2.2.3. Need of Artificial Intelligence in Businesses

Businesses are interested in AI because of the characteristics it offers that no other system type offers. That is, AI's ability to:

1) **Preserve Intelligence and Knowledge:** Computers don't quit the job on a moment's notice. They also help to capture and preserve expertise of experts who might not be available in the organization due to their resignation, retirement or death.

2) **Store Information for Access by a Wider Group than may be Possible with a Human:** They help to enhance the distribution of knowledge throughout organization knowledge management which is being an important issue in the new economy. This economy requires that information be stored as organizational knowledge base so that employees can examine much like electronic textbooks or manuals to derive knowledge for doing work in better work. So, one can pass computer information around much easier than you can manual.

3) **Create a Mechanism to Supplement Humans in Dangerous, Repetitive, And Physical Situations:** It is a mechanism that is not subjected to human feelings like tiredness and worry. This may be especially useful when jobs are environmentally, physically or mentally dangerous to human beings. Similarly, routine jobs that create mental tiredness may be formed by artificial intelligence systems like robots.

4) **Eliminate Monotonous Jobs:** Many factories are replacing humans with computers (robots) to complete boring, repetitious tasks.

5) **Suggest Solutions that were Used in Similar Situations:** Local human expert can advise you on how the job was accomplished last year, but the computer is accessible to a wider range of people.

6) **Provide Strategic Advantage:** To maintain and/or enhance strategic position of an organization in the marketplace by devising suitable systems through artificial intelligence that help in reducing cost of production or providing better product mix or both.

2.2.4. Nature of Intelligence

1) **Learn from Experience and Apply the Knowledge Acquired from Experience:** Learning from past situations and events is a key component of intelligent behavior and is a natural ability of humans, who learn by trial and error. This ability, however, must be carefully programmed into a computer system. Today, researchers are developing systems that can learn from experience.

2) **Handle Complex Situations:** People are often involved in complex situations. World leaders face difficult political decisions regarding terrorism, conflict, global economic conditions, hunger, and poverty. In a business setting, top-level managers and executives must handle a complex

market, challenging competitors, intricate government regulations, and a demanding workforce. Even human experts make mistakes in dealing with these situations. Developing computer systems that can handle perplexing situations requires careful planning and elaborates computer programming.

3) **Solve Problems when Important Information is Missing:** The essence of decision making is dealing with uncertainty. Often, decisions must be made with little information or inaccurate information because obtaining complete information is too costly or impossible. Today, AI systems can make important calculations, comparisons, and decisions even when information is missing.

4) **Determine what is Important:** Knowing what is truly important is the mark of a good decision maker. Developing programs and approaches to allow computer systems and machines to identify important information is not a simple task.

5) **React Quickly and Correctly to a New Situation:** The child reacts quickly and correctly to a new situation. On the other hand, computers, do not have this ability without complex programming.

6) **Understand Visual Images:** Interpreting visual images can be extremely difficult, even for sophisticated computers. Moving through a room of chairs, tables, and other objects can be trivial for people but extremely complex for machines, robots, and computers. Such machines require an extension of understanding visual images, called **a perceptive system**.

Having a perceptive system allows a machine to approximate the way a person sees, hears, and feels objects. Military robots, **for example,** use cameras and perceptive systems to conduct reconnaissance missions to detect enemy weapons and soldiers. Detecting and destroying them can save lives.

7) **Process and Manipulate Symbols:** People see, manipulate, and process symbols every day. Visual images provide a constant stream of information to our brains. By contrast, computers have difficulty to handling symbolic processing and reasoning. Although computers excel at numerical calculations, they are not as good at dealing with symbols and three-dimensional objects. Recent developments in machine-vision hardware and software, however, allow some computers to process and manipulate symbols on a limited basis.

8) **Be Creative and Imaginative:** Throughout history, some people have turned difficult situations into advantages by being creative and imaginative. **For example,** when shipped defective mints with holes in the middle, an enterprising entrepreneur decided to market these new mints as LifeSavers instead of returning them to the manufacturer.

9) **Use Heuristics:** For some decisions, people use heuristics (rules of thumb arising from experience) or even guess. In searching for a job, one might rank the companies which are considered according to profits per employee. Today, some computer systems, given the right programs, obtain good solutions that use approximations instead of trying to search for an optimal solution, which would be technically difficult or too time consuming.

2.2.5. Natural Intelligence *vs.* Artificial Intelligence

Difference between natural and artificial intelligence is shown in **table 2.2**.

Table 2.2: Comparison of the Capabilities of Natural *versus* Artificial Intelligence

Capabilities	Natural Intelligence	Artificial Intelligence
Preservation of knowledge	Perishable from an organizational point of view.	Permanent.
Duplication and dissemination of knowledge	Difficult, expensive, takes time, inexpensive.	Easy, fast, and once in a computer.
Total cost of knowledge	Can be erratic and inconsistent, incomplete at times.	Consistent and thorough.
Documentability of process and knowledge	Difficult, expensive.	Fairly easy, inexpensive.
Creativity	Can be very high	Low uninspired.
Use of sensory experiences	Direct and rich in possibilities.	Must be interpreted first; limited.
Recognizing patterns and relationships	Fast, easy to explain.	Machine learning still not as good as people in most cases, but in some cases can do better than people
Reasoning	Making use of wide context of experiences.	Goods only in narrow, focused, and stable domains.