# Chapter 2

**Communication Technology and Electronic Communication**

<table>
<thead>
<tr>
<th>Section</th>
<th>Contents of the chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2.1</strong></td>
<td>Introduction</td>
<td>73</td>
</tr>
<tr>
<td><strong>2.2</strong></td>
<td>Positive Impact of Technology enabled Communication</td>
<td>74</td>
</tr>
<tr>
<td><strong>2.3</strong></td>
<td>Changing Process of Electronic / Online Communication</td>
<td>76</td>
</tr>
<tr>
<td><strong>2.4</strong></td>
<td>Tools of Communication Management</td>
<td>79</td>
</tr>
<tr>
<td><strong>2.4.1</strong></td>
<td>Tools for Planning</td>
<td>80</td>
</tr>
<tr>
<td><strong>2.4.2</strong></td>
<td>Tools for Gathering and Collecting Information</td>
<td>80</td>
</tr>
<tr>
<td><strong>2.4.3</strong></td>
<td>Tools for analyzing and Organizing Information</td>
<td>81</td>
</tr>
<tr>
<td><strong>2.4.4</strong></td>
<td>Tools for Writing and Rewriting</td>
<td>82</td>
</tr>
<tr>
<td><strong>2.4.5</strong></td>
<td>Tools for Message Transmission _ Oral</td>
<td>82</td>
</tr>
<tr>
<td><strong>2.4.5.1</strong></td>
<td>Telephone and Voicemail</td>
<td>82</td>
</tr>
<tr>
<td><strong>2.4.5.2</strong></td>
<td>Mobile / Smart Phones /Tablets</td>
<td>84</td>
</tr>
<tr>
<td><strong>2.4.5.3</strong></td>
<td>Advantages of Mobile for Business</td>
<td>84</td>
</tr>
<tr>
<td><strong>2.4.5.4</strong></td>
<td>Smart Phone Apps for Small Businesses</td>
<td>88</td>
</tr>
<tr>
<td><strong>2.4.6</strong></td>
<td>Tools for Message Transmission _ Written</td>
<td>94</td>
</tr>
<tr>
<td><strong>2.4.6.1</strong></td>
<td>Faxes</td>
<td>94</td>
</tr>
<tr>
<td><strong>2.4.6.2</strong></td>
<td>Computers</td>
<td>95</td>
</tr>
<tr>
<td><strong>2.4.6.3</strong></td>
<td>Desktop</td>
<td>95</td>
</tr>
<tr>
<td><strong>2.4.6.4</strong></td>
<td>Laptop / Notebook</td>
<td>95</td>
</tr>
<tr>
<td><strong>2.4.6.5</strong></td>
<td>Customized Software</td>
<td>95</td>
</tr>
<tr>
<td><strong>2.5</strong></td>
<td>Business Ready Technology: Video Conferencing</td>
<td>95</td>
</tr>
<tr>
<td><strong>2.6</strong></td>
<td>Tools for Collaboration</td>
<td>98</td>
</tr>
<tr>
<td><strong>2.6.1</strong></td>
<td>Company Blogs</td>
<td>101</td>
</tr>
<tr>
<td><strong>2.6.2</strong></td>
<td>Social Networking Sites</td>
<td>103</td>
</tr>
<tr>
<td><strong>2.6.3</strong></td>
<td>Internet</td>
<td>105</td>
</tr>
<tr>
<td><strong>2.6.4</strong></td>
<td>Instant Messaging Tools</td>
<td>107</td>
</tr>
<tr>
<td><strong>2.6.5</strong></td>
<td>Google Apps for Work</td>
<td>107</td>
</tr>
<tr>
<td><strong>2.7</strong></td>
<td>Company Website</td>
<td>109</td>
</tr>
<tr>
<td><strong>2.8</strong></td>
<td>Auxiliary Technologies for Communication</td>
<td>110</td>
</tr>
<tr>
<td><strong>2.9</strong></td>
<td>Summary</td>
<td>111</td>
</tr>
</tbody>
</table>
2.1 Introduction

Technology has become one of the inevitable components of the business world in recent times. It has come to have an ever-increasing presence in the work place. More and more businesses, large and small, are trying to incorporate the latest technology into their operations. Technology plays a pivotal role in various functions of an organization. Among these functions, communication serves as the link among people both inside and outside the organization. Technology is completely revolutionizing the way organizations communicate. We now transmit and exchange information by e-mail, fax, and voice mail. We can use teleconferencing and video conferencing for conducting meetings with our associates around the world. Executives rarely make a presentation without using presentation software. Above all, we now extensively use the Internet for collecting information, Analyzing information, serving customers, and promoting products and services.

Of the new machines to enter the office, the computer is the most important. Businesses use it for accounting, storing records, research, and planning. The computer is also a component of almost all the communications advances that involve preparing and distributing memos, letters, proposals, and reports through internal and external networks. Managers can use the computer’s capabilities in nearly every business activity. There is various technology-based communication tools used in organizations for acquiring, transmitting, and processing information. It has the positive impact on the organizational environment and on individuals.
Whether word processing, page layout and graphic design, electronic mail (email), electronic conferencing, Internet-based services, audio or video conferencing, or multimedia presentations, the technology we use to communicate—information technology—has changed radically over the past few years.

These changes, especially since the advent of the computer, have altered the way we think about communication, and we have yet to see the end of these changes. The ways in which information (computer) technologies and other communication technologies, such as enhanced telephone services, and mobile technology are becoming increasingly interdependent is typically referred to as digital convergence or technological convergence. Cell phones help ensure that one can communicate from virtually anywhere to virtually anywhere else at any time, and email has recently become the principal means of exchanging written communication. As the volume of communication increases, the chance of information overload also increases, which reduces the impact of individual messages.

2.2 Positive Impact of Technology-Enabled Communication

We live in an increasingly interconnected world. We are more mobile than the previous generation – and that mobility is extending to our data. Processed data are routed from the factory floor to the boardroom. A technician can access wireless sensors in remote locations to see what is happening; an engineer can troubleshoot an automation problem in factory while sitting at his/her PC in the office. Technology has tremendously changed the way businesses operate. Phenomenal advancements in computer technology have enabled small as well as huge organizations to communicate more closely and frequently.
within an outside. In today’s technology-driven world, organizations that do not embrace technology may not be able to survive. Of course, there are many organizations in our nation that still follow the traditional way of communicating, not because they do not realize the importance of technology but because they may not have adequate resources to establish the technology-oriented communication networks. Given the resources, every organization would wish to own the new technologies as they have the following advantages:

- Distance is no longer a major barrier. The importance of personal contact between people has been replaced with face-to-face communication. Communication across the country, or even around the world, has become as easy as communication with the office down the hall.

- The organizational structure has become more streamlined as managers have increased direct contact with subordinates. Since this also means fewer transfer stations (people who pass messages on), the organization itself is more flattened.

- More people in an organization have access to more information. This reduces the ‘information float’ – the rate of information flow – and tends to change the traditional role of managers as primary information sources.

- The time required to make decisions has decreased because managers have access to increased information resources. The time taken to consider decisions, though, has also decreased because of increased pressure to act quickly.

- The timelines and quality of information are increasingly important as more people have access to more sources of information. The difficulty is that more information does not necessarily mean better information.
- The implementation of projects, particularly those depending on communication or involving scheduling time, has been enhanced.

- Teamwork in organizations has increased. More people, with a broader range of skills, can provide inputs on projects. In fact, many newer organizational charts are designed around computer links.

- Finally, as technology increases in scope, managers are required to learn more about the communication process at all levels.

2.3 Changing process of Electronic /online communication

The digital age arrives with a set of big communication challenges for traditional mainstream media: new relations with audiences (Interactivity), new languages (Multimedia) and a new grammar (Hypertext). But this media revolution not only changes the communication landscape for the usual players, most importantly, it opens the mass communication system to a wide range of new players. As far as enterprises, institutions, administrations, organizations, groups, families and individuals starts their own web presence, they become "media" by their own, they also become "sources" for traditional media.

Ten paradigms of this new scenario are proposed, and the term eCommunication is coined to describe it in a single word. The global process could be understood as a big shift from the classical mass media models to the new media paradigms: the user becomes the axis of communication process; the content is the identity of media, multimedia is the new language, real time is the only time, hypertext is the grammar, and knowledge is the new name of information.
The 10 Paradigms of eCommunication

The formulation of this set of ten theoretical models in terms of "switching", should not be understood as if the old model is replaced with the new one, because as a matter of fact, both sets of models are, and will be, coexisting.

Paradigm I: from audience to user

The passive unidirectional way of communication is replaced by the concept of active user seeking for content, exploring and navigating info-spaces. Users become also content producers in many web environments, mainly the blogosphere. The communication process in the eCommunication scenario is user centered: users have the control to choose, to decide, to search, to define and configure, to subscribe or unsubscribe, and to comment and, most important: to write, and talk.

Paradigm II: from media to content

The focus shift from the traditional constrains like (press, radio, television) to content authority in order to define media. This particular focus on content rather than in the technical process of communication is one of the reasons of the popularization of blogs as an easy way for a wide dissemination of content. Experts from all the disciplines found in blogging a practical tool to communicate findings, share sources and conduct research, find and help colleagues.

Paradigm III: from mono-media to multimedia

Text, audio, video, graphics, photos and animation could be use together on a single (digital) media for this first time. This is the reason why media distinctions related to use of language (textual, audiovisual) tend to be erased. Once you are online you are multimedia.

Paradigm IV: from periodicity to real time
Regular frequency was a strong paradigm of the old scenario to the point that many media were defined in relation to its time constrains (daily, weekly, and monthly). Online media assume that they have to be real time updated to survive in the new environment and this live paradigm can be found at mobile.

Paradigm V: from scarcity to abundance

Space of the media platform ceased to be the limit to content and now time of the user is the only limited resource. Aggregators and readers also help the users in managing their time.

Paradigm VI: from editor-mediated to non-mediated

Worldwide publishing without editors, but with a close peer review daily process and in most cases open to comments from readers is the nature of web and weblog publishing. Variety of new sources including web portals, mailing lists, e-bulletins, search engines, news groups, forum and weblogs with their respective feeds are available.

Paradigm VII: from distribution to access

The broadcasting of one to many unilateral distributions is replaced by both: many to one access and many to many communication. The access is complementary with the user centered paradigm and both explain the strong interactive nature of the new environment.

Paradigm VIII: from one way to interactivity

In the new environment the user has the ability to choose between content options and to define the time for access, but interactivity also means the capacity to change the aspect of the content, to produce content for a system and to communicate with other users. The first level of interactivity has to do with the possibility for the user to choose the format of information display (browser and navigation interface configuration).
The second level of interactivity is the possibility for the user to produce input for a system. This contribution could be co-authoring, writing comments, answering pools and tests, posting news, and so on.

The third level of interactivity has to do with the possibility for the user to communicate with other users of the system in real or delay time.

**Paradigm IX: from linear to hypertext**

From linear temporal media we are shifting to non-linear spatial content. Web sites and blogs are spaces to visit. Virtual spaces where users perform activities: they meet each other, learn, gather and share news and opinions, do shopping and gaming, entertain and create.

**Paradigm X: from data to knowledge**

The blogging ecosystem reveals the crucial role of human knowledge to identify, comment, link and discuss the data available online, turning it into valuable and usable knowledge.

Personal evaluation of sites, resources, tools, news, opinions, campaigns, coverage, and initiatives are the ways by which bloggers transform data into knowledge. The blogosphere is a global meritocratic community, with its own hierarchies, rankings and codes, performing a multilateral transnational conversation, generating a sort of peer reviewed content, widely and speedily disseminated and thus becoming one of the most important knowledge factory nowadays.

### 2.4 Tools for Communication Management

Technological tools for constructing messages can be associated with the different stages of communication process: planning, gathering and collecting information, analysing and
organizing information, and writing and rewriting. In the past, many of these tools were
discrete tools. But today, as we move towards greater integration, they often work
seamlessly with each other. The more skilled one becomes with these tools the better they
serve.

2.4.1 Tools for Planning:

Whether we are writing a short message or a long report, technology helps plan both,
document and writing the project. In planning the content of the document, outlining or
brainstorming tools are useful. These tools are available with word processing
applications. Another discrete or specialty tool for planning is a concept – mapping / idea
– generation program. Such program inspiration provide visual and outlining mode which
allows the users to toggle back and forth with particular tasks. One can also use these
tools in personal computers and phones.

Time management is one of the major challenges for management people. By using
personal information management (PIM) tools like planner and reminder, one can plan
time for completing the project. These time – management tools are essentially annotated
electronic calendars. They are excellent planning tools for scheduling tasks.

Some research identifies planning as the primary step that separates good managers from
others. Using powerful features like project management and PIM tools provide the
potential to produce high – quality work in timely fashion.

2.4.2 Tools for Gathering and Collecting information:

Gathering facts or data is one of the most important jobs of a manager as it helps make
sound decisions. Today, manager needs to combine manual search for facts with
The technology can help to find a variety of information quickly and accurately because today much of our published information is available electronically.

- Data can be gathered from internal or external sources. Internet is an ideal source for database.
- Database tools provide a convenient way to collect information. Currently one can use technology such as Google to push the kind of information needed on desktop. By completing a profile on a content provider’s website, we can create a filter so the kind of information pushed to desktop is the kind of information required.
- Various *Database tools* help to store the gathered information at right place.

Variations of the generic database are specialty tools such as EndNotes, ProCite, Reference Manager, RefWorks and others. They allow entering information automatically to download from a wide variety of online databases.

### 2.4.3 Tools for Analysing and organizing information:

Three tools that are good for analysing and organizing are statistics, graphics and spreadsheets. Today, some very sophisticated statistical programs like SPSS have been made user friendly allowing computer expertise to use them easily. Some programs, looking to the nature of data, recommend which kind of statistical tests to be used.

Most spreadsheet program like MS Excel computes a broad range of statistics to give interpretation to data. *Graphics program* help in several ways. Graphics reveal trends and relationships in data that are often hard to gather from raw data. This helps understand clearly the meaning of the data.
2.4.4 Tools for Writing and rewriting:

Today’s word processing applications allow other writing tools to be used such as ready-to-use templates, spelling checks, electronic treasurers, grammar, electronic references, graphics, drawing packages, voice recognition tools, and information rights management. Thus, technology helps capture, manipulate, edit and revise messages.

2.4.5 Tools for Message Transmission (Oral)

Specific tools that can be used for communication include telephones, Computers, Mobile Phones, Facsimile, and Web Camera etc. The lines between the devices are blurring. For example, a smart phone can now contain all the functions of a PDA and also access e-mail and the Internet. For this discussion, however, each device will be presented as a separate entity.

Transmitting means sending message. The medium which we choose to transmit a message communicates to the receiver the importance we attach to the message. Usually a written message gets more attention than an oral message and a special delivery or urgent message gets more attention than an ordinary message. Even the method of delivery chosen conveys a message. The client who electronically sends document is perceived differently from the client who sends it on paper.

2.4.5.1 Telephone and Voice Mail

There are many types of telephones and only you can decide which type(s) or combinations of types are appropriate. Even the standard telephone that is installed in the office has many options. The wireless telephone is becoming a requirement. With a wireless telephone, missing calls can be avoided. The features needed for this type of
telephone depend entirely on business needs. One can get the model that can receive e-mail, media, Internet, store contacts, maintain calendar, and allow to play interactive games.

There are many features on standard and wireless phones, such as call waiting, call forwarding, conferencing capabilities, and voice mail. Competition has created options that provide popular features and usage patterns, making them very cost effective.

The telephone manages contacts those who may be difficult to reach in person. It can even help get through to busy people who are nearby. Office hermits who barricade themselves behind closed doors will often drop everything when the telephone rings – or at least answer it grudgingly. A telephone conversation does lack the visual feedback that often reveals how your message is getting across, although vocal cues – tone, pauses, interruptions, pitch, and rate – can give you a good idea of the other person’s reaction to your message.

Real-time communication is not the only type of telephone communication. Voice mail is a high-tech version of the answering machine. Many communicators hate voice mail, often with justification. Some voice mail menus and sub-menus can take forever, and ‘clever’ greetings can be annoying. But voice mail does have its advantages. It allows to leave a message at any time of the day or night. One can be confident that the recipient will actually receive the message in your voice, just as you spoke it, without the omissions and distortions that come when an intermediary transcribes your message.

Another widely used oral communication technology is the Voice Messaging System. Not only these systems answers phones, direct calls, and take messages, but also act as voice storage systems. Using this system one can retrieve the message from a particular person on a particular date. One can also take message, annotate it with his own voice
message and pass it to another person’s voice mailbox at a specified time. By eliminating telephone tag and interruptions, this technology too improves the productivity of those who use it.

2.4.5.2 Mobile/Smart phones / Tablets

Technologies for sending a variety of oral and visual messages are widely used in business and management. One such booming technology for oral communication is the **Mobile Phone**. A considerable and a quantum leap have been observed in the Mobile phone technology recently. With a phone that fits into palm of the hand, business people can now be reached for important calls and conduct business from otherwise inaccessible places. It also enables businesspeople to make more productive use of their time.

No matter what type of business, it is almost certain that telephonic communication plays a vital role in communication with customers and business partners. The mobile phone has become a part of everyday life for millions of people across the world. People now consider the ability to communicate by phone across the country (and even the world) as ordinary. Despite this fact, many businesses are still missing out on the huge potential benefits of using mobiles phones as a part of their business.

2.4.5.3 Advantages of Mobile Phones

- **Accessibility**

  The biggest advantage of having a business mobile phone is that it becomes much easier to contact anyone. Being available by mobile phone allows customers and employees to contact manager. In the event of a critical problem, it can be communicated to the manager and a decision taken, without him being present in the office.
• **Commonness**

Mobile phones are now so common that many people expect to have one. If a particular job takes manager out of the office for considerable amounts of time, people will then expect to have another number at which he can be contacted.

• **Time**

A mobile phone gives more time to communicate. An important conversation can take place anywhere in transit, which puts fewer restrictions on time. A mobile phone allows getting those hours back which are lost in travelling etc. This means manager can get through necessary phone calls quicker, and can provide better response times to customer or associate enquiries.

• **Details**

A mobile phone allows confirming and checking details quickly. If on the way to an important meeting manager realized that he had forgotten a piece of vital information, with one call or text message on a mobile phone he could get that information right up to the last minute without anybody else ever knowing.

• **Bookings and appointments**

Using a mobile phone has two advantages in the process of making and keeping bookings and appointments. Firstly, the ability to allow instant checking of appointments so that manager can communicate with an employee, or with the person he intends to meet at any time to confirm, clarify, or alter meeting details (e.g. location, time).

• **Redirection and answer services**

A mobile phone can act as a good extension of a land phone. Callers to land phone can be forwarded almost instantly to mobile number if person is not there.
For an extra cost, mobile phones can be used as part of an existing switchboard. This allows callers to be put straight through to receiver from the office switchboard or reception without the inconvenience of dialing two numbers.

- **Dual lines / Dual Sim**
  One of the main concerns about giving employees mobile phones is that they will use them for personal calls and run up massive bills. However, banning personal use of the phones altogether can create a negative attitude, and show a lack of trust towards employees.

  One solution is to use a dual line. Some network operators allow business to run mobile phones with two lines, one for business use and one for personal use. Employees can use the phone for personal calls, but pay for those calls themselves. This has two advantages. The employee does not feel mistrusted, and can make personal calls when necessary; and the employers can be sure that they will not be paying excessive bills for non-business calls.

- **International**
  Most new phones are able to work in a number of countries, which means that even when manager is abroad on business trips he can still be instantly accessible. However, the only problem with this is the huge costs.

- **Teleconference**
  All telephone conferencing networks have a time-lapse framework called store-and-forward. This feature is useful if conference members need to be absent when a call is made. With it, messages are recorded for replay in the same way as on a telephone answering machine. As a result, receivers can review them and respond when it is convenient. The advantage of the store-and-forward feature
lies in the freedom it gives to the receivers, allowing them to decide when to communicate.

Latest mobile / smart phones have facility for Internet connection which makes it more useful. Number of business purposes is served by using Internet through Tablets or Smart phone devices. There are numerous ways to explore how they help us serve customers in better way. There are several products from Apple, BlackBerry, Samsung or any of other service providers, access to the Internet through these devices, and innumerable applications or “apps” govern the business world. Today, we use apps that give us access to paperless documents in the office, provide explanation of business procedures through a quick research, taking a quick note or to jot down a new idea, to draft memo.

With the help of these devices one can take a print from anywhere to shared printers through Internet, scan a document, read a document, read books, publications, news alerts, email, and get information from almost any standard source. Apps like Google Opera make it possible to listen to and see news feeds, video conferences, record video, take and view pictures, and access multimedia content from internet sources. In spite of there being some limitations, most of the users now agree that these tools have given a kind of mobility to them.

Devices that facilitate the mobile Internet, whether phones or tablets, are used for gathering lot of information. Though they are not very sophisticated and efficient data-entry devices, they are good to carry our routine tasks. Sitting at home, during a commute, in the transit time, at a client’s office or in a meeting with access to these tools one can be very conveniently available.
2.4.5.4 Smart Phone Apps for Small Business

With apps such as Instagram, Google Apps, WhatsApp, and many more mobile applications have changed consumer behavior by simplifying tasks, providing instant information, and has pushed the boundaries of sharing.

In step with consumer-facing apps, the small businesses landscape has also changed. Now, running a small business from is no longer a stretch, but a reality. In fact, 85% of Americans are running their small business from their iPhone or Android phone today, a number that has nearly doubled in the last 5 years.

A small business owner can now access some very important information on the way to the office. With the smart phone now businessman have visibility into company’s finances, access to important documents, communicating internally or externally, and the ability to track customer support cases.

With that, there are thousands of small business apps in the marketplace. Here is a brief introduction of a few small business apps that can help small business moving, even when the owner is on the move.

Roughly a third of American small business owners use smart phones to manage their companies, performing tasks such as banking and customer relationship management.
A. Financial Management

Money management is routinely listed a primary challenge to small business people across the globe. New phone and Android tools can make handling day-to-day finances a spontaneous. Few finance management apps for smart phone are:

1. Quickbook:
   a. Allows to handle a variety of financial tasks.
   b. Records sales in a streamlined effective manageable manner and
   c. Create and email estimates or quotations to clients.

   It runs on iPhones and Android phones.

2. Mint.com: is compatible for iPhone, Android phones and Android tablets:
   a. View balances and transactions in one location.
   b. It automatically updates and sorts all financial information
   c. At present 10 million people use it
   d. It uses 128 bit SSL encryption method which is same used by major banks.

   Hence it eliminates the apprehensions of security and privacy issues.

3. Office Time:

   It is compatible to iPhone, Android, Windows and Mac as well.
   a. It allows easily and effectively manage both company’s time and finance.
   b. It has in-built time sheet, spreadsheets, projects etc.
B. File Storage

The days of storing business documents on external hard drive or giant servers are coming to an end. New smart phone apps make managing company’s important files simpler than ever before.

1. BOX: it is available for iPhone, iPad, Android devices, Windows phones and many other platforms.
   a. It stores all of company’s data online.
   b. It access information from any where and manages permissions so employees can also use it.
   c. Uses the search function to quickly and easily find files no matter how much data is stored.
   d. It also suggests favourite files for online access

2. Drop Box: Drop box is more popular and widely used tool for storage.
   a. Manages all company’s important photos, documents and videos.
   b. Can invite anyone to view and edit the uploads and saving files on drop box means saving it on computer, phone, and other devices which can be accessible at larger stage.

C. Document Editing:

Document editing programs are a must have for small business. Without them sharing any sort of documents efficiently is next to impossible.

1. Evernote:
a. It syncs to the cloud, allowing business to share almost anything between any number of devices and users.

b. All of company’s documents, saved web pages and shared content can be organised into folders as needed.

c. It facilitates mini mail list design.

d. With this app light weight web Clipper, snapshots can be taken and audio files can be saved and shared them with as many or few employees as needed.

Evenote is available for Androids, iPhone, BlackBerry and Windows platform.

2. Documents to Go: this tool is compatible of Mac, Windows, iPhone, iPad and Android devices.

a. It allows to fully integrate Microsoft office and PDF files all on smartphone.

b. It promises 100% format retention across platforms, meaning spreadsheets with similar view on laptop.

c. This 100% retention is due to a ground breaking piece of smart phone code called ‘Intact Technology’ which searches formatting regardless of platforms.

D. Communication

In today’s ever advancing technological landscape, sending e-mails is not just enough. There are number of apps available to help guide the way towards more efficient and effective communication.
1. Skype: based on VOIP technology – this app is available on iPhone, Android devices, Nokia, BlackBerry and many other devices.
   a. It sends and receives voice or video calls, chat via a simple instant messaging function, and organize all contacts in one convenient location.
   b. Skype to Go number offer discounted rates on international calls, the ability no to have to download or install anything to enjoy skype services and the option to call abroad when away from computer.

2. WEBEX:
   a. It helps to schedule, attend and host meeting with anyone in the world.
   b. It shares files and information and collaborate
   c. It passes collaborated files to someone else present in the meeting with the swipe of a finger.
   d. It shares files between smartphones and office computers no matter what distance is.

**E. Customer Support**

Research shows that 81% of consumer agree that small business deliver better customer support than their larger corporate counterparts. With the help of smartphone apps small business can increase the percentage to maximize the service potential.

1. Desk.com: runs on iPhone, Android Phones, or any other smartphone that uses HTML 5 browser.
   a. It views all the customers in the place.
b. Allows to communicate with customers across the variety of platforms including social networks, phone, e-mail, chat rooms and discussion boards.

c. It tracks response and reassign customer services cases while on travelling.

d. It gets real time alerts of customer support cases.

e. When customer visit online support system, via a smart phone desk.com automatically delivers them smart phone friendly content.

f. It provide 24/7 assistance to customer searching for answers to their pressing questions and

g. All customer support data is stored safely and securely in the cloud.

F. Money Transaction

Worldwide mobile transaction reached $171.5 billion in 2012. Savvy small business owners are taking advantages of this boom by implementing exciting new apps in the business practices.

1. Square:

   a. It comes with free card reader that plugs directly into smart phone.

   b. It allows to accept credit card transactions from anywhere

   c. All funds deposited in bank account on the same business day following the transaction.

   d. Customers can add tips, sign receipts and receive electronic receipts via e-mail or text.

Square card reader runs on iPhone, and Android devices.
2. Google Wallet:
   a. It allows to store all credit card and debit card information on phones and computer.
   b. One can pay for purchases with device instead of cards.
   c. This information is also used to deliver promotional offers in store or online.
   d. This app requires Android version.

2.4.6 Tools for Message Transmission (Written)

Written Communication, on the other hand, can be transmitted effectively with proven technologies such as facsimile, email, text messaging and instant messaging, blogs and websites. Facsimile transmission uses telephone line and internet connections to send a message. Email transmissions work with a variety of sending devices. This is the most common and widely used transmission tool today. Written communication can also be transmitted through Instant Messaging. It is mostly used for informal and social communication rather than business communication. However sectors like BPO use this tool for live and instant messaging. Businesses now also have their blogospheres where the interaction among customers goes on. Website too, has become an inevitable tool to convey several things to their audience. It allows multimedia messages to be transmitted.

2.4.6.1 Faxes

A facsimile machine scans a printed page, converts it into a signal, and transmits the signal over a telephone line to a receiving fax machine. Although faxes have been available for many years, until recently they were slow and expensive. Fax can be used
when the message must cross time zones or international boundaries, when a written record is significant, or when speed is important.

2.4.6.2 Computers

A computer is such an affordable tool that it is no longer be considered an option for the business. The following discussion will focus on two basic models of the computer – desktop and laptop – and the software that make them work.

2.4.6.3 Desktop

This is the most common type of computer, one that is set up to operate in your office. This computer system includes a basic processing unit, a monitor/flat-panel, a modem/Ethernet card, a CD/DVD drive, USB ports, and a printer. For doing basic word processing, e-mail, accounting, and spreadsheet work desktop computers are very useful.

2.4.6.4 Laptop/notebook

A laptop computer is portable. A single unit contains, a combination of the capabilities mentioned for the desktop. It usually does not include a printer. Laptops are useful when one needs to travel and left with the work like computing and making presentations etc. It also allows Internet access in number of areas through broadband dongle or hotspot.

2.4.6.5 Customized Software

Software like MS Word processing, Excel spreadsheets, and PowerPoint presentations are of great help in carrying out day-to-day business activities. Additionally, financial and accounting software that is appropriate for particular business can also facilitate.

2.5 Business-ready Technology – Video Conferencing

Video conferencing started as a plaything of big business houses. Its importance as a value add-on is now being realized by medium-sized Indian businesses and export
Advances in computer technology, such as faster processors and better data compression algorithms, enabled the integration of audio and video data into the computing environment. Today, video conferencing can be achieved by adding software and relatively inexpensive hardware to standard desktop computers. Such systems also have the ability to easily incorporate data from other desktop computer applications into the conference. The growth of network technology and the Internet in particular, has led to a greater awareness of the potential of conferencing systems for business collaborative work. Video conferencing is one example of a synchronous conferencing system that takes place in real time between individuals or groups who are usually separated geographically. Asynchronous conferencing systems, such as bulletin boards, do not require participants to be connected at the same time.

More than corporate awakening, price reductions and technological improvements are helping disseminate the technology. First, standards have been agreed to which enable video conferencing systems to ‘talk to each other’. Add to that user-friendliness and segmentation of the systems. Most organizations benefit from a mix of desktop, group, and compact systems. Key people get desktop systems in their offices; conference rooms get group systems for shared use; and compact systems fill in wherever they are needed. Second, Integrated Services Digital Network (ISDN) has become more widely available. Third, video conferencing technologies have managed to compress the amount of bandwidth required for video and enable acceptable quality bandwidth at lower bandwidths. Video conferencing cuts costs and raises productivity. It has other applications also like:
Managing a global company

Video conferencing helps large multinationals operate in truly worldwide environments; it facilitates communications between individual sites, groups, and divisions.

Facilitating new working practices

Video and data conferencing enable virtual team working. Geographically dispersed peer groups, such as engineers or product designers, can be brought together at short notice.

Access to remote expertise

Faults in manufacturing facilities can be quickly identified and fixed.

Increased competitive advantage

Video conferencing helps achieve faster time to market and ‘steal a march’ on the competition.

Supply chain management

It fosters effective working relationships among partner companies, suppliers, and customers. Phone systems are being used to send video emails as well as to conduct real time video messaging. Video conferencing is useful whenever there is a clear communication need, and the benefits described by those using video conferencing systems include:

- Reduced travel costs
- Face-to-face rather than telephone meetings
- Better quality teaching
- Easier collaborative working

Technology gives us option of adding audio and video to our written messages. The sounds can be words dictated and attached to a document or they can be sounds from
other sources such as clip libraries. Sounds can be used to add interests, emphasis and clarity to a document. Video can also be added to an email. With **Digital Convergence** we see a tremendous growth in the use of compound document.

### 2.6 Tools for Collaboration:

Apart from one to one and one-to-many, there arises a need for group communication in the modern business management. A range of tools and software are available for groups to facilitate collaborative message transmission. Computer–supported collaborative communication has two classifications: synchronous and asynchronous tools. Asynchronous tools are used for different time / different place collaboration. Word processing applications, discussion Boards and emails are tools for asynchronous collaboration. Synchronous tools are used for same time / any place collaboration. For instance, Electronic meeting systems (EMS) can be used for it.

Among business communities there is a general belief that the more a business firm is "collaborative," the more successful it will be. Nearly all writers agree that collaboration is now more required within and between firms than was true in the past (for reasons outlined below).

**Table 2.1** summarizes some of the **Benefits of Collaboration** identified by some writers and scholars.

**Table 2.1 Benefits of Collaboration**

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity</td>
<td>People working together can complete a complex task faster than the same number of people working in isolation from one another; there will be fewer errors.</td>
</tr>
</tbody>
</table>
People who work collaboratively can communicate errors, and take corrective actions faster, when they work together than if they worked in isolation. Reduction in buffers and time delay among production units.

People working collaboratively in groups can come up with more innovative ideas for products, services, and administration than the same number working in isolation from one another. Advantages to diversity and the "wisdom of crowds."

People working together in teams can solve customer complaints and issues faster and more effectively than if they were working in isolation from one another.

As a result of all of the above, collaborative firms have superior financial performance.


<table>
<thead>
<tr>
<th>No.</th>
<th>CATEGORIES OF COLLABORATIVE SOFTWARE TOOLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Collaborative writing</td>
</tr>
<tr>
<td>2</td>
<td>Collaborative reviewing</td>
</tr>
<tr>
<td>3</td>
<td>Event scheduling</td>
</tr>
<tr>
<td>4</td>
<td>Instant messaging</td>
</tr>
<tr>
<td>5</td>
<td>VoIP audio conferencing</td>
</tr>
<tr>
<td>6</td>
<td>Screen sharing</td>
</tr>
<tr>
<td>7</td>
<td>Video conferencing</td>
</tr>
<tr>
<td>8</td>
<td>White boarding</td>
</tr>
<tr>
<td>9</td>
<td>Web presenting</td>
</tr>
<tr>
<td>10</td>
<td>Work grouping</td>
</tr>
<tr>
<td>11</td>
<td>Document sharing (including wikis)</td>
</tr>
<tr>
<td>12</td>
<td>File sharing</td>
</tr>
<tr>
<td>13</td>
<td>Mind mapping</td>
</tr>
<tr>
<td>14</td>
<td>Large audience Webinars</td>
</tr>
<tr>
<td>15</td>
<td>Co-browsing</td>
</tr>
</tbody>
</table>

Source: mindmeister.com, 2009
The entire map of over 150 collaboration tools is too large to reproduce here, but it is available at http://www.mindmeister.com/maps/show_public/12213323. Some of the high-end tools like IBM's Lotus Notes are expensive, but powerful enough for global firms. Others are available online for free (often with premium versions for a modest fee) and are suitable for small businesses. For example, one of the most widely used "free" online services is Google Apps/Google Sites. Google Sites is a tool that allows users to quickly and easily design group-editable Web sites. Google Sites is one part of the larger Google Apps suite of tools. Google Sites users can put up Web sites in minutes and can, without any advanced technical skills, post a variety of files including calendars, text, spreadsheets, and videos for private, group, or public viewing and editing.

### Table 2.3 Collaboration Challenges and Generic Solutions

<table>
<thead>
<tr>
<th>SCENARIO</th>
<th>SOLUTION TYPES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same time/same place</td>
<td>Face to face meetings; decision rooms; whiteboards; tele-presence</td>
</tr>
<tr>
<td>Same time/different place</td>
<td>Remote interactions; video conferencing; IM and Twitter; tele presence</td>
</tr>
<tr>
<td>Different time/same place</td>
<td>Continuous tasks, digital team rooms; project management; asynchronous communication</td>
</tr>
<tr>
<td>Different time/different place</td>
<td>Asynchronous communication and coordination; workflow; project management tools; blogs; wikis</td>
</tr>
</tbody>
</table>

*Source: David Heise. Chapter 2 Learning Track: Global E business and Collaboration - 2012-2014 Ebookily.org*

One of the difficulties of obtaining solid empirical evidence of these contributions involves the difficulties in measuring "extent of collaboration." One empirical study sponsored by **Verizon Business and Microsoft** created a collaboration index to measure the impact of communications culture, and deployment of collaborative technologies.
That study concluded that "collaboration is a key driver of overall performance of companies around the world. Its impact is twice as significant as a company's aggressiveness in pursuing new market opportunities (strategic orientation) and five times as significant as the external market environment (market turbulence)... The results show that collaboration can positively impact each of the gold standards of performance - profitability, profit growth and sales growth - to determine a company's overall performance in the marketplace," according to Dr. Jaclyn Kostner, best-selling author, and expert on high-performance virtual collaboration. "As a general rule, global companies that collaborate better, perform better. Those that collaborate less, do not perform as well. It's just that simple."

A more rigorous empirical analysis of the diffusion of information in a single corporation found that social networks -- the foundation of collaboration -- were exceptionally powerful in moving news information up and down the hierarchy of a firm, while discussions of topics were advanced among peers at that same level in an organization. The overall economic benefit of collaboration was significant: for every word seen by an employee in emails from others, $70 of additional revenue was generated

2.6.1 Company Blogs

Recently, the most popular collaborative tool used for communicating with larger mass is blog. It is a personal diary open to public and a daily pulpit, a collaborative space, a collection of links. It shows one’s own private thoughts and memos to the world.

In simple terms, a blog is a web site, where one can write stuff on an ongoing basis. New stuff shows up at the top, so visitors can read what's new. Then they comment on it or link to it or email. Since Blogger was launched, blogs have reshaped the web, impacted
politics, shaken up journalism, and enabled millions of people to have a voice and connect with others. Many people use a blog just to organize their own thoughts, while others command influential, worldwide audiences of thousands.

The blogging experience is about not only putting thoughts on the web, but hearing back from and connecting with other like-minded people. Blogger Comments let customers from all over the world give feedback on what is shared on blog. Group blogs can be excellent communication tools for small teams, firms, or other groups. More of the multi-brand online stores have their blogs for customers to gather on one platform and discuss their buying experience. Product endorsement and Customer queries can be addresses very finely on blog.

Reports say that around 35% of customers are influenced by comments and reviews on blog and that governs their buying decisions. Promotional e mails can be sent along with a link to company or product blogpage. Lot of blogspots provide free and enough space to introduce the products discuss the performance of the product and comment and reply customer reviews. Few examples of free blog are:

www.blogspot.com, www.wordpress.com, www.firstsmallbusiness.com and many more. Consumer testimonials which are very important these days can be handled more effectively through blogs. Smartly handled discussion thread can help attract new customers. Studies show that customers prefer local products if they have online existence. In such case, blog and other social media help in maintaining social reputation which is crucial part of any business. Negative online reviews by customers may prove to be detrimental even for established brands. Few negative comments to small businesses are fatal. In such case, social media is a great rescue for staying in constant touch with all
stakeholders. Even blending e-newsletter with blog and emails is a good way of showing company’s performance. Social media also connects business with other similar businesses in the industry. This helps gain competitive edge and expand market.

2.6.2 Social Networking Sites:

Like blogging, this is too informal way of communicating with large groups on internet. Several groups of similar interests and profession are connected with this tool. A social network is a social structure made of individuals or organizations that are tied together by common interests, often like a community. Internet-based social networking occurs through a variety of websites that allow users to share content and interact around similar interests. It has expanded to include a company's customers, celebrity's fans and a politician's constituents. This has created a great opportunity for businesses to generate interaction with present and potential customers through Web-based sites established for that purpose. To be successful one requires a steady effort and participation over time. With an ongoing commitment of effort a niche market can be created through sites such as LinkedIn, Facebook and Twitter.

Social Media: Facebook, Twitter, LinkedIn and YouTube

Small businesses can use Facebook – a free tool at its fullest. For that they only need to be little attentive, creative and strategic, of course to be enthusiastic is the most important factor. A lot can be done through Facebook like regularly posting images and graphics related to products. Visuals are the most successful way to spread through social media. Sensing what reviews are discussed and most important is always responding ‘faithful followers’. Keeping a particular goal in mind, having unique strategy and interacting
daily, controlling the discussion thread Facebook help to keep an eye on what competitors are doing. Engaging employees on Facebook rather than restricting has proved more effective to create brand awareness.

**Twitter** has different mechanism to follow. It is a best tool to create identify and then preserving the followers. It an ideal tool for customer relationship management. But then an eye needs to be kept on tweets as it is equally strong enough to damage the image if the tweets are not handled effectively. Twitter has examples to ‘stand out’ and voice against wrong doings.

Once started with creating professional network, today **LinkedIn** has expanded beyond mere networking people. Due to its vast network LinkedIn profile page has become ‘business card’. Due to same reason it help explore new contacts and expand business. It also helps find people doing similar business, interact with them and learn key marketing strategies. Apart from reaching out a large audience it has helped to connect local groups as well. Research carried out in US says that more than 85% customers were influenced by recommendations shared on LinkedIn. Positive product endorsement has influenced around 88% buying decisions on Amazon. (Source: Dimension Research Report 2014). Similar endorsement can be useful for local business expansion and reputation management.

**YouTube** has untapped potentials to promote business and market products. More than one billion users every month, over 6 billion hours of videos watched every month and 80% viewers being mobile uses. (Source: YouTube TJ McCue. March 2014). YouTube contains in its silo huge potential audio visual resources where videos are for marketing, training, enhance CRM, Create demonstrations and models, Presentations etc. Videos are
the most preferred tool to create awareness on business. With videos uploaded on YouTube products and working models can be demonstrated. (Figure 2.1)

**Figure 2.1 Use of Social Media for small Businesses**

![Use vs. Usefulness](image)

<table>
<thead>
<tr>
<th>Social Media Tool</th>
<th>Which of the following social media tools does your firm use regularly?</th>
<th>Which has the most potential?</th>
</tr>
</thead>
<tbody>
<tr>
<td>LinkedIn</td>
<td>30%</td>
<td>41%</td>
</tr>
<tr>
<td>Facebook</td>
<td>22</td>
<td>14</td>
</tr>
<tr>
<td>Twitter</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>YouTube</td>
<td>13</td>
<td>16</td>
</tr>
<tr>
<td>Google+</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Pinterest</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Others/None</td>
<td>11</td>
<td>20</td>
</tr>
</tbody>
</table>

Source: WJS/Vistage Small Business CEO Survey, January 2013

Figure 2.1 shows how which social media tool has the greatest potential to promote their business. LinkedIn leads with highest potential while Google+, Pinterest and others are still gaining momentum.

**2.6.3 Internet**

Information technology has transformed the way companies do their business. Technology facilitates businesses to automate manual operations and process information much faster. While business technology often is used through Desktop computers, server storage and sales counter or cash register systems, another major technological advancement is the Internet, which has created new communication forms and other business methods that companies use for processing financial and business information. The Internet has become a very important business tool. It can be used at a basic level
for e-mail and for research and it can be used at a more comprehensive level as a channel for selling products and services.

**There are several reasons to use Internet for Business.** What Dr. Bill Pierce and Dr. Don Altman suggested in the year 1994 has got still the same relevance for today’s business.

- It helps business reach a worldwide audience.
- It provides product information
- It saves on literature costs
- It Augments/replaces phone
- It provides easy access to customer service representatives.
- It levels the load of customer service
- It inexpensively creates/augments corporate image.
- It helps in recruiting new employees
- It provides useful information to attract customers
- It provides service on-line
- It gives customers access to searchable information
- It helps customers understand why they need you
- It allows customers try a sample of your product or service
- It eliminates the middleman
- It is wonderful tool for on-line commerce
- It can be considered as an Intranet and used within the company to help workers communicate better and work more productively.
2.6.4 Instant Messaging Tools

Employees peering relentlessly into their computer screens, seemingly killing time chatting with friends over Facebook, WhatsApp, Google Hangout, Skype or Yahoo Messenger is a familiar sight across many offices. The difference is that now the boss will not see red every time he/she sights an employee chatting online. What was once seen as eating away into the organization’s productive time, Instant Messaging (IM) has now acquired a new dimension as a tool for enhancing employee productivity, fostering team-building efforts, and enabling cost-effective and speedy communication. Though the thought of striking important business deals over IM might be a little far-fetched, but driving complex business deals, interacting with project team members, discussing project details, taking project approvals, and seeking clarifications are a reality as of now. Corporates are now consciously observing IM tools for improving communication process – thereby building close-knit teams and improving employee relationships. It is an established medium of improving employee productivity. Experts believe that IM is coming of age – from being a ‘teen fad’ to a corporate ‘must have’. Especially in the case of IT software and services companies, where projects need to be managed and delivered across multiple locations, IM tools are gaining popularity as an informal and, more recently, a formal communication channel.

2.6.5 Google Apps for Work

Google Docs, Sheets, and Slides¹

Google Docs, Sheets, and Slides are productivity apps that facilitates create different kinds of online documents, work on them in real time with other people, and store them

¹Source: https://support.google.com/docs/answer
in Google Drive online — all for free. One can access the documents, spreadsheets, and presentations from any computer, anywhere in the world. There's even some work can be done without an Internet connection! Following guide gives a quick overview of things that business people can do with Google Docs, Sheets, and Slides.

**Google Docs**

Google Docs is an online word processor that lets create and format text documents and collaborate with other people in real time. Google Docs can help:

- Upload a Word document and convert it to a Google document
- Add flair and formatting to documents by adjusting margins, spacing, fonts, and colours etc.
- Invite other people to collaborate on a document with you, giving them edit, comment or view access
- Collaborate online in real time and chat with other collaborators — right from inside the document
- View document's revision history and roll back to any previous version
- Download a Google document to your desktop as a Word, OpenOffice, RTF, PDF, HTML or zip file
- Translate a document to a different language
- Email documents to other people as attachments

**Google Sheets**

Google Sheets is an online spreadsheet app that allows create and format spreadsheets and simultaneously work with other people. Google Sheets can help:
- Import and convert Excel, .csv, .txt and .ods formatted data to a Google spreadsheet
- Export Excel, .csv, .txt and .ods formatted data, as well as PDF and HTML files
- Use formula editing to perform calculations on data, and using formatting.
- Chat in real time with others who are editing spreadsheet
- Create charts with data
- Embed a spreadsheet — or individual sheets of spreadsheet — on blog or website

**Google Slides**

Google Slides is an online presentations app that allows to show off work in a visual way. Google Slides can help:

- Create and edit presentations
- Edit a presentation with friends or co-workers, and share it with others effortlessly
- Import .pptx and .pps files and convert them to Google presentations
- Download presentations as a .pdf, .ppt, .svg, .jpg, or .txt file
- Insert images and videos into presentation
- Publish and embed presentations in a website

**2.7 Company Websites**

Keeping business contacts in phone book is obsolete now. People straight away visit the website for any information. As a small business websites provide an opportunity to get more customers by opening to a new market online. As such a website is cheap, flexible and cost-effective advertising tool, especially using social media and local search optimization. It helps lower costs by answering FAQ and use it as an affordable customer service management tool. It also provides the information which customers are looking
for in a convenient 24/7 medium. It also increases customer retention. Websites help maintain a better connection with customers and raise profits through an email marketing campaign. With the optimum use of websites it is possible to gain higher credibility with customers and in industry. Market research also becomes very feasible using traffic analytics.

2.8 Auxiliary Technology for communication

There are many products that can be used in combination with computer to enhance the functionality and image of the business. These also require software specifically designed to facilitate their usage.

- Digital Camera

A picture taken by this type of camera can be directly loaded onto the computer for a variety of uses. Usage ideas include pictures of properties, product catalogues, and pictures accompanying resumes.

- Scanner

Printed copy of something can be included as part of a digital document by creating a digital image by scanning the printed copy with the help of a scanner. Apps like CamScanner help scanning documents through mobile phones, and share via internet instantaneously.

- Wireless Transmission

This feature allows communicating with other devices equipped with the same feature. Being able to simply point the device at another one, without hunting for the cord and plugging it, is very appealing and has many productive implications.
2.9 Summary

In an increasingly complex and competitive economic landscape, the need to align people, processes and technology is stronger than ever. Latest technology can help enterprises reduce cost and time taken to innovate and offer sophisticated products and services. This helps SMEs differentiate from peers, optimize cost structures and most importantly compete on a global level with other corporate giants.

However, SMEs in India face multiple struggles on account of accessing and using the latest technological advancements. While knowledge, access and funds continue to hamper implementation of technology, absence of an ecosystem that enables technology transfer and interaction with experts is a critical reason of limited adoption. These are some of the key reasons why SMEs fail to adopt latest technology to innovate and transform their businesses. But they will have to overcome this barrier by devising some mechanism to collaborate. The absence of a common platform for interaction with technology providers continues to be the most critical challenge faced by SMEs in this area.