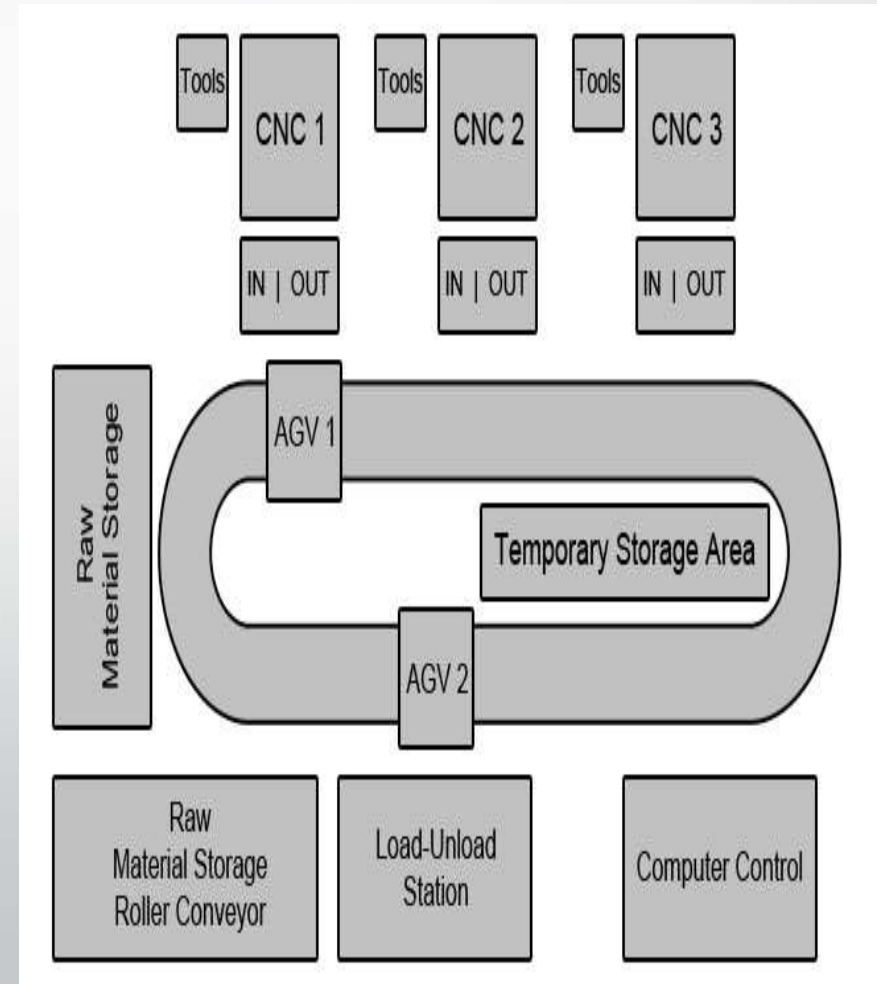


History.

- The FMS was first conceptualized for machining, and it required the prior development of NC.
- This concept is credited to David Williamson, a British engineer during mid-1960s.
- In late 1960s the first FMS machining system was installed at Ingersoll-Rand company in Virginia.
- Germany implemented its first FMS in 1969, in cooperation with the university of Stuttgart.
- Russia and Japan implemented FMS in 1972.

What is FMS ???

- A flexible manufacturing system is a automated machine cell, consisting of a group of processing workstations, interconnected with automated material handling and storage system.
- The FMS is most suited for the mid-variety, mid-volume production range



Why FMS ?

- External changes such as change in product design and production system.
- Optimizing the manufacturing cycle time
- Reduced production costs
- Overcoming internal changes like breakdowns etc.

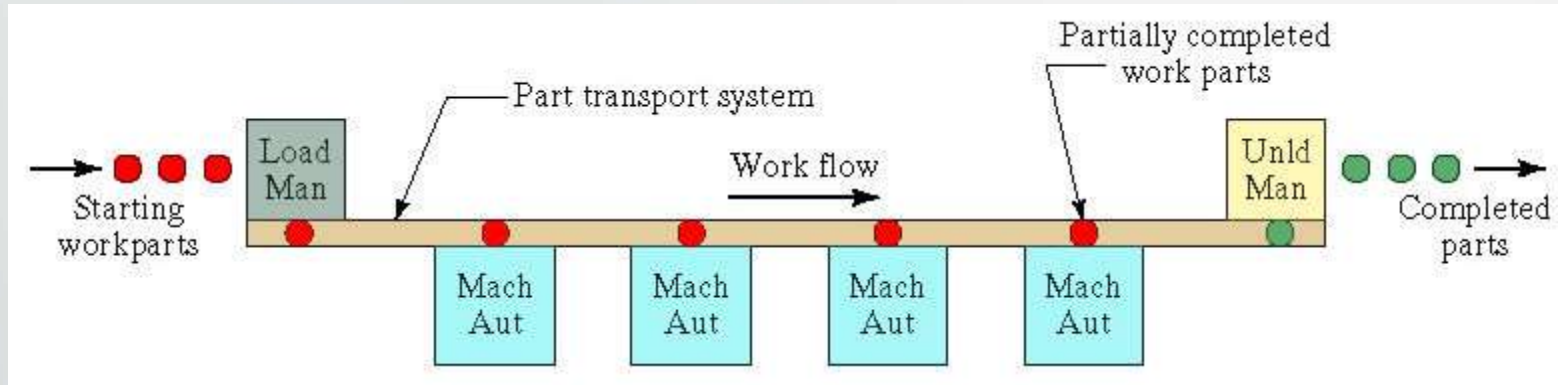
What makes it flexible???

- Three capabilities that a manufacturing system must possess to be a flexible.
 1. The ability to identify and distinguish among the different part styles processed by the system.
 2. Quick changeover of operating instructions, and
 3. Quick changeover of physical setup.

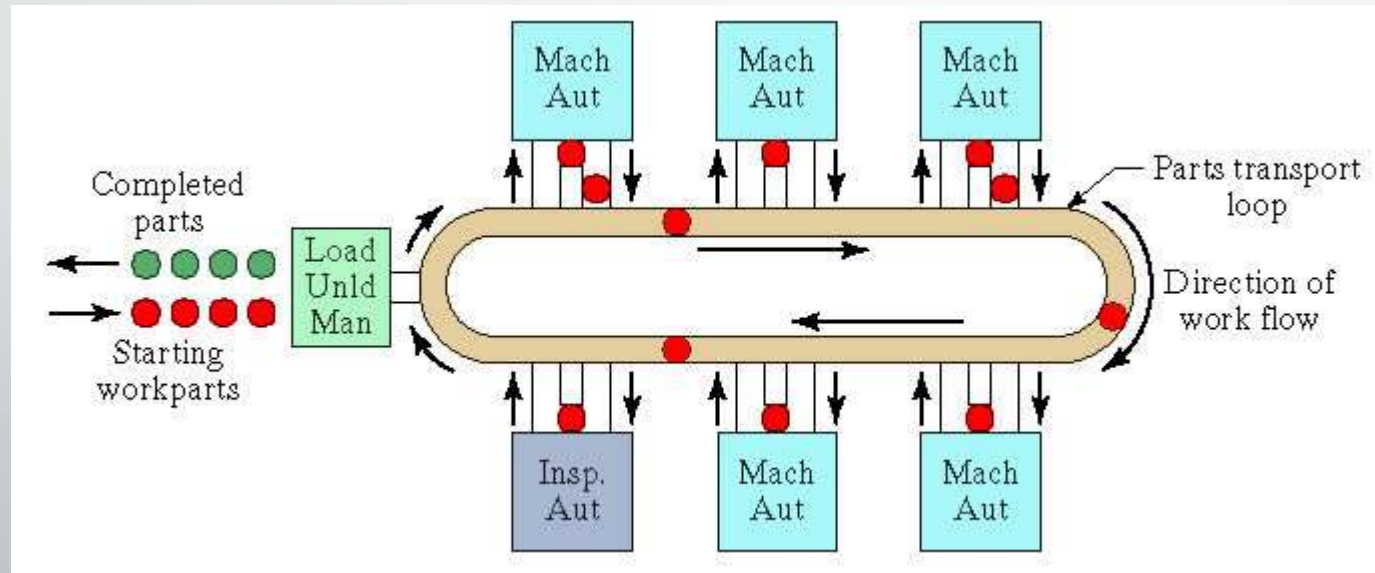
Layouts of FMS

- Progressive or Line Type
- Loop Type
- Ladder Type
- Open field type
- Robot centered type

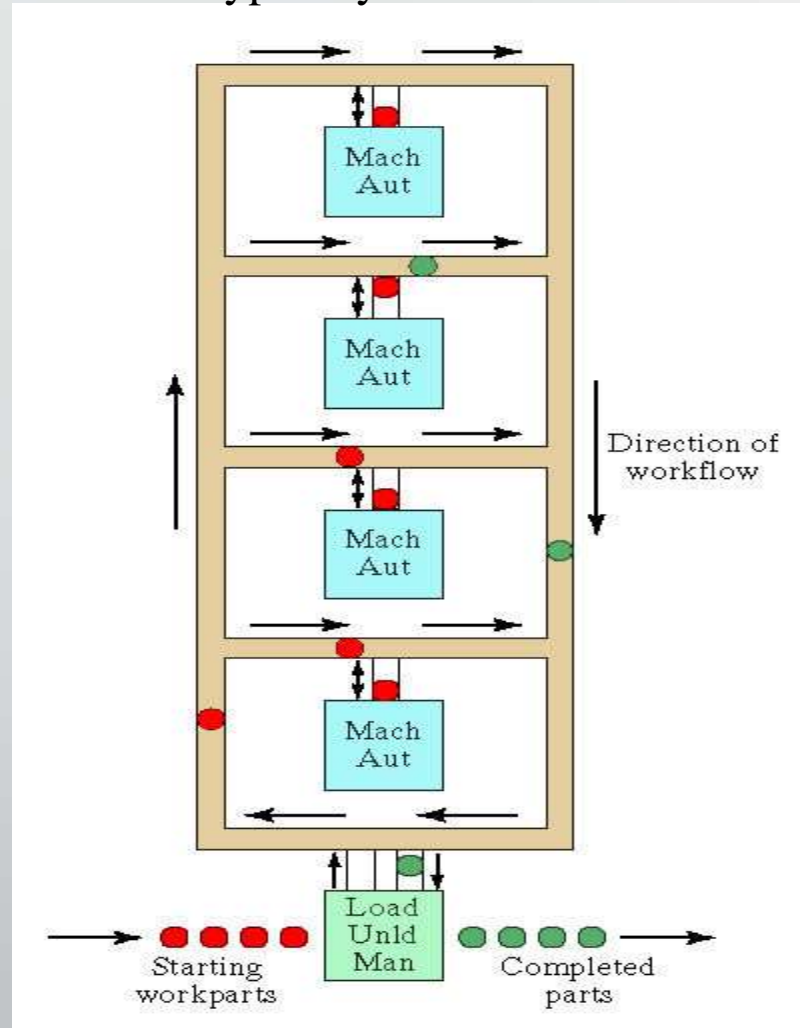
1. Progressive Layout



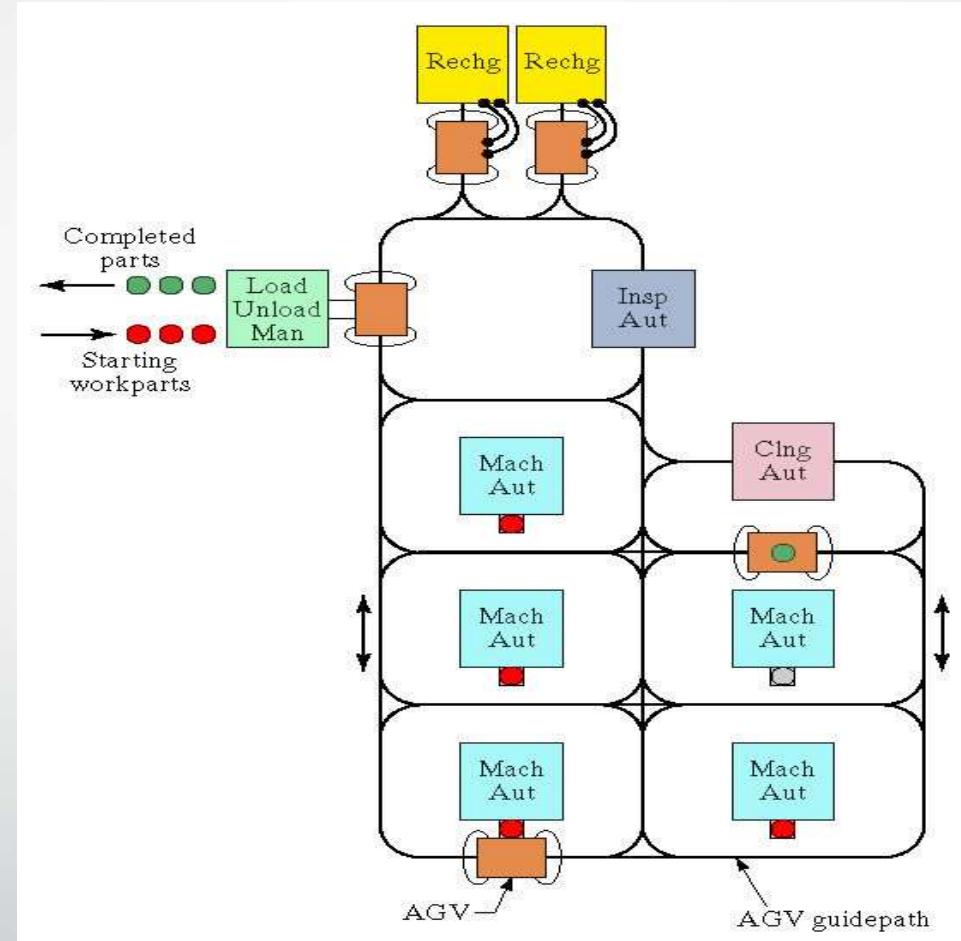
2. Loop Layout



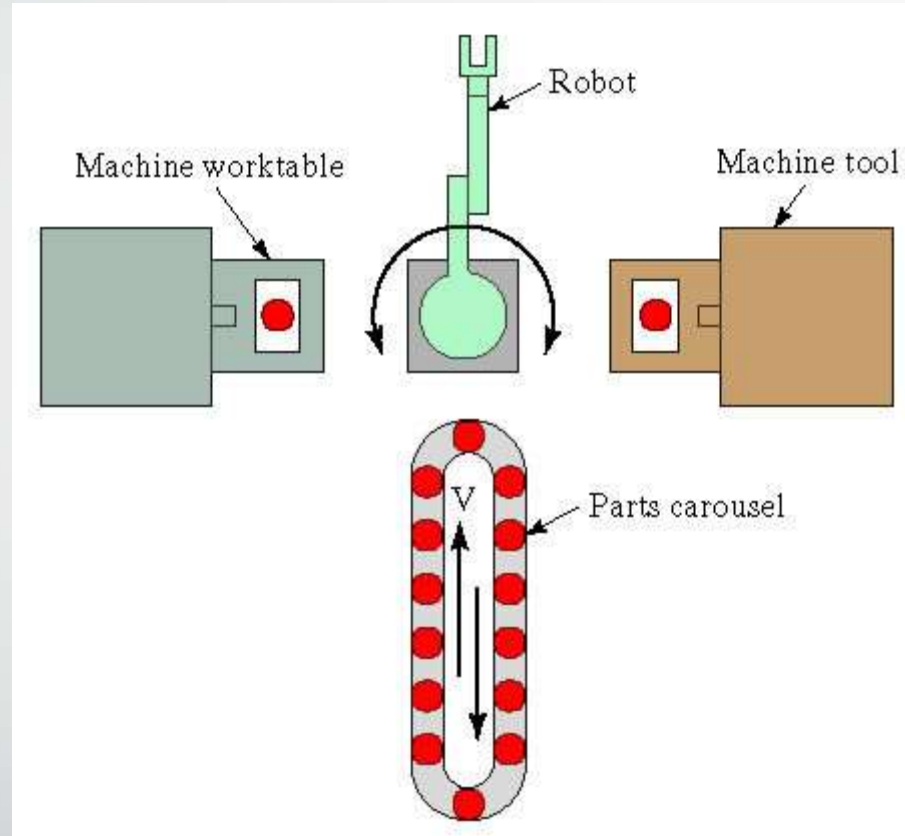
3. Ladder Type Layout

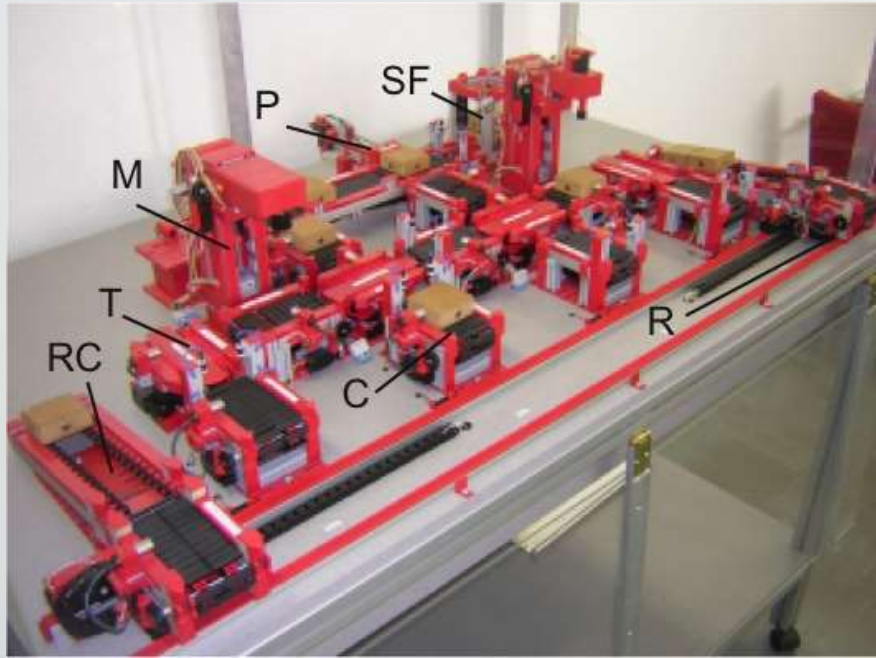


4. Open Field Layout



5. Robot Centered Layout





Application of FMS

- Metal-cutting machining
- Metal forming
- Assembly
- Joining-welding (arc , spot), gluing
- Surface treatment
- Inspection
- Testing

■ Advantages of FMS

- To reduce set up and queue times
- Improve efficiency
- Reduce time for product completion
- Utilize human workers better
- Improve product routing
- Produce a variety of Items under one roof
- Improve product quality
- Serve a variety of vendors simultaneously
- Produce more product more quickly



■ Disadvantages of FMS

- Expensive.
- Substantial pre-planning activity.

Challenges with FMS

- Determining if FMS the best production system for your company
- Possible expansion costs associated with implementing FMS