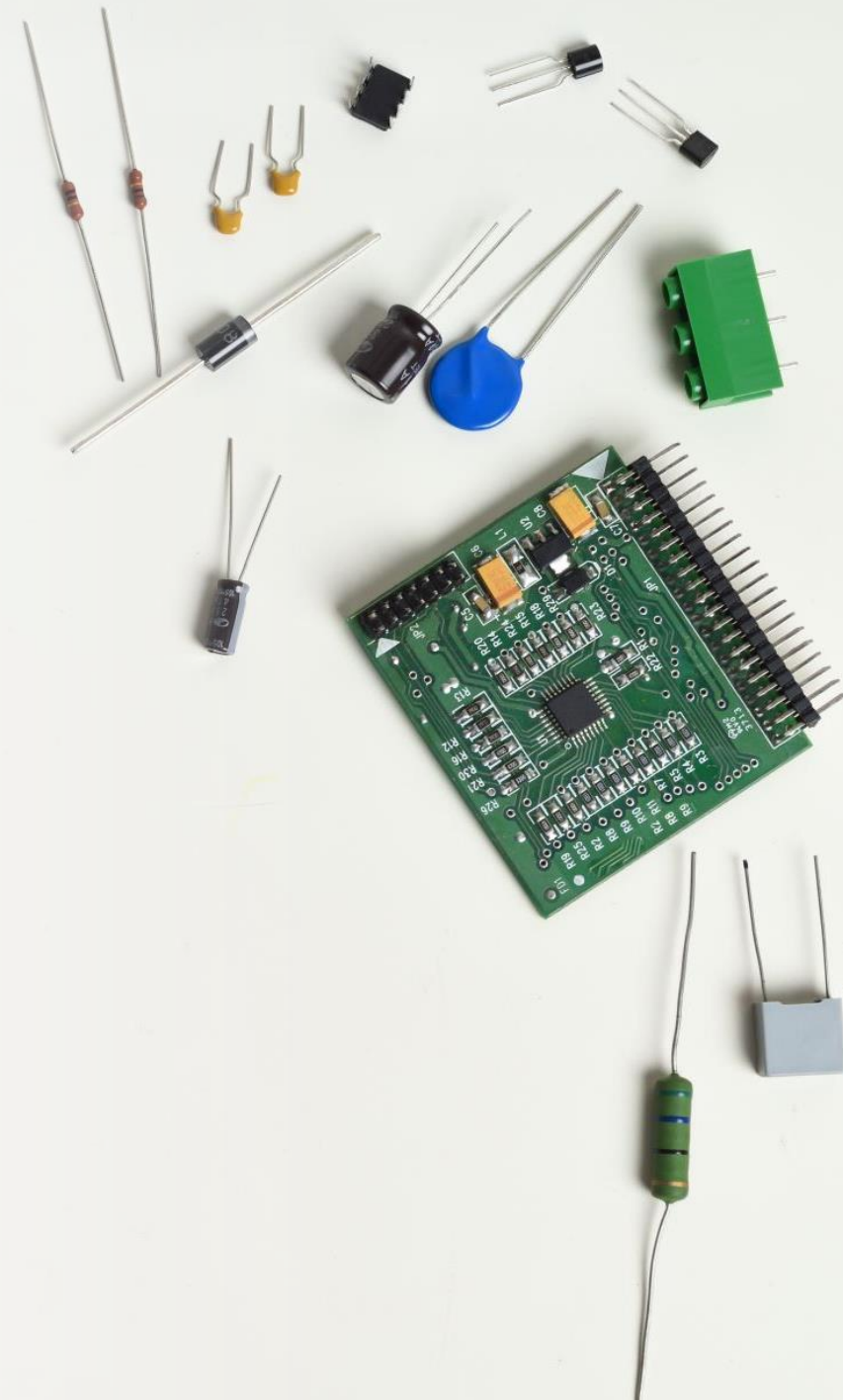


# 104010 : BASIC ELECTRONICS ENGINEERING

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## UNIT I Introduction to Electronics

(Images taken from the internet)



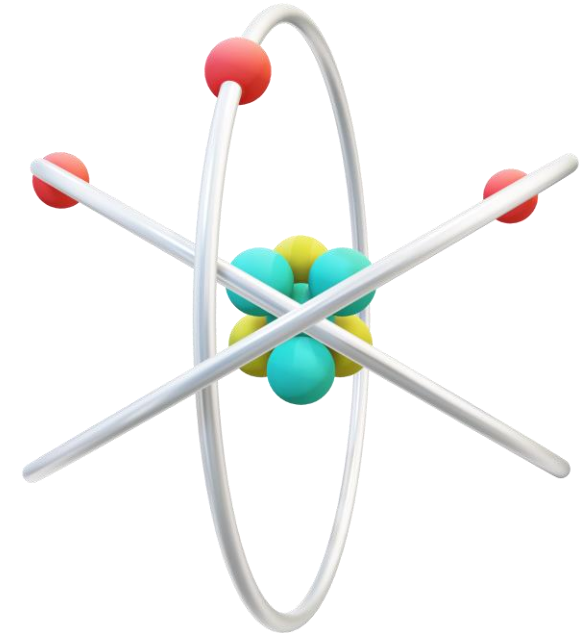
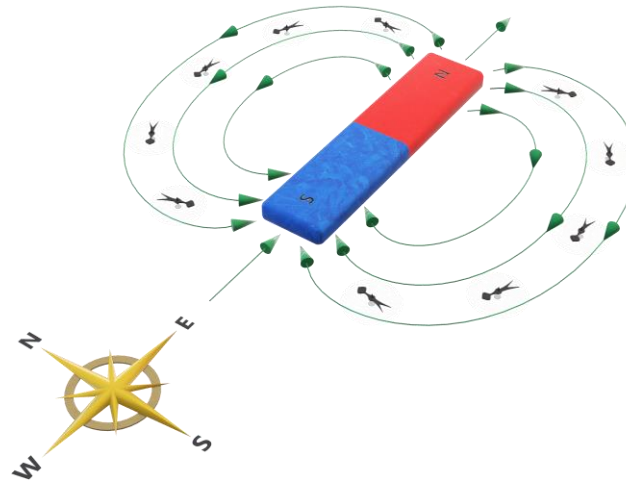
# Teaching Methodology Detailing

Lecture No.	Topic	Books	Page No.
1.	Evolution of Electronics Impact of Electronics in Industry and Society	T1	Preface
2.	Materials used in Electronics, Introduction to active and Passive components, switches and relays		
3.	Currents in semiconductors, P-type and N- type semiconductors	T1	1.4 and 1.6
4.	P-N junction diode: construction and working, V-I characteristics	T1	1.7,1.8, 1.9
5.	Diode as switch, Half, Full wave and Bridge rectifier	T1	2.1, 2.2
6.	Special purpose diodes: Zener diode, LED and Photo diode and their applications	T1	3.1,3.4

T1: “Electronics Devices ” by Thomas L. Floyd, 9<sup>th</sup> Edition, Pearson

# Science, Engineering and Technology

Science: The observation, identification, description, experimental investigation, and theoretical explanation of **natural phenomena**.



# Science, Engineering and Technology

Engineering: The application of scientific and mathematical principles to practical ends such as the design, manufacture, and operation of efficient and economical structures, machines, processes, and systems.



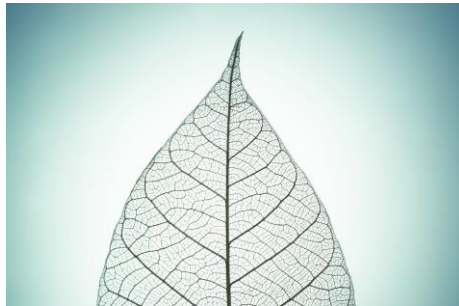
# Science, Engineering and Technology

Technology: The application of science, especially to industrial or commercial objectives.

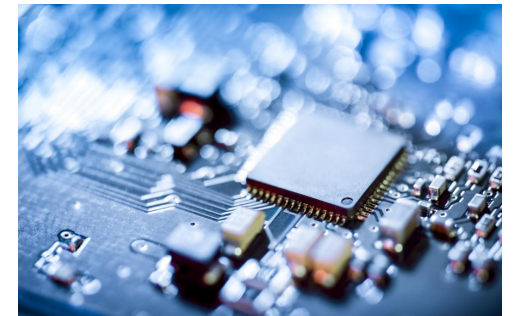


# Science vs. Technology

- Deals with the natural world.
- Is very concerned with what is (exists) in the natural world. (i.e.: Biology, Chemistry, Physics, Astronomy, Geology, etc.)



- Deals with how humans modify, change, alter, or control the natural world.
- Is very concerned with what can or should be designed, made, or developed from natural world materials and substances to satisfy human needs and wants



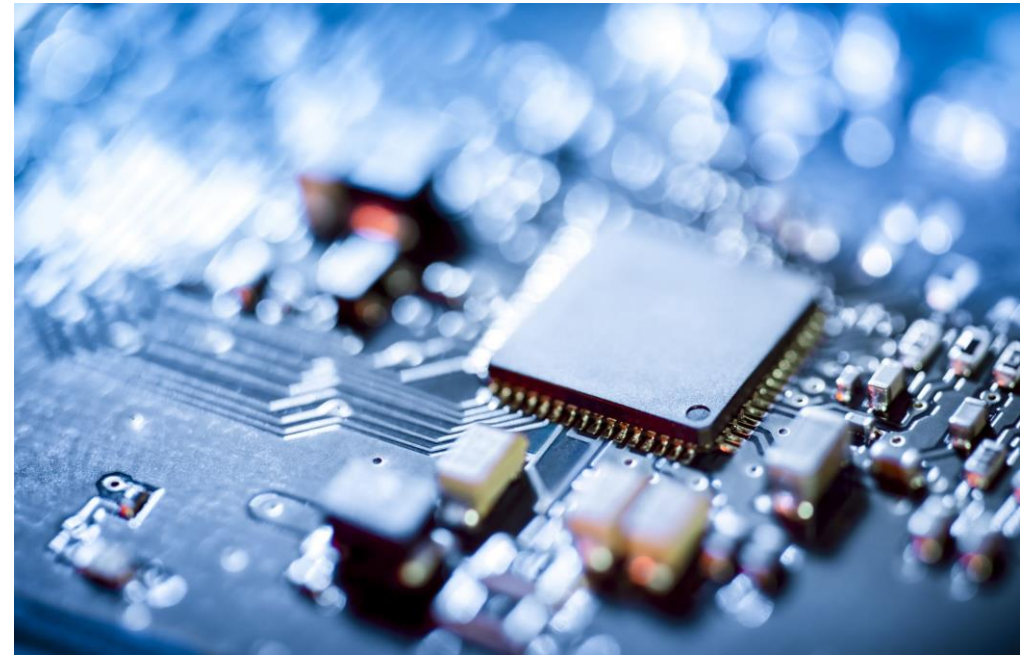
# Engineering and Technology

- Main difference between the two is:
- Engineers **design and manufacture machines and systems**, while engineering technologists have the technical **know-how to use and install the machines properly**.
- An example:
- “The technologist identifies the equipment necessary to assemble a new CD player; the engineer designs said CD player”

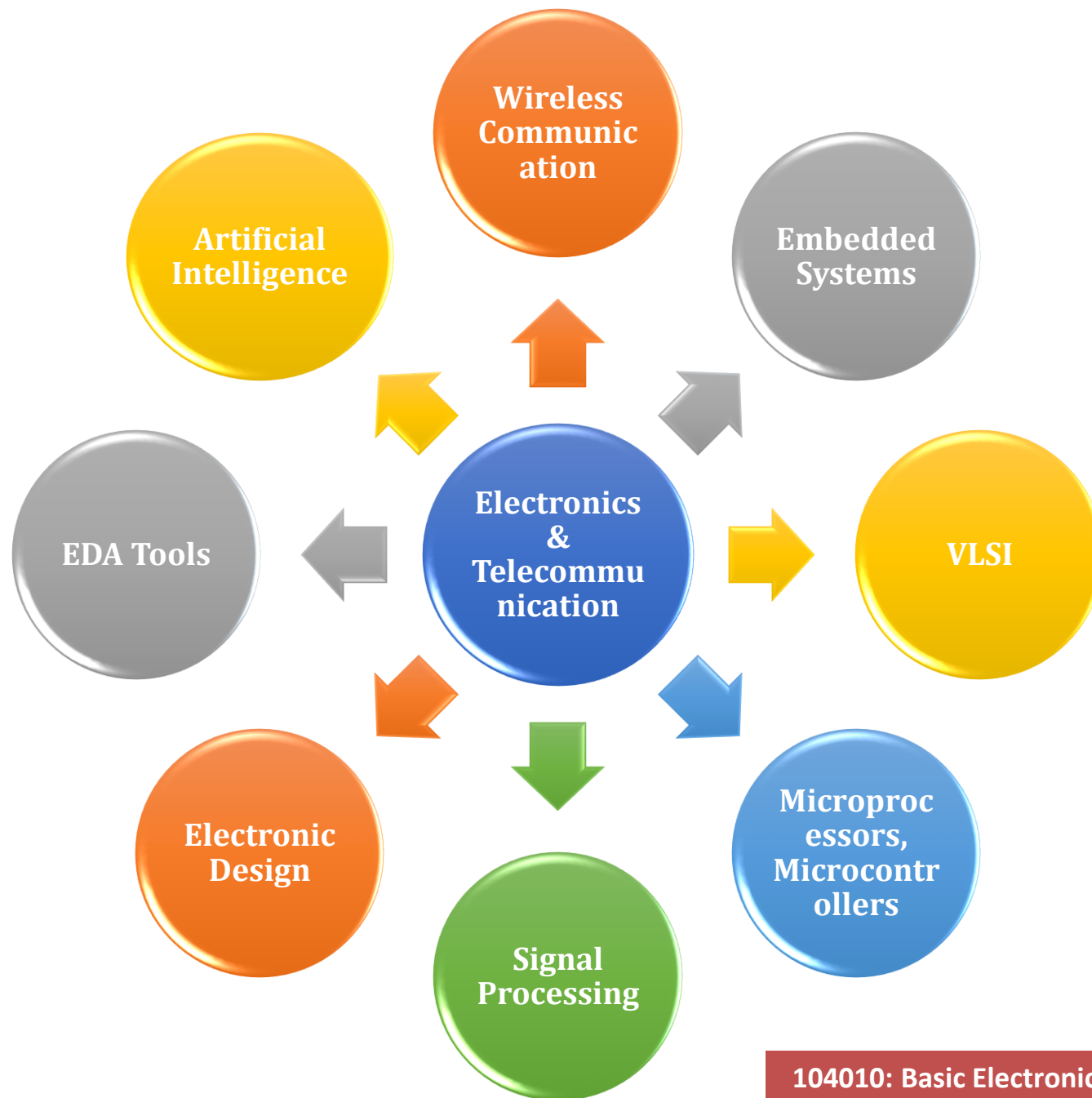


# Electronics and Communications

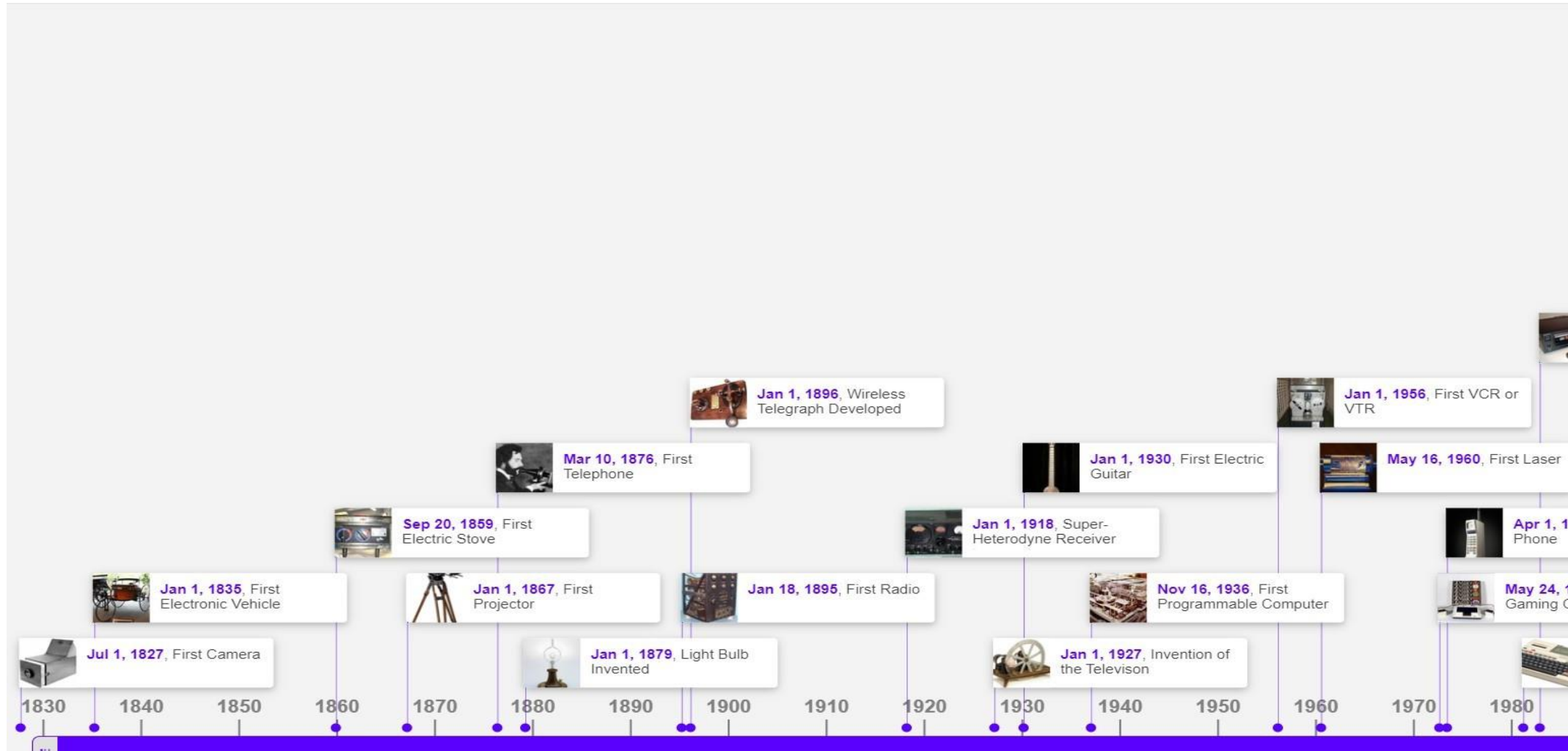
- Electronics is the branch of science and technology which makes use of controlled motion of electrons through different media.







# Evolution



# THE EVOLUTION OF TECHNOLOGY & Its Impact on the Development of Social Businesses



We are babies.

## 1960s

Technology has **little impact**. It is a curiosity.

The company is king, but a benevolent king. Good focus on customer satisfaction, but customers have few options. Communications makes global business difficult so customers make geographic-based decisions.



We are still children.

## 1970s

Technology is for academics and has **little impact**.

Greater focus on margins and revenue. Customers become concerned about monopolies as customer satisfaction has less importance.



We are still children, but we can pout to get what we want.

## 1980s

Technology invades the home and starts to **change behaviors**.

Customers become increasingly concerned about company practices and lack of customer satisfaction. Communications have improved to help customers make more informed decisions and to have better choices.



Like teenagers, we now have some control but don't know what to do with it yet.

## 1990s

Technology is now everywhere. A great leap forward. It begins to **connect us** around the globe.

e-Commerce helps give customers a greater - and more informed - range of decisions. Companies use the web to make themselves more accessible but haven't begun truly focusing on customer relationships.



We are growing up, and feeling pretty cool about it.

## 2000s

Technology enables more seamless communications across the globe. Growth is **explosive**, but like "explosions" is uncontrolled - all over the place.

Social Media allows customers to articulate their satisfaction with companies and make decisions based on the company's behavior, not just on price alone. Companies begin to react and change.



Welcome to adulthood!

## 2010s

Technology becomes **fully integrated** into our daily lives. We live more fully in a digital world.

Social Businesses are the evolution of companies now keenly aware that how they act and how they engage with customers can be more important than price, that the relationship is part of the value. Companies allow greater transparency into all aspects of the company and use social media channels to effectively engage with customers, but with a focus on **WHAT** the customer wants and **HOW** best to deliver it to the customer.



# Sociotechnical Effects

Caught up in the virtual world... **Lelongmy**



What kids used to do then...

What kids do now...

tesco.com.my  
Shop online. We deliver

**RM20 off**  
on selected items when you spend RM50 or more

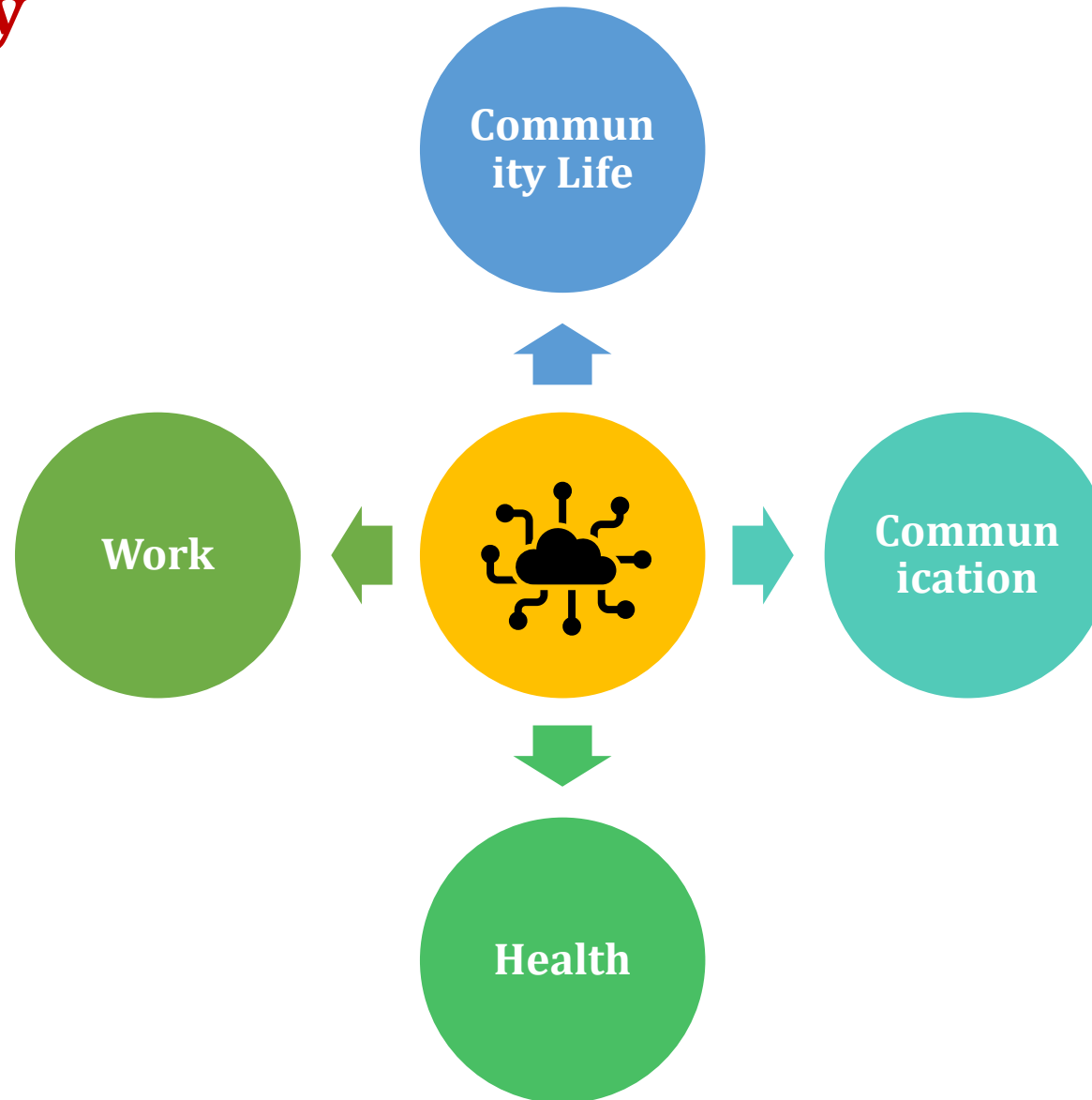
- ✓ Great quality & wide range
- ✓ Great prices & promotions
- ✓ Collect Clubcard points

**GROUPON**

**mudah.my**  
Malaysia's Largest Marketplace

Convenience and Comfort...

# Impact of Technology



# Impact of Technology on Different elements of Society

## ➤ **Government:**

- Developments in information technology has helped governments to improve their “service” to their citizens.
- Advances in Database technology for example have enabled the governments of various countries to collate and monitor statistical information that they can use to combat fraud, manage the economy in a more informed way.
- Information Technology has also had a major impact on the Defence capabilities of governments.
- Encryption of sensitive information has enabled government's to obtain added security.
- Digital India Campaign by Govt. of India is helping in providing information technology uses in every corner of the country.

## ➤ **Commercial Businesses:**

- Able to extract information as to what the customer really wants.
- To monitor a businesses performance can also enable the business to highlight areas where they are not making the most use of their resources.
- Increase the businesses income through advertising in the various available forums.



# Impact of Technology on Different elements of Society

## ➤ Educational Organisations:

- The processes by which educational establishments distribute information have become increasingly diverse, and the effectiveness of the process has also improved.
- Enabled researchers to access a wider source of information than previously available through such technologies as the Internet (the original ArpaNet being set up primarily to assist research).
- The Internet and other related technologies such as electronic mail, also enable collaborative projects to be undertaken between geographically distant groups.

# Impact of Technology on Work

## ➤ Improves Communication

- Many businesses are using various business communication technologies to change the way their employees interact and communicate while at work.
- For example, employees from different departments in a company can use video conferencing tools like Skype to share and exchange information.
- Project sharing globally from anywhere and everywhere.

## ➤ Encourages Innovation and Creativity

- Many companies create technological challenges and reward employees who come up with creative ideas using technology.
- Social enterprise networks like [Yammer.com](https://www.yammer.com) can be used by employees to socialize and interact with other creative employees from different organizations, this interaction will result into information exchange and it also encourages brain-storming on various work related issues.

# Impact of Technology on Work

## ➤ Improves on Human Resource Management

- It improves on the process of screening, recruiting and hiring new employees.
- Technology can also be used to track performance and productivity of each employee at work.

## ➤ Creates Mobility

- Employees can work from anywhere at anytime, this mobility makes employees stay in control of their jobs.
- Technological tools like virtual meeting applications save time, we don't have to be in meetings physically yet information and data will be shared in real-time.

# Impact of Technology on Health

- Time saver
- Better data coordination and management
- More non-invasive procedures
- Minimally invasive surgeries
- Accurate diagnosis
- The development of better instruments
- MRI technologists in imaging technology

# Impact of Technology on Communication

## SOME FACTS:

- 4.66 billion people use the internet in the world today.
- 3.8 billion number of email users worldwide.
- 306.4 billion total email traffic per day worldwide.

# Impact of Technology on Communication

## *From Business Perspective*

- Easy Product Launch:
  - In past, a company had to pay for expensive door to door marketing which could even take a lot of time to yield results.
  - In present, the company will draft one email with details about a new service or product and that message will be delivered to all consumers in a minute.
  - A good example is “*MailChimp*”. With their massive mail submission, all your clients will receive the same message in a minute via email.
- Product or service surveys:
  - In past, it was so difficult to conduct a survey, most companies would pay money to magazines and place survey forms and offer gifts to users who filled those surveys and mailed them back to the company.
  - Nowadays, a business can conduct a survey using *social networks* and provide users with incentives like “gift cards”. This produces a quick response and saves the company money and time.



# Impact of Technology on Communication

- Social interaction with consumers:
  - With the recent invention of social networks like facebook and twitter, a business can create business pages then get followers for these pages.
- Teleconferencing :
  - Teleconferencing can save substantial amounts of money otherwise spent on travel by connecting important employees in far-flung branches together to share ideas and information.
  - New technology enables your boss to be in the business meeting while in a hotel in Hawaii preparing for a partnership or investors meeting.

# Acknowledgement

Web Resources

**Thank You..**