.

In the second half of the nineteenth century, engineering supervisors or technicians were trained on the job, rather than formal institutional training. They did not give much importance to communication skills, and some of them could barely write. Some of them were given special course in English, so that they can understand some design and assembly / construction instructions.

However, at the beginning of the twentieth century, the need for good written and oral communication skills was felt. Chandler Earle (1911) proposed to teach engineering students to write product descriptions and writing for different types of audiences. He proposed four different abilities for engineers:

- Put an abstract thought into words
- Describe an object in words without the help of illustration or sample
- Describe a concept
- Write for different audiences

In the 1920s, some textbooks appeared in the market illustrating the power of words for technical specialists. The need for specialized technical writing courses seems to have increased in 1930s, especially in U.S.A. and Europe.

However, the field as recognized today can be traced back to World War I, when there was a surge in technology-based documentation chiefly for the use of military. Later these clear-cut precise instructions and detailed descriptions were appreciated for their value and were implemented by the manufacturing, electronic, pharmaceutical and aerospace industries.

After World War II, accelerated development of new technologies brought a large population in direct contact with technology and technological gadgets - either in the manufacturing industry or as users. This trend prompted the industry to adopt simple instructions for the assembly and use of these gadgets.

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The real driving force for catapulting technical communication to a full-fledged field must be assigned to the rapid growth of technology in industry in the later half of the twentieth century. This period experienced tremendous expansion in all possible technological areas ranging from nanotechnology to biotechnology.

Obviously the number of experts went up and their depth of the expertise went much deeper. This situation made it practically impossible for lay people as well as experts in other fields to easily understand these complex details. And thus the importance and significance of technical communication was further enhanced, establishing it as a unique field bridging the gap between specialists and generalists.

1.1.4 Timeline

A brief timeline of the development of technical communication, starting from 1940s\textsuperscript{24} can be illustrated as follows:

- In 1940s, as the World War II introduced sophisticated equipment, the need for equally sophisticated communication about the use and repair of this equipment was critical. Thus began the increasing significance of technical communication. As the defense industry became bigger and better following World War II, an increased need was felt for the information to meet military specifications. There was large documentation of aircraft, tanks, submarines, and the early computers.

- In the late 50s, science and related information including space research, was stirring curiosity in the mind of general public giving rise to popular science writing. Meanwhile, the isolated technical communicators were enthusiastic to join hands and form groups to share knowledge and ideas. In 1957, the Society of Technical Writers and Editors was formed giving momentum to the growth of the field.

- In the 60s, computer industry began to grow. The early computers were complex and required extensive assistance to work with. It was also the era of global campaigning for plain language comprehensible to all. Both these trends helped the growth of technical communication.

- The 70s experienced a big expansion of the trends in the 60s. Computers had more features, more circuitry, more procedures, and of course more users ranging from enthusiasts to serious scientists. The other trend of plain English also witnessed more recognition. In the U.S.A., Document Design Center at the American Institutes for Research along with

researchers from Carnegie Mellon University conducted a milestone research that viewed documentation as a problem-solving activity. Establishing the key role of documentation led to identifying a series of clear principles for designing and developing documents.

- In the 80s, as computers became easily accessible to common people, need for technical information grew phenomenally and technical communication began being viewed as a specialization. The specialized professionals who first took up this task were technologists who could write or communicate well with precise information in a simple manner. Later they were joined by excellent communicators who had a great inclination towards science, research, technology, and their applications. They could comprehend the technical details to present them in simpler formats, and often collaborated with the technologists.

- In the 90s and later, explosion of Internet and Web technology boosted the requirement for efficient technical, techno-commercial, and instructional content. The novelty of the technology coupled with a unique challenge to communicate to global audience prompted several enthusiasts to join this flourishing field.

1.1.5 Professional Organizations

Technical Communication community is highly organized and demonstrates a sense of camaraderie through formal and informal groups. The prominent formal global groups are: IEEEPCS and STC.

1.1.5.1 IEEE PCS

An IEEE society dedicated to understanding and promoting effective communication in engineering, scientific, and other technical environments.

Their mission is to foster a community dedicated to understanding and promoting effective communication in engineering, scientific, and other technical environments.

The Society's field of interest also includes the research and development of new techniques, the definition of professional standards, and the fostering of continuing education related to these activities.

Website: [http://ewh.ieee.org/soc/pcs/](http://ewh.ieee.org/soc/pcs/)

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25 Institute of Electrical and Electronics Engineers, Inc. [http://www.ieee.org](http://www.ieee.org)
IEEPCS also publishes a monthly online newsletter PCS Newsletter\textsuperscript{26} and a refereed quarterly research journal - Transactions on Professional Communication\textsuperscript{27}.

It also conducts a conference every year.

1.1.5.2 STC

Society for Technical Communication (STC) is an individual membership organization dedicated to advancing the arts and sciences of technical communication. It is the largest organization of its type in the world.

STC’s 20,000 members include technical writers and editors, content developers, documentation specialists, technical illustrators, instructional designers, academics, information architects, usability and human factors professionals, visual designers, Web designers and developers, and translators - anyone whose work makes technical information available to those who need it.

Website: \url{http://www.stc.org/}

STC has various regional chapters and each chapter publishes a regular newsletter. It also conducts annual conferences, mostly held in U.S.A.

1.1.5.3 Other Groups

A number of non-profit formal / informal groups also enrich the field of technical communication. They function mainly through the group website / portal or mailing lists, with frequently held online or offline meetings and presentations. They thrive on knowledge-sharing and knowledge-enhancing discussions. Some of the highly respected groups are:

- TECHWR-L, The Internet Forum for Technical Communication
  \url{http://www.techwr-l.com/techwhirl/index.php3}

- MITWA - Mentors, Indexers, Technical Writers & Associates
  \url{http://groups.yahoo.com/group/MITWA/}

\textsuperscript{26} PCS Newsletter. Retrieved June 10, 2008 from \url{http://ewh.ieee.org/soc/pcs/newsletter/pcsnews_current.php}

\textsuperscript{27} Transactions on Professional Communication. Retrieved June 10, 2008 from \url{http://ewh.ieee.org/soc/pcs/?q=node/24}
Other country-specific groups have also been contributing to the field of Technical Communication, including:

- **TWIn – Technical Writers of India**

- **Technical Communication & Technical Writers in Russia**

- **Institute of Scientific and Technical Communicators, U.K.**

- **Technical Communicators Association of New Zealand**

- **Tekom - Professional organization for technical communication, Germany**
  [http://www.tekom.de/index_neu.jsp?](http://www.tekom.de/index_neu.jsp?)

- **Elephant - Professional organization for Technical Writers, Israel**

Their respective websites provide content in English so that it can be globally accessed and understood.

1.1.6 Current Global Scenario

Today, constant emergence of new, complex and cutting-edge technologies spells the need for clear, concise and correct technical communication, propelling the required special skills to the forefront.

Globally technical communicators find themselves in a variety of industries including computer science, medicine, environmental studies, electronics, government, cinema, the aerospace industry, and just about any field in which people must interpret and use technology²⁸.

The early technical communicators amalgamated their skills from multidisciplinary fields such as fiction writing, journalism, technical expertise, technology reporting, marketing, mass communication, arts, language studies, literature studies, rhetoric, linguistics business management, cognitive psychology.

human factors, instructional technology, sociology, and systems theory among others.

The current breed of technical communication professionals, however, often has structured training to back them. Figure 4 below shows the distribution of STC members worldwide.

![Figure 4: Technical Communicators Education Profile – STC Worldwide 2002](image)

As per the STC 2002 membership survey[^29], the seven academic backgrounds most common among technical communicators were English (32%), Technical Communication (22%), Business Administration (10%), Computer Science (9%), Science (9%), Engineering (8%), Journalism (7%), and Other (3%).

Most of the engineering / science / vocational courses worldwide have incorporated minimum one module on technical / science communication involving use of instructional writing and detailed reporting[^31]. A large number of universities in U.S.A., U.K., Canada, and Australia[^31] nowadays offer full-time graduate / post-graduate courses in technical communication, while some offer facilities for PhD Research.


[^31]: Pune Institute of Computer Technology http://www.pict.edu/admissions/courses.htm

University of Minnesota, [http://writingstudies.umn.edu/](http://writingstudies.umn.edu/)

University of Washington, [http://www.uwtc.washington.edu/](http://www.uwtc.washington.edu/) and

Texas Tech University [http://english.ttu.edu/tc/default.htm](http://english.ttu.edu/tc/default.htm)
Several books and textbooks\textsuperscript{32} are also available that focus on comprehensive as well as specific areas of the field. Noteworthy journals\textsuperscript{33} dedicated to technical communication are rapidly increasing all over the globe. Several formal as well as informal groups and forums are founded on the Web giving the required exposure and resources to the technical communicators worldwide.

Professional bodies like Society of Technical Communication (STC), commercial technical communication firms, universities and individuals have also undertaken research and documentation of the field from various aspects, including history, scope, theories, methods, best practices, and future trends.

These significant factors are indicative of the growing importance and formalization of technical communication.

1.1.7 Current Indian Scenario

Technical Communication in India has got a boost mainly because of the rapid growth of the Information Technology (IT) industry in the early 90s. The early phase of technical communication in the IT industry was purely functional, and basically satisfied the U.S.A. and Europe regulations. As the overseas clients started appreciating the ability of Indian technical communicators to explain complex technology in proficient English, the demand for technical communicators in India began growing. Soon large chunks of mandatory documentation were outsourced to Indian technical communicators.

Over the years, the Indian technical communicators have moved up the value chain, enjoying communication of higher level such as proposals, white papers, and techno-commercial material. Currently many overseas clients transfer their entire technical communication activity (often called technical publications in U.S.A.) to India, including planning, estimation and project management. In some cases, the technical publications group is multi-location, partly in U.S.A., partly in India, and partly in Europe. In some of these cases, the group is managed by an Indian technical publications manager.

Indian technical communicators have consistently demonstrated an edge over their overseas counterparts in the following aspects:

\begin{itemize}
  \item Cost
  \item Speed of work
  \item Proficiently in English
\end{itemize}

\textsuperscript{32} Amazon. http://www.amazon.com

• Excellent grasp of technical matters
• Good understanding of software and IT
• Higher skills in tool handling
• Willingness to learn constantly

They however need to work on the non-technical aspects more, such as:

• Project management
• Team management
• Soft skills
• Exposure to all aspects of technical communication

Many of the engineering / science / vocational courses are minimum one module on technical / science communication involving use of instructional writing and detailed reporting\textsuperscript{34}. Prestigious Indian Institutes of Technology\textsuperscript{35} also has a compulsory module of technical communication in its post-graduate and PhD level programs.

Indian technical communicators enjoy a large number of professional forums to share and exchange ideas. Society for Technical Communication (STC) has an India chapter with 100+ members, while other non-profit groups like MITWA (600+ members) and TWIn (1000+ members) can boast of majority of Indian technical communicator members. In India, at least 7 commercial technical communication firms have been established in the last 15 years.

STC has an Indian chapter which hosts regular events to share knowledge and experience. It also offers a platform for technical communicators to present issues concerning their profession and find innovative solutions for them. STC India periodically publishes a newsletter where ideas, tips and trends are discussed.

STC India undertakes regular salary survey which tries to document the current status of Indian technical communication industry, industry wise distribution, educational profile, salary and trends.

\textsuperscript{34} Pune Institute of Computer Technology http://www.pict.edu/admissions/courses.htm

In 2003 salary survey\textsuperscript{36}, only salaries, location and experience of the technical communicators were tracked.

This experience profile demonstrates that the largest group of responding technical communicators, 29\% fall into the 4-7 years range, while only 10\% respondents have experience of 10+ years.

The experience profile shows a normal distribution or the Bell curve, where only 11\% technical communicators with 0-2 years of experience and 15\% technical communicators with 7+ years of experience. Being a snapshot for the year 2003, it indicates that more number of technical communicators have entered the field after 1996, in comparison with the technical communicators who have entered the field before 1996. In other words, the field of technical communication enjoys a greater acceptability and employability in the current millennium.

In 2005, the salary survey\textsuperscript{37} tried to profile the Indian technical communicators in much more detail, including educational background, industry verticals, team size, ratio of number of technical communicators to number of developers, and time spent on managerial activities. The educational profile of technical communicators presents some interesting insights.

\begin{figure}[h]
\centering
\includegraphics[width=0.6\textwidth]{experience_profile.png}
\caption{Technical Communicators Experience Profile – India 2003}
\end{figure}

\textsuperscript{36} Salary Survey of Indian Technical Communicators conducted by STC. \textit{March 2003}.

It is worth noticing that 30% of the respondents are engineering majors, while 23% respondents are from science stream. Only 24% of the respondents are from arts / English stream, compared to 32% English majors in STC worldwide member profile 2002, shown in Figure 4. It certainly shows that Indian technical communicators lean more towards the “technical” part in their formal training, probably picking up their English skills as a secondary activity or simply on-the-job.

It is also worth noting that no respondent mentions technical communication as their background, compared to as many as 22% in STC worldwide member profile 2002, shown in Figure 4. It is perhaps the strongest indicator for a need of formal university level course in technical communication in India, especially since it has consistently demonstrated very high employability.

Comparing the education profile in the 2007 salary survey brings more interesting results.

Figure 6: Technical Communicators Education Profile – India 2005

Figure 7: Technical Communicators Education Profile – India 2007
According to the Salary Survey conducted by the India chapter of STC in 2007, as many as 41% of respondents have engineering background and 18% of respondents have Science background.

Compared to a similar survey in 2005, shown earlier in Figure 6, where 30% of the respondents had Engineering background and 23% of the respondents have Science background, the trend sharply leans towards technology background. A possible reason may be the increasing complexity of the technology to be communicated.

Also interesting to note is that the share of arts majors has increased from 22% to 30%; perhaps the arts major professionals are taking advantage of the growing demand for technical communicators in India, boldly entering the complex field that demands technical understanding. It also shows that the technical communicators can be trained in the "technical" aspect of the job later, and persons with strong learning abilities can take up this profession. Being able to learn continuously is also required in case of the technical communicators with "technical" background, since the technology is consistently changing and advancing.

The 2007 Salary Survey also shows extremely diverse industry verticals in which the technical communicators currently work. They range from Information Technology applications, to Banking, Finance, Insurance, Government, Education, Transportation, Energy, Pharmaceuticals and Retail / FMCG. Within Information technology, the industry verticals include CRM, Data warehousing, ERP, Healthcare, Industrial control, Manufacturing, Media and entertainment, Mobile devices, Networking, Office automation, SCM, Security, Semiconductors, Storage technologies, and Telecom.

In comparison with U.S.A., U.K., and Australia, Indian has less number of technical communicators (estimated 1000+), however, they are highly organized and motivated to share knowledge and help their field grow.

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1.2 Corporate Objectives

For any company, there exists a set of the most important goals the company wishes to achieve. These are the corporate objectives and they give a direction to the company activities. Corporate objectives can also be considered as general outlook of companies, catering to their various stakeholders.

It was Peter Drucker\textsuperscript{39} in 1954, who pioneered the concept of “management by objectives” with a simple principle: A business should set specific corporate objectives, and every manager within the business should focus on achieving those objectives while avoiding the “activity trap” of getting involved in the daily minutiae and losing sight of what you’re ultimately trying to accomplish.

![Figure 8: Typical Business Objectives](Source: Business Objectives at Biz/ed)

Figure 8 shows the typical business objectives\textsuperscript{40} of a private company. Some of these objectives are clear goals while some address the issues. A typical business objective must set a clear goal, in terms of the end result and the timeframe to achieve it.


\textsuperscript{40} Business Objectives at Biz/ed. Retrieved May 11, 2008 from \url{http://www.bized.co.uk/educators/16-19/business/strategy/presentation/busobjectives2_map.htm}
In the book Market Opportunity Analysis: Text And Cases, the authors Robert E. Stevens, Philip K. Sherwood, J. Paul Dunn, and David L. Loudon (2006) say that "Corporate objectives vary so widely in their nature, content, and specificity that it is difficult to describe a common state-of-the-art of what corporate objectives should be." They further mention that three objectives basic to any organization are:

- Engage in a Business activity that is both economically and socially useful.
- Maintain and/or survive as a business entity
- Grow in size of operations – whether measured in sales, profits, number of employees, or some other growth criteria.

They also note that "these objectives are almost inherent to a business though many firms do not formally state them."

1.2.1 Definition

- The Marketing Association of Australia and New Zealand\(^{42}\) defines corporate objectives as:

  Specific realistic and measurable aims that an organization plans to achieve within a given period of time.

- Pearson Education\(^{43}\) defines corporate objectives as:

  The overall objectives of the organization that influence the direction of marketing strategy.

- Bournemouth University defines corporate objectives in their Marketing Foundation Degree\(^{44}\) as:


\(^{43}\) Glossary, Pearson Education. Retrieved April 4, 2008 from http://wps.pearsoned.co.uk/wps/media/objects/1452/1487687/glossary/glossary.html#C

A set of the most important goals the company wishes to attain in a given period of time, often one to five years.

- In his book “A Problem-finding Approach to Effective Corporate Planning”, Robert J. Thierauf defines corporate objective as:

  A corporate objective is a statement of intent – what a company proposes to accomplish. Every company objective means an action toward a predetermined end.

- Malcolm McDonald, in his bestseller “Marketing Plans: How to Prepare Them, How to Use Them”, describes corporate objective as:

  A corporate objective describes a desired destination or result. Most often this is expressed in terms of profit.

### 1.2.2 Purpose

A typical corporate plan starts with a vision, a meaningful dream that the business wants to pursue long term. Vision is then converted into corporate objectives - tangible, measurable realistic goals that can be quantized and measured.

Then the corporate strategies are formed giving overall scope and direction of the business to achieve the corporate objectives. The final stage of corporate planning involves detailed plans for various business units to achieve and measure the corporate objectives.

The structure of the corporate plan is shown in Figure 9.

![Figure 9: Corporate Plan](image)

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The intentions of setting corporate objectives are to:

- Keep the company focused
- Provide a rationale for organizing activities
- Convert mission into performance targets
- Create standards to assess performance
- Provide identity to personnel
- Guard against complacency and drift

Corporate objectives can be wide-ranging and have different significance for different functional areas. After defining the corporate objectives, companies also need to prioritize them along with identifying how they overlap, and how they might conflict. In certain cases, some corporate objectives can act as constraints to the rest of the objectives, and they need to be highlighted and strictly followed.

Peter Drucker’s Management by Objectives⁴⁷ emphasizes on taking the high level corporate objectives and translating them into a cascade of key tasks, key results, performance standards and areas of activity. Once the corporate objectives are defined, all the individual SBU targets and processes must align to the corporate objectives. It is also necessary to ensure that individual goals and key performance area are matched up to the corporate objectives.

Some of the examples of corporate objectives that demonstrate the purpose are:

- Increase revenue each year by 20%
- Boost bottom-line performance by 12%
- Establish the company in the European market
- Demonstrate technological leadership
- Increase the fitness market by creating awareness

1.2.3 Scope

Most of the corporate objectives are financial objectives that are related to the company’s financial performance and are time-bound. Companies also set non-financial objectives that characterize the image of the company and help strategize the company activities.

The classification of corporate objectives is shown in Figure 10.

![Figure 10: Corporate Objectives](image)

Some examples of financial corporate objectives are:

1. Maximize shareholder value
2. Maximize profit
3. Increase revenue
4. Reduce fixed costs / overheads
5. Reduce production costs
6. Reduce sales cost
7. Reduce maintenance costs
8. Increase market share
9. Increase service efficiency
10. Increase employee productivity
11. Improve user experience
12. Achieve predefined annual growth
13. Improve return on net assets
14. Improve cash flow

Some examples of non-financial objectives are:

1. Increase user awareness
2. Improve service parameters
3. Plan for the future
4. Promote innovation and research
5. Pursue higher quality
6. Ensure employee satisfaction
7. Endorse work-life balance
8. Establish leadership in the field
9. Demonstrate corporate social responsibility
10. Promote environment consciousness
11. Design environment-friendly products
12. Promote a healthy lifestyle

Typically the financial objectives set definite measurable targets and are either long-term or short-term. The non-financial objectives provide guidelines to take into account while achieving the financial objectives, and are always long-term.
1.3 Technical Communication and Corporate Objectives

When a company sets its corporate objectives, it also makes multiple detailed action plans derived from corporate strategies to achieve and measure them. These action plans are made separately for each business unit, and within the business unit for each specific group.

The various activities a company performs – finance, marketing, development, sales, manufacturing, testing, service, contribute towards achieving the set corporate objectives. These activities have explicitly detailed procedures and processes established to deliver consistent quality and excellent results.

Any company working towards achieving its corporate objectives tries to adhere to these procedures and processes while constantly improving and optimizing them. It regularly seeks feedback from the field and people to evaluate their results and processes to find more innovative ways to better the processes. Each corporate activity that can help improve the bottom-line and enhance the results is considered as contributing towards achieving corporate objectives.

From this perspective, how does technical communication contribute towards achieving the corporate objectives?

Technical communication basically communicates about technology to various audiences. It can greatly assist in improving communication for, between, and within practically all typical corporate activities – finance, marketing, development, sales, manufacturing, testing, service, and so on. The most impressive effect of such communication can be made by improving communication to the end-users. And such communication can bring satisfaction to the users resulting in improving the company image and increasing revenue.

Technical Communication and Corporate Objectives – studying how these two correlate is an interesting premise. It however needs to quantify and measure the involved variables and then seek to find if Technical Communication contributes towards achieving Corporate Objectives, and if so, then to what extent.

This proposed study is an attempt to find answers to those queries.