**What is automation ?**

First of all, it is necessary to clarify what the term automation actually means. Automation is a self-sustaining control system that aims to replace humans in the course of performing an activity. Specifically, it refers to repetitive tasks in which the human factor can be replaced by a clever algorithm.

The importance and benefits of automation lie mainly in saving resources and getting rid of routine tasks. The time saved can thus be used for more serious problems that a machine alone can no longer solve.

**Types of automation**

There are many types of automation, and they vary widely. The first is

**Manufacturing Process Automation** : Manufacturing process automation refers to those processes that are involved in the production of certain products. Examples are processes in the metallurgical, mining, engineering, food, construction or automotive industries.

**Automation of non-manufacturing processes** : includes processes mainly in the service sector. Whether these are public services (money institutions, health, defence, national security, education) or private (telecommunications processes, mass media, etc.).

**Complex automation** : where the overall process is automated and humans take on the role of planning and strategic management

**Partial automation** : only certain processes and functions are subject to automation, while the remaining phases of the process remain non-automated.

**Flexible automation :** offers easy program change at low cost.

**Benefits of automation**

**Lower operating costs**

Robots can perform the work of three to five people, depending on the task. In addition to labor cost savings, energy savings can be significant due to lower heating requirements in automated operations. Robots streamline processes and increase part accuracy, which means minimal material waste for operations.

**Increased worker safety**

Automated cells relieve workers of dangerous tasks. Your employees will thank you for keeping them safe from the hazards of the factory environment.

**Reduced lead times in the factory**

Automation can keep your process in-house, improve its management and significantly reduce lead times compared to outsourcing or going offshore.

**Increased production performance**

A robot has the ability to operate at a constant speed, unattended, 24 hours a day, 7 days a week. This means you have the potential to produce more. New products can be introduced into the production process more quickly and programming of new products can be done offline without disrupting existing processes.

**Better planning**

Consistent production using robots allows the shop floor to reliably predict schedules and costs. This predictability allows for higher margins on most projects.

**Optimal use of floor space**

Robots are designed on compact bases to fit into tight spaces. In addition to floor mounting, robots can be mounted on walls, ceilings, rails and shelves. They can perform tasks in tight spaces, saving valuable floor space.

**Disadvantages of automation**

**Capital expenditure**

While automation can prove to be highly efficient and give you a positive return on investment, it can also require a relatively high capital outlay. Therefore, we recommend considering both the investment required and the return on investment you expect before making a decision. When calculating ROI, it is important to include increased throughput, reduced labour costs and reduced defects/recalls along with capital expenditure before deciding whether or not the investment is worthwhile. With the help of the automation project calculator, you will be able to calculate the estimated payback and view financial estimates.

**Get rid of jobs**

It is true that with the introduction of automation, some jobs may become redundant, but this is not necessarily a negative consequence of automation. Instead of employees performing mentally boring, monotonous or unpleasant tasks, they can be trained to transfer to work in other areas of your business. Many companies have found that after installing automation, they have seen an increase in sales, and thus the creation of additional jobs in different parts of the business.

**Dependence on technology**

Implementing most automation requires some level of technical assistance or at least familiarity. Total dependence on technology Perhaps the biggest risk that arises from this is that companies and consumers may become more dependent on artificial intelligence. Full dependence on one thing will always bring with it a number of disadvantages. While the disadvantages may not be clear now, they will eventually become apparent as more jobs are automated.

**More pollution**

Different types of machines operate using an engine that may require gases or chemicals to operate. This can cause increased pollution in the workplace