

Structure

In this chapter, we will discuss the following topics:

- Introduce the learner about ethical issues around Artificial Intelligence (AI).
- Deliberate and discuss about the complexities of concepts surrounding ethics (bias, access, privacy) in AI.
- List awareness points about AI bias and AI access along with the potential ethical concerns of AI.
- Debate around the pros and cons of ethical issues around AI.
- Reflect and paraphrase how the emerging trends in different fields are getting affected by AI.
- Questions and Answers

Objectives

At the end of this chapter, you should be able to:

- Understand and reflect on ethical issues around AI.
- Gain awareness around AI bias and AI access.
- Compare and contrast the societal advantages and disadvantages of AI inclusion.
- Recapitulate and reflect about the implications of AI.

In the previous chapters, we learned to identify and appreciate Artificial Intelligence and describe its applications in our daily lives. We went ahead and performed activities to relate, apply, and reflect on the Human-Machine Interactions. We also made inroads in understanding the impact of Artificial Intelligence on Sustainable Development Goals to develop responsible citizenship skills as a global citizen. It was crucial for us to imagine, examine, and reflect on the skills required for futuristic job opportunities and understand whether we have the desired skill sets.



Figure 5.1: A robot

for such jobs. In this chapter, let us gain awareness about the ethical issues surrounding AI and comprehend its societal impact.

Activity 5.1: Let us watch the video in the given link and pen down our

observations in the graphic organizer.

Video Link: <https://youtu.be/vgUWKXVvO9Q>

What have you understood from the video?

Mention a few learnings from the video.



What could be the theme heading of the discussion in the video?

What is the meaning of the content shared in the video?



Image credit: <http://www.smbc-comics.com/index.php?db=comics&id=1879>

Figure 5.2: A possible conversation from future

AI Ethics

Ethics can be broadly defined as the study of values; generating moral values for good and bad, right and wrong. Ethics plays a major role in many scientific researches such as stem cell research, cloning/genetically modified food, nuclear technology, animal rights, medical trials, disease research, and bio-nuclear warfare. New technologies have unintended negative side effects. Scientists and engineers must find ways on how to handle future projects. Certain myths prevalent around the concept of AI ethics are as follows:

- People might lose their jobs to automation.
- People might have too much (or too little) leisure time.
- People might lose their sense of being unique.
- People might lose some of their privacy rights.
- The use of AI systems might result in a loss of accountability.
- The success of AI might mean the end of the human race.

Artificial Intelligence is a form of technique by means of which computers can perform cognitive tasks that could be done by only humans earlier. Working on data, making sense of data up to a point where they could help us make decisions. There are many approaches among AI. One of them is where AI

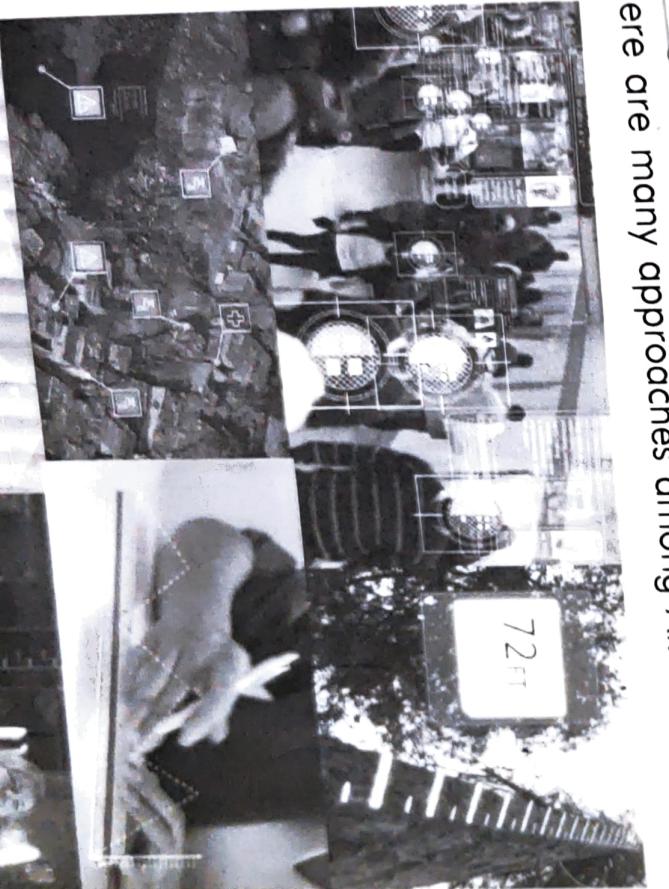


Figure 5.3: AI in action

focuses on data-based AI and algorithms could be written to work with AI and further interpret this data. Another approach could be knowledge and context where data could be placed in different categories. Knowledge-based approach works best for expert systems whereas data-based AI is best matched with pattern recognition, image recognition, and speech recognition.

AI bias; also referred as Machine Learning bias, is a phenomenon that occurs when an algorithm produces discriminatory results due to flawed assumptions. There could be built-in biases created by programmers who have certain preferences. These go unnoticed until the algorithms are used and magnified visibly.

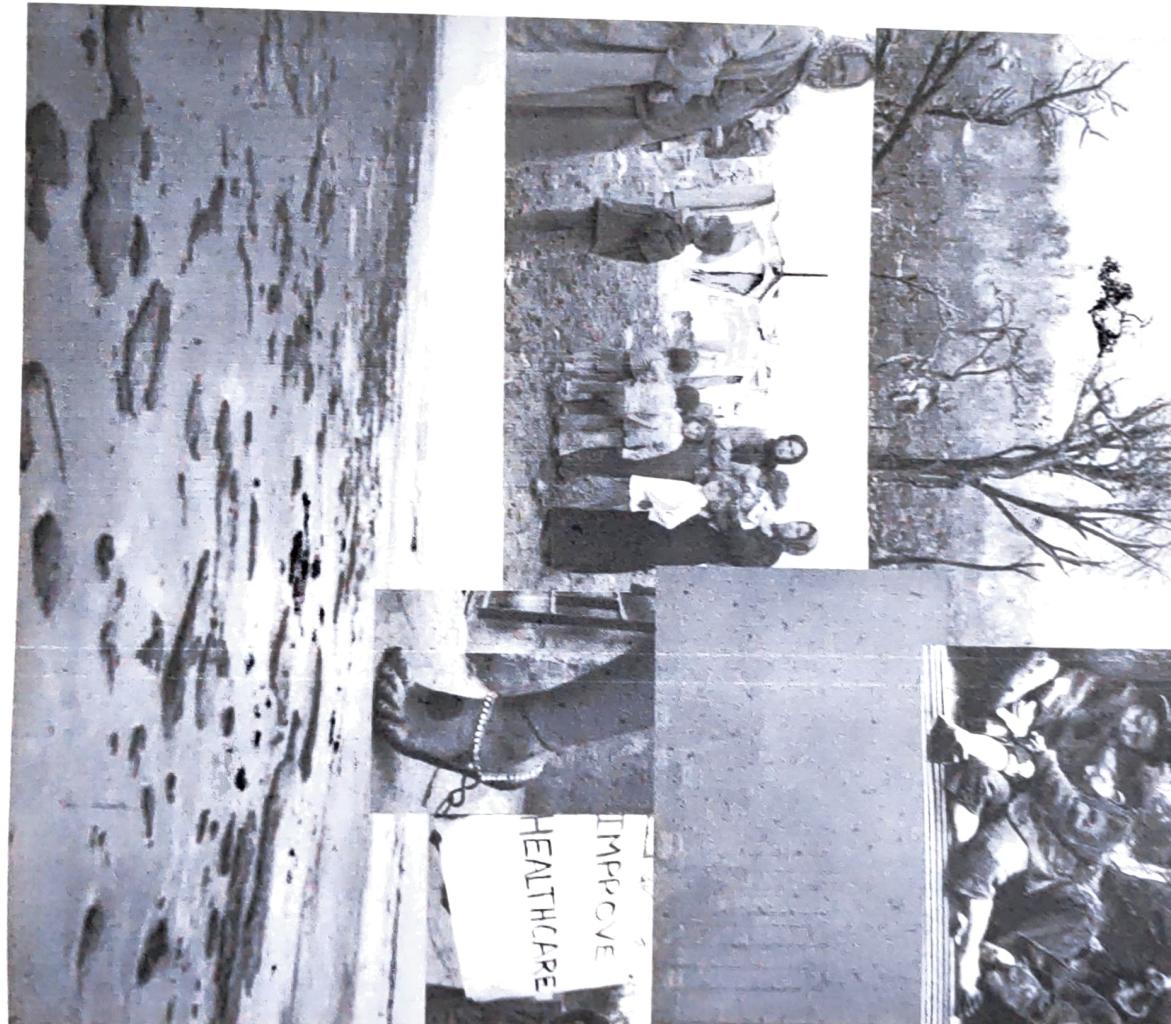


Figure 5.4: AI can help solve many problems

We believe that these intelligent systems are supposed to make our life easier, but they are prone to amplify sexist and racist biases from the real world. Certain biases such as people belonging to a community are responsible for most crimes, gender requirement for some high-profile jobs or misinterpretation of social media posts due to wrong language translation by the algorithms used are just to name a few.

AI is used to expand abilities of people so that they can delve into creative spaces and accomplish more in their lives.

AI access can be defined as the mission where world's information can be organized and made universally accessible and useful to all. AI inclusion suggests making researches, tools, systems and scientific developments available to solve problems of the world. The sole aim is to provide an ease of access to AI technology which can be used to help people so that it is socially beneficial, fair, accountable, and works for everyone while solving humanitarian and environmental challenges.

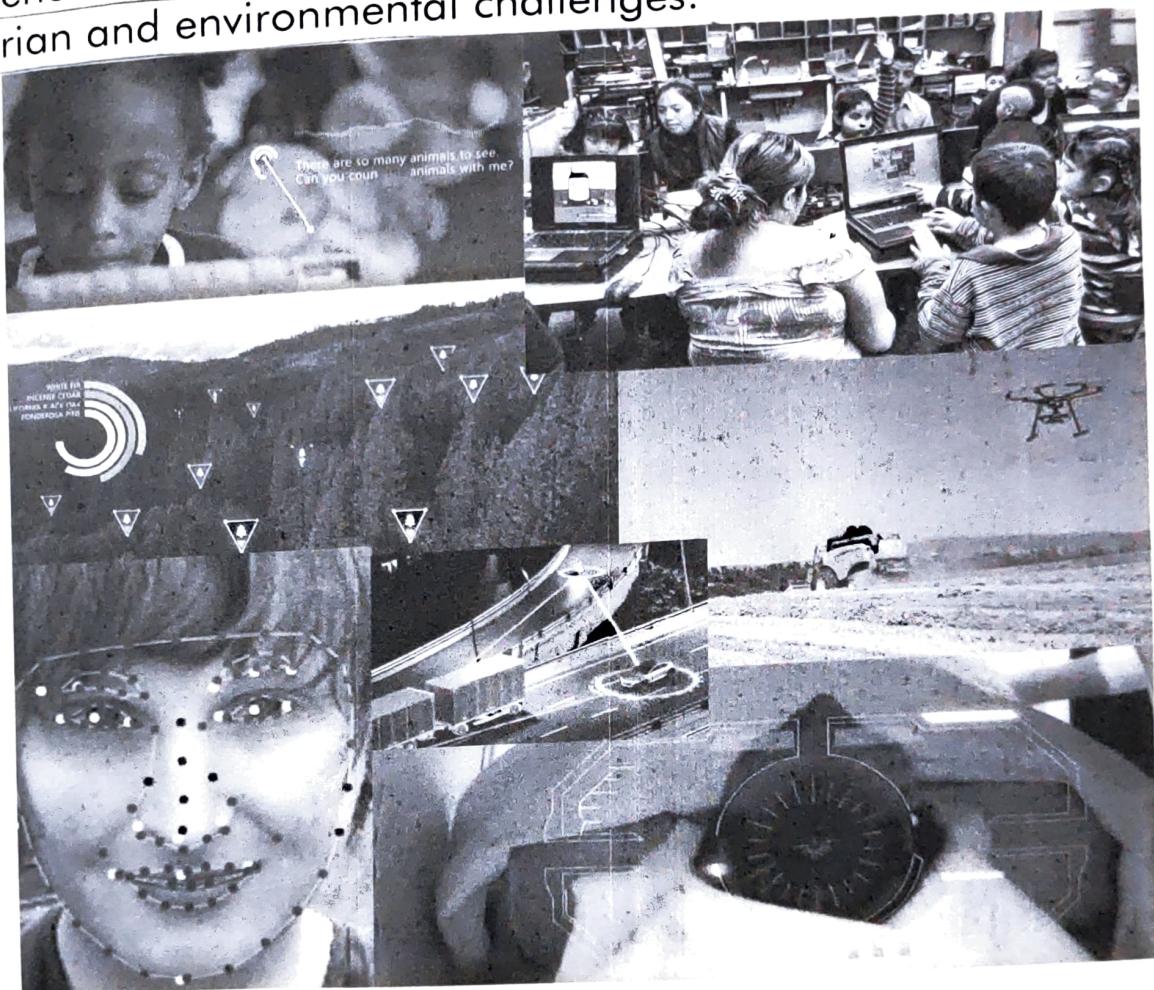


Figure 5.5: AI can help solve many problems

Artificial Intelligence provides immense potential to gather, analyze, and combine vast quantities of data from different sources potentially increasing an immense impact on privacy. It is necessary to understand the privacy issue to further counter how to deal with shaping the debate around it.

AI privacy is defined as one's ability to control how our digital data is being stored, modified, and exchanged between different parties. Social agencies like the government and multiple corporations can use different techniques to



Figure 5.6: AI Privacy

identify, profile and directly affect one's life without even them knowing about it. With advanced AI algorithms, such fears about these agencies being able to make an impact on our lives, is increasing.

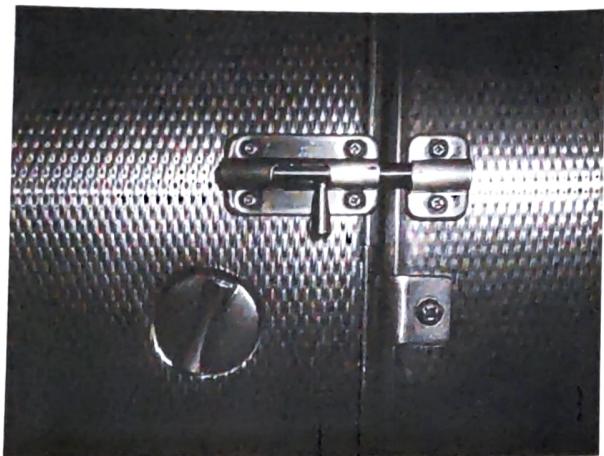


Figure 5.7: AI Privacy

AI works best with information gathering and computations are done at a good speed which improves data analysis. What sounds scarier is not being able to comprehend how much data devices generate, process, and share which makes us potentially vulnerable to exploitation. AI can track and monitor personal and non-personal data such as keeping track of facial and voice marks for recognition purposes by legal authorities.

Certain sophisticated AI techniques can even predict emotional states of humans while others can deduce political views, sexual orientation, and overall health too. Sometimes, such algorithms also limit access to things like credit, employment and housing services.

Artificial Intelligence: Boon or Bane

AI focuses on data-based approach which uses pattern recognition, image recognition, and speech recognition. All this is possible with human Intelligence which has made the machine to think critically and assist humans in taking very important decisions. The machine is actually using algorithms to give the best matched results based on a lot of data that is entered as input to the machine.

There is no doubt that AI technology is helping a lot in human lives for making the life better. But at the same time, if something goes wrong by the machine then who is going to be held responsible? A small mistake can lead to a negative result and potentially create problems.

This could further increase the wedge trust between humans and machines.



Figure 5.8: AI – Boon or Bane

Activity 5.2: Let us collate our thoughts about how Artificial Intelligence (inclusion, bias, privacy) is affecting our daily lives in all spheres.

Pros

- AI machine doesn't get tired even after working 24x7.
- AI machine can take rational decisions irrespective of gender, religion, and so on.
- AI can be used in any of the applications like Health Care, Security, Education, Entertainment, Transport, and so on.
- AI machine gives accurate and fast results based on the input given to the machine.
- AI machine doesn't need food, water, tea break and can work tirelessly resulting in error-free tasks.
- AI machines are best suited to work repeated tasks effectively and efficiently.
- AI machines can assist in our daily routine tasks.

Cons

- AI technology is costly.
- AI can lead to increase in unemployment.
- AI machine lacks in creativity.
- AI machine lacks emotions and hence won't understand someone's problem.
- AI machine is created by a human so there is a possibility of negative impact based on gender bias and prejudice on AI machine.
- Privacy is another issue with AI machines.
- Legal malpractices.

Balloon Debate

Balloon Debate refers to a debate or sharing of ideas and facts between presenters who debate to win audience approval. The visualization is that of all speakers to be flying in a hot-air balloon which is about to sink. The decision about who should be thrown out so that everyone doesn't die has to be taken. The attempt is to encourage all participants to argue why they shouldn't be thrown out of the balloon.



Figure 5.9: Balloon Debate

Activity 5.3: This is a 2-pair activity in a group of 4. You should pen down your observations with regards to AI and its impact to your selected theme: Health Care and argue whether AI plays an important role in the said field. Support with valid arguments and examples.

Activity 5.2: Let us collate our thoughts about how Artificial Intelligence (inclusion, bias, privacy) is affecting our daily lives in all spheres.

Pros	Cons
<ul style="list-style-type: none">• AI machine doesn't get tired even after working 24x7.• AI machine can take rational decisions irrespective of gender, religion, and so on.• AI can be used in any of the applications like Health Care, Security, Education, Entertainment, Transport, and so on.• AI machine gives accurate and fast results based on the input given to the machine.• AI machine doesn't need food, water, tea break and can work tirelessly resulting in error-free tasks.• AI machines are best suited to work repeated tasks effectively and efficiently.• AI machines can assist in our daily routine tasks.	<ul style="list-style-type: none">• AI technology is costly.• AI can lead to increase in unemployment.• AI machine lacks in creativity.• AI machine lacks emotions and hence won't understand someone's problem.• AI machine is created by a human so there is a possibility of negative impact based on gender bias and prejudice on AI machine.• Privacy is another issue with AI machines.• Legal malpractices.

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Figure 5.9: Balloon Debate

Activity 5.3: This is a 2-pair activity in a group of 4. You should pen down your observations with regards to AI and its impact to your selected theme; Health Care and argue whether AI plays an important role in the said field. Support with valid arguments and examples.

Theme: Health care

How is AI making an impact in the field of the theme selected?

Artificial Intelligence in Healthcare has an impact on human lives in number of ways. In the previous section of this chapter, we learned about various approaches in AI. It can be data-based AI or knowledge-based AI. The machine is made intelligent so that it can extract information using algorithms that will function on the data fed into it. It acts like a human brain by just taking a lot of data as input and based on the input, it can process to give the output. The accuracy of output is always dependent on the authenticity of the input collected by that machine. If a lot of data is entered and that is authentic, then there are more chances of getting an accurate result.

Mention some ethical concerns in the field of the selected theme. Give examples to support your statements.

Artificial Intelligence in Health Care is a debatable due to ethical and clinical concerns regarding the patient.

AI machines in healthcare are helpful in number of ways:

- AI can perform any routine and repetitive tasks very easily.
- There is no time bound for AI machines.
- AI machines are more productive.
- AI machines can predict the user's choice and can assist to perform actions as per the requirement.
- AI machines can think logically as per the data input fed into it.
- AI machines can take decisions without prejudice so as not to be taking wrong decisions based on gender, religion, or any other.
- AI can help in maintaining clinical records electronically.

Some of the examples how AI can help in healthcare are as follows:

- AI machine can be used to read the CT scans faster than humans. It can help physicians evaluate patients more efficiently and effectively.
- AI machine can serve better in rural communities.
- AI machine can be used in mining and digging fuels where the human life can be in danger due to hostile.
- AI machines learns from past reports such as X-Ray, CTScan, and MRI to assist doctors regarding diagnosing the problem and then also help in the treatment procedure.
- The IoT-enabled bands help in detecting the problems at early stages.

Mention a few pros and cons of AI inclusion in the field of selected theme. There are always pros and cons of everything and so it is for Artificial Intelligence too. Some of the intelligent machines might have more advantages than the disadvantages; still there is a fear to use that solution.

Everyone thinks that AI will replace humans. People have the perception that if we are going to use AI machines in the healthcare sector, then it is going to replace the surgeons, physicians, nurses, etc. whereas it is not true. The AI machine is trained to do the specific job and assist in the task given to improve the services in the healthcare. For example, if the AI machine is trained to diagnose the disease after reading the CTScan. Then, the intelligent machine is helping the doctor regarding the detection of the disease and guiding for the treatment options.

Pros

- Able to perform any task endlessly, that is, there is no time limit and the machine doesn't get tired so easily.
- Able to solve problems easily and effectively.
- Able to handle bulk of information in one go.
- Able to convert information into knowledge base to take decisions on it.
- Will help in assisting doctors to take better decision.
- Patients will be reminded on phones about their appointment schedules, and so on.
- Every information regarding the patient will be available on one click.
- Able to do all administrative tasks effectively and efficiently.

Cons

- AI-enabled machines are going to increase the budget costs.
- There are challenges of trust and legal issues.
- Less human interaction and emotionless
- People will be replaced by machine and will further increase unemployment.
- Legal malpractices in case a surgery conducted by a robot go wrong or incorrect inference from an expert system has been implied.

This is an open-ended activity and might have different interpretations. The aforesaid set of observations is one of the interpretations for the said activity by the author. You are expected to attempt the next activity as per your research and understanding.

Food for Thought

It is time to put on our thinking caps and reflect on some thoughts post our readings and observations done so far.



There is huge replacement of humans with AI-enabled robots in many work spheres, such as physical labor and data analysis. Is it ethical to incorporate AI in such areas to replace human workforce?



AI-enabled machines and robots will soon be an important part of all workforce. Do you think they will be entitled to sharing incomes paid for such jobs? If yes, how will it be shared?



Many world problems can be solved with AI inclusion such as food production and preventing hunger and access to clean water and sanitation. Do you think that the benefits will be accessible to all members of the society? If yes, share your views on how to make them available for all.



Do you think that AI inclusion can be a threat or an advantage keeping in mind how fast technology is progressing and become indispensable parts of our daily lives?



	<p>With the advent of AI-enabled technology, more and more people need to be equipped with affordable learning opportunities to keep up with the changing times. Share your views on how to make them accessible to a wider audience.</p> <hr/> <hr/> <hr/>
	<p>Humans are making AI-enabled technologies to become smarter. Mention a few ways, by means of which humans can be ahead of Artificial Intelligence.</p> <hr/> <hr/> <hr/>

In conclusion, it can be safe to say that it is important to address AI from an ethics, morally, safety, and privacy rights viewpoint. There is a need for a regulatory ethical framework and code of conduct to create a basis for a skilful design, production, and use of AI.

Points to Remember

- The impact of AI on Sustainable Development Goals is to develop responsible citizenship skill as a global concern.
- Ethics can be defined as the study of values, generating moral values for good and bad, right, and wrong.
- Artificial Intelligence is a form of technique with the help of which computers/ machines can perform the tasks efficiently and effectively using less time.
- Data-based AI is best suited with pattern recognition, image recognition, and speech recognition.
- Knowledge-based approach works best for expert system where data could be placed in the categories.
- Bias is a phenomenon that occurs when an algorithm produces results that are discriminatory due to the built-in biases created by the programmer.
- AI access can be defined as the mission where world's information can be organized and made available to all.
- AI inclusion suggests making researches, tools, systems and scientific developments available to solve problems.

- The main idea of AI inclusion is to provide an ease of access to AI technology which can help to solve certain common challenges together.
- AI can be used in any of the applications such as healthcare, transport, education, security, entertainment and services.
- AI machine can work tirelessly, take decisions quickly, give accurate results, assist in our daily routines, work best with repetitive tasks and doesn't need food, water, etc. These are some of its advantages.
- AI technology is costly, and it can lead to unemployment, threat to privacy and lacks in creativity and emotions. These are some of its disadvantages.

Exercise



Multiple Choice Questions:

- Which one of the following is not an AI ethical concern for humans?
 - Privacy rights
 - Time consumption
 - Employment
 - Costly
- Which of the following is an advantage of Artificial Intelligence?
 - Costly
 - Creativity
 - Threat to privacy
 - Work tirelessly
- Which one of the following options is not suitable for AI machines in healthcare?
 - Learn from past reports and help assisting doctors
 - Replacing doctors
 - Can serve better in rural areas
 - Can help in maintaining clinical records
- AI bias is also referred as:
 - Data analysis
 - Machine programming
 - Machine Learning
 - Database System
- AI access can be used for:
 - World's information to be organized
 - Information to be universally accessible
 - Information is useful to all
 - All of the above