Technology in Manufacturing

Robots have changed manufacturing technology by expediting the manufacturing and production process, proving easy to train and re-train and performing tasks requiring precision. Robots see increasing use in the manufacturing industry, and frequently work alongside humans. They appear in many industries, including automobile manufacturing, food and beverages and more.

Robots serve various purposes in manufacturing industries. They are programmed and designed to perform human-like tasks, and essentially help expedite production. Programmers train robots for tasks such as packaging, sorting and moving products. They have computer-driven intelligence systems that record and repeat tasks, making them ideal for repetitive tasks. Robots possess a fair amount of speed, helping them complete manufacturing tasks more quickly than most humans. They require no training, which eliminates the learning curve associated with human employees. Robots are also programmed to perform work safely and accurately, whereas humans may make mistakes and injure themselves or others.

Advantages of Using Robots in Manufacturing:

- **Safety**

  Industrial robots make work safer for humans. Automation removes workers from dangerous work environments with extreme heat or cold, poor air quality, and toxic or hazardous materials. Industrial robots also help reduce the risk for injuries from repetitive motion or heavy lifting.

- **Productivity**

  Unlike people, robots don't need to take a breather. Industrial robots don't get tired and they don't need breaks. A properly maintained machine simply runs, which maximizes productivity.

- **Capability**

  Industrial robots can do many things better than people can. They're stronger, faster, and more efficient at easily automating tasks than human workers.

- **Quality**

  People aren't perfect. We make errors and we make mistakes. Robots, however, don't make mistakes. They provide a consistent and regular product which improves both quality and consistency in manufacturing.

- **Affordability**

  In the long run, robots are more affordable than human workers. This is great for plant owners as well as the domestic economies. Lower costs of industrial robots mean production is less likely to go overseas.

Disadvantages of Using Robots in Manufacturing:

- **Expensive setup**

  Robots are cheaper than human workers in the long run, but they come with a high initial cost. Industrial robots are worth the expense over time, but initial setup is a financial burden.

- **Harder to train**

  Teaching a human to spot weld or move an object from point A to point B is fairly simple. Teaching an industrial robot to do those things, however, requires trained, skilled professionals. While robots are getting easier to program, and the number of people with expertise in programming is increasing, this is still an obstacle at present.

- **Compatibility issues**

  A French speaker and German speaker will find it difficult to communicate. Fortunately, people have other methods of communication than just verbal language. There will be blank stares, confusion, and frustration, but ultimately, two people who don't speak the same language can find a way to accomplish a task together. Two incompatible robots cannot.

- **Maladaptive**

  While industrial robot technology is improving, we currently see a lot of limitations. One of these limitations is robots' inability to adapt or cope with change. This is an area in which people have a real advantage over machines.

  Robots view the world in terms of their clearly defined programming. If something changes that doesn't mesh with their programmed set of rules, they struggle. Robots don't handle change, variables, and unexpected situations well. If something changes in their environment they shut down.

- **Worker displacement**

  This is the reason why workers dislike robots. Generally speaking, the robots pros outweigh robot cons, which is why we're seeing more and more automation. Increasing levels of automation does, however, mean that there could potentially be fewer and fewer jobs for

people to do. Robots do not currently eliminate the need for human laborers. They do, however, decrease the number of human workers needed in a factory. The concern is that one day robots may do all of the low-skill labor, leaving a large percentage of people unemployed.

- **Repairs**

  When robots work properly, they're great. When they break, they require expensive repairs. No one likes that machines break and wear down over time, but it's something that can't be avoided.