

# Technology and Society

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# Chapter 1

## Introduction

### 1.1 Aim and Scope

Technology has been the backbone human society since the dawn of human civilization. It has been one of the differentiating factors which sets us apart from the other species that inhabit this planet. Apart from a few other species like primates and dolphins, the use of technology has always been a peculiarly human phenomenon.

This essay tries to draw relations between technology, as fashioned by humans, and society, which is essentially a collection of interacting humans. It tries to describe the process of absorption of a technology into human society, alongwith the consequent effects. It also describes the conditions which favor the absorption of a particular technology or set of technologies. It, however, does not discuss the way society is involved in the actual *production* of technology.

### 1.2 Definitions

A few definitions are in order. Certain terms that appear frequently and are central to the discussion are explained in a concise and precise manner.

#### 1.2.1 Technology

Technology is the medium by which humans interact with their external environment. It derives from the from the Greek words *techne*, which means skill or craft, and *logia*, meaning science, in this context. Therefore, technology can be said to mean the **science of skill or craft**. Technology decides a species' ability to control and adapt to its environment. In the present

day world, technology can be said to mainly be a consequence of science and engineering[1]. Technology has helped the progress of civilization in various ways:

1. By being a carrier of past knowledge for future generations.
2. Improving the survival rate of humans.
3. Easing the amount of labor that has to be put in to achieve a given task.
4. Enabling humans to colonise otherwise inhospitable environments for habitation, thus reducing pressure on resources in a single place.

Thus technology, from the control of fire to the launch of satellites, have all had their role in shaping the lives and consequently the society in which a person lives, in ways that will be elaborated later.

### 1.2.2 Groups

Since society can be said to be a collection of groups or a very large group itself, it is justified to define what is a group, and what characterizes a group. A group is said to be a collection of individuals who live in constant interaction with each other. A few things that characterize a group are[2]:

1. *Group formation and definition:* Every group is said to be formed with a certain definition of group boundaries, both natural and social, and notable members of the group constantly appeal to the sensibilities of group members to prevent the group from dissolution, with legal, cultural and even biological justifications being given to make it appear as though the existence of the group is not a problematic issue. Group definition also makes sure that group existence cannot be questioned.
2. *Formation of anti-groups:* There will usually rise rival groups who put down other groups as being obsolete, dangerous or nihilistic. These arguments themselves are among the bases for anti-group definition. The existence of anti-groups itself makes the process of group definition more important, so that group stability is not threatened.
3. *Presence of professionals:* The agenda of professionals is to provide a durable definition for the group. For example, anthropologists describe a culture, and this description itself, when read by those being described, reinforces the group definition and stability.

The reason for understanding groups and group formation in this manner is to make the role of technology in society more clearer. The definitions from classical sociology based on parameters like size and nature of bonds, membership is not used, since these take the stability of the group for granted, which need not be the case during times of group formation, as the interplay between technology and society will show.

### 1.2.3 Culture

Culture can be defined as the patterns of human activity and symbolic structures that give such activity's significance and importance[3]. It may be said to refer to the human capacity to classify, codify and communicate their experiences symbolically. Specifically, we will be interested in the transition of technology from the laboratory into popular culture. This can be considered as the 'life journey' of a technology.



# Chapter 2

## Stages of Transition

Like has been previously mentioned, the endeavour here is to understand the process of interaction between technology and society, using the definition of the group formation and definition process as described in the previous chapter. Technology can be seen as the product of a group of people, who intend to promote the same. They are faced by anti-groups, who oppose the introduction of new technology, for various reasons ranging from personal, religious or scientific. The success of the group promoting a new technology is dependent on various factors, which will be elaborated upon later. Finally, as technology passes from a novelty to an everyday phenomenon, it passes into popular culture and the group promoting it need not persist in group definition with the same vigour as before, during the ‘infancy’ of the technology. Examples of technology passing into the realm of cultural symbols will be given, along with every other step of the process.

### 2.1 Group Formation and Definition

#### 2.1.1 Formation

Every society has its set of dominant groups and ‘subversive’ groups. Dominant groups are said to be those whose values, norms and modes of behaviour, or in short, their *group definition* is accepted by a larger number of people than any other. A good example of this would be the group of Hindus in India, or those who consider India as their country. Subversive groups or anti-groups try to dissolve the existing groups and establish their dominance. The so-called terrorist activities in the Kashmir valley would serve as an excellent example. Similarly, groups that promote a technology or use the technology as their definition can be part of either a dominant or anti-group. If they

are part of the dominant group, it is relatively easy for the absorption of the technology that they are promoting into the society. For example, the popularity of the **Windows** operating system can be attributed in part to the fact that it was a technology that came into being at around the same time that personal computers became popular. Similarly, dominant economic interests in England helped promote the steam engine and the spinning jenny since it was in their interest to do so during the Industrial Revolution.

On the other hand, some technologies are considered dangerous for the stability of the dominant group. These are condemned by those in positions of power as illegitimate, obsolete. Good example of such a group is the group of **file-sharing networks** that have appeared on the internet, which help promote software and music sharing. The technology that they use is advanced, but since it hurts the business interests of software producers and record labels like Sony, EMI or Virgin Music, these technologies are condemned as illegal and antagonistic to creation of original work. Similar examples can be seen when China censors results that appear on **Google**, or mobile phones are banned in classrooms, since the interest of the dominant group (teachers and college administration) is to gain the total attention of the student, and mobile phones provide an easy distraction to them.

### 2.1.2 Definition

A group promoting a technology may be a corporation, a government, a not-for-profit organisation or a group of revolutionaries. Whatever may be the reason for promoting a technology, it is almost invariably seen as a group that is working for the ‘good’ of the society on the whole, or ‘solving problems’ that face individuals during their day to day life. The technology is seen as the ‘way’ or the ‘method’ by which this group tries to help reach its goals. This attitude is nothing new: from the time of the European Enlightenment, technology has been seen as a one-stop solution for all human ills, and is said to facilitate the process of human progress[4][5].

A good example of this would again be our music/data sharing groups. Their claim is that information should be free for all to obtain, and their using their technologies only to make this goal a reality<sup>1</sup>. Microsoft (the company that sells **Windows**), claims to solve the problems of the end user by giving them a highly usable platform to take care of their computing needs.

One thing to be noted, however, is that the *faults* of the technology are

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<sup>1</sup>Note that some groups sell software without paying the original owner. This is called *piracy* and is illegal in most countries

usually glossed over, ignored or even attributed to improper usage of the technology. The main agenda of the group would be to gain popular acceptance of the technology, and to that end, some shortcomings are overlooked.

### 2.1.3 Into Popular Culture

Culture, being the symbolic representation of the experiences of the group, can and usually does take the form of a symbol of technology. Technology, when it begins to get taken for granted, as a part of everyday life, has achieved what its promoting group have intended for it. It may get praised, or criticised, but the important fact to be noted is that *its prevalence in society is taken for granted*.

A fine example one can think of is the factory during the Industrial Revolution. Songs, paintings portrayed factories, and it began to be seen as a ‘symbol’ of everything the Enlightenment or Industrial Revolution stood for. Another example is the Personal Computer, whose benefits (abridging work, power of information) are as glorified as its problems (individualisation, erosion of social skills) are stressed. Lastly, in cultures which have martial traditions such as the Kodavas, weapon technology becomes a cultural symbol, which is well represented in the introduction of a European weapon like the gun into the traditional Kodava symbol, as well as the prominence of the AK-47 on the flags of certain African countries, Africa being a continent torn apart by war, which is symbolised by the Russian AK-47.



# Chapter 3

## Factors for acceptance of Technology

The various societal and cultural factors that take a technology from the hands of an engineer to the hands of a child are varied. But, as a group that has to take the technology to the masses, the factors that the group will take into consideration would be:

1. Not everyone is an engineer.
2. It should either be glamorous or should solve an existing problem, preferably both.
3. What are the kinds of people the technology must reach: Urban, rural, educated, illiterate, physically challenged.
4. How to popularise the technology?

We shall look into each of these factors in the following pages.

### 3.1 Not everyone is an engineer

Technology meant for the masses must take into account that its usability is not complex, there must a clean interface to access its functionalities, it must be reliable. To the largest extent possible, it must be repairable on-site, by not highly skilled persons, with locally available parts. If such a situation is not possible, there must be adequate amount of support for the user of the technology close to her, so that failure does not cause too many problems. Issues that an engineer would normally think about, like price, cultural relevance are also important.

## **3.2 Glamorous, Problem solver**

A well packaged technology is far more preferred to a superior technology badly presented. If it is also a competent problem solver, very few obstacles would remain for its acceptance. Technologies are not only used for their technical superiority, but also as status symbols once they are part of popular culture.

## **3.3 Who is the technology intended for?**

Technologies of different kinds get accepted in different places. For example, males with great pride in their ‘manliness’ will go in for a different kind of vehicle than males with ‘utility’ in mind. Technology should be sensitive to the social, geographical, economic milieu in which it gets deployed. For example, selling large super-saver packs of shampoo to people in slums would be less successful than selling low-price sachets.

## **3.4 Canvassing**

How does one go about spreading the word about the technology also matters. The reach of the technology would be directly proportional to the kind of canvassing that goes into the popularisation. Trying to have street shows in a urban scenario is as bad as a promotional disco in a rural setting. Word-of-mouth may fail in a highly individualistic society, whereas call centres may fail in places where personal contact is preferred.

# Bibliography

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