

Automation

manufacturing management

Automation is a technology concerned with the application of mechanical, electronic, and computer based systems to operate and control production.

Types of automation

- ✿ *Fixed automation*
- ✿ *Programmable automation*
- ✿ *Flexible automation*



Fixed automation



Programmable automation

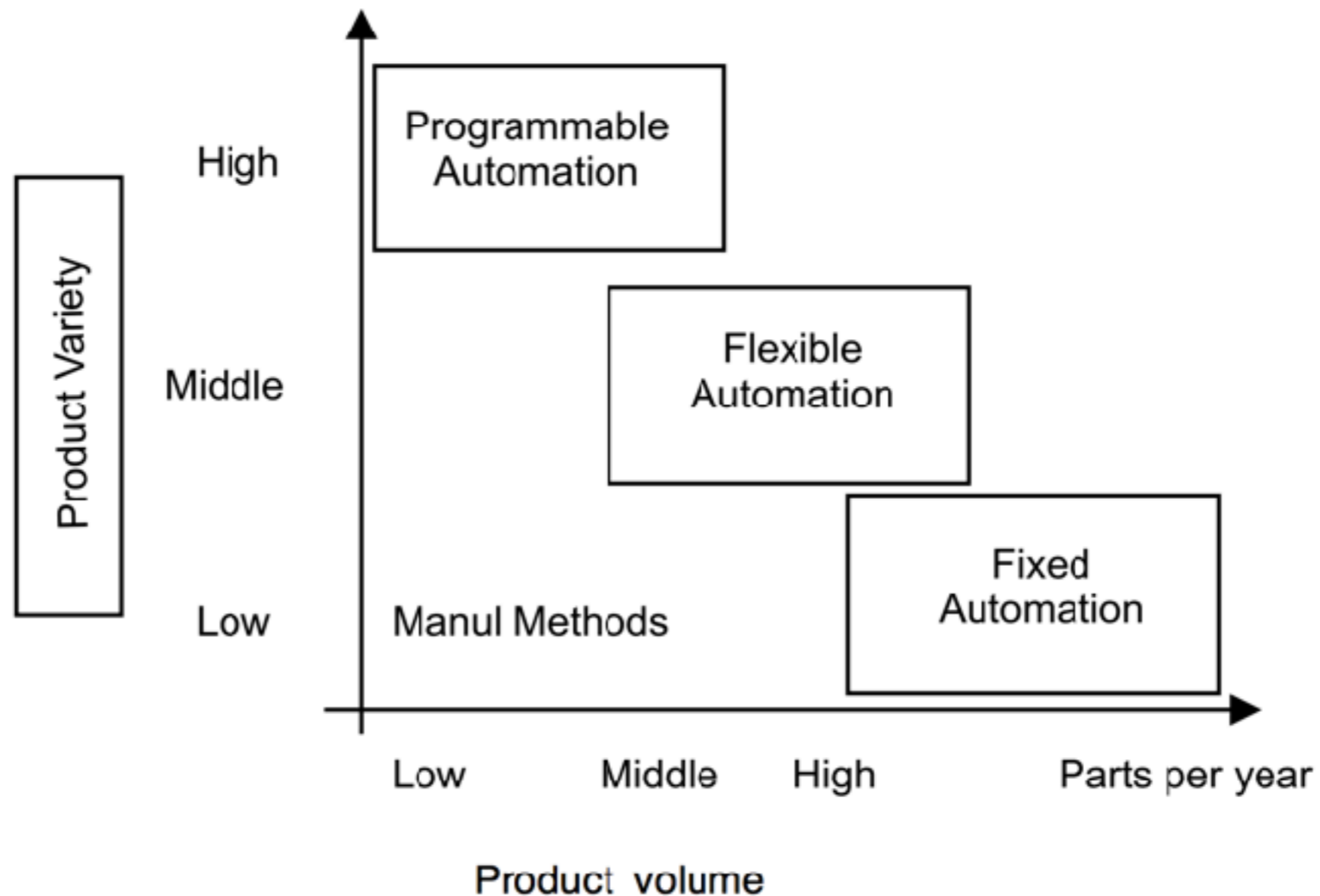
Flexible automation





Types of production automation

Number of different parts



Computer Integrated Manufacturing



Reasons for automation

- ✿ *Increased productivity*
- ✿ *High cost of labour*
- ✿ *Labour shortages*
- ✿ *Safety*
- ✿ *High cost of raw materials*

Reasons for automation

- ✦ *Improved product quality*
- ✦ *Reduced manufacturing lead time*
- ✦ *Reduction of in-process inventory*
- ✦ *High cost of not automating*

Advantages

- ✿ *Shorter workweek*
- ✿ *Safer working conditions*
- ✿ *Better products and lower prices*
- ✿ *Employment opportunities*
- ✿ *Increasing standard of living*

Disadvantages

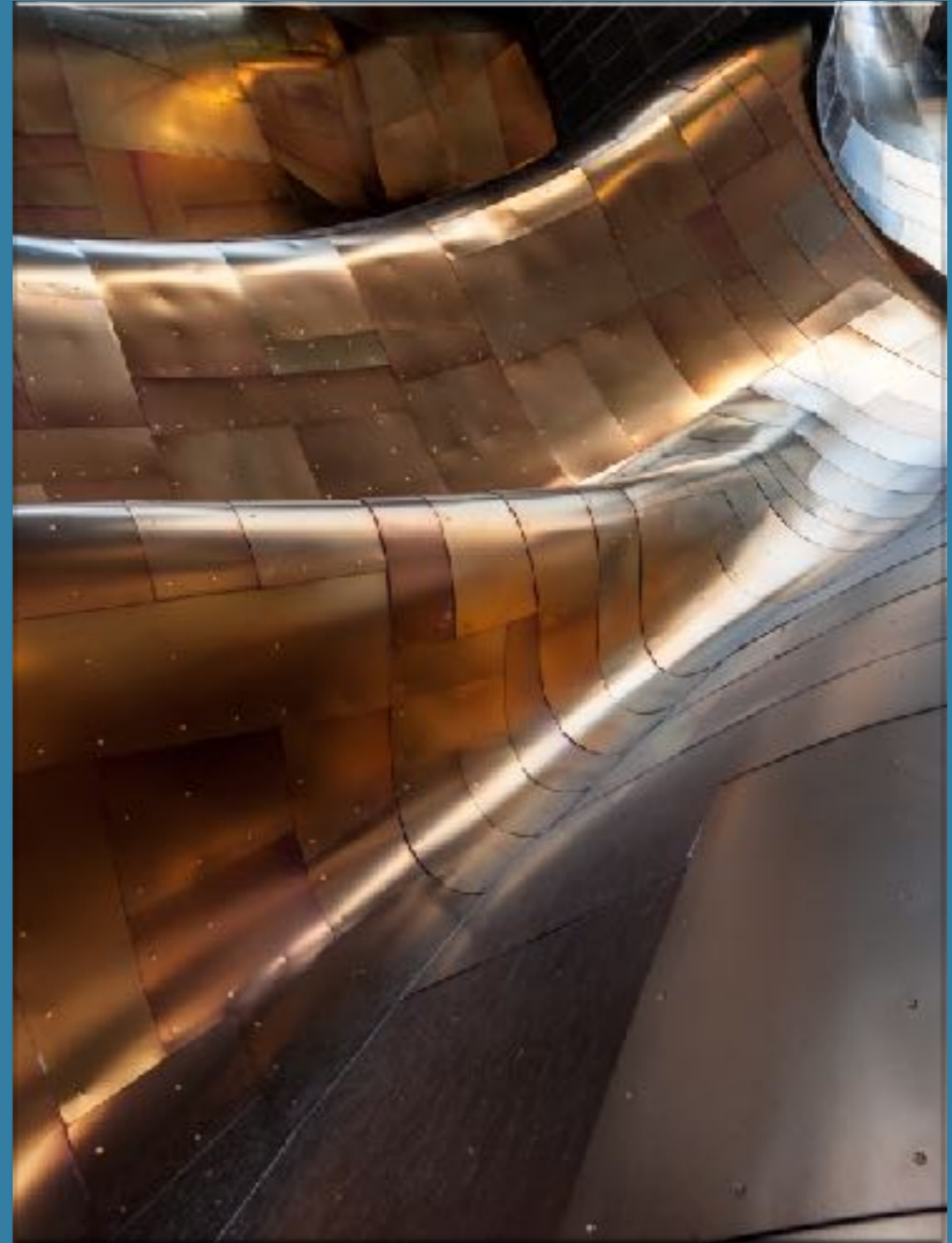
- ✿ *Reduced need for skilled labour*
- ✿ *Reduction in labour force*
- ✿ *Reduce purchasing power*

Automation strategies

Specialization of operations

Combined operations

Simultaneous operations



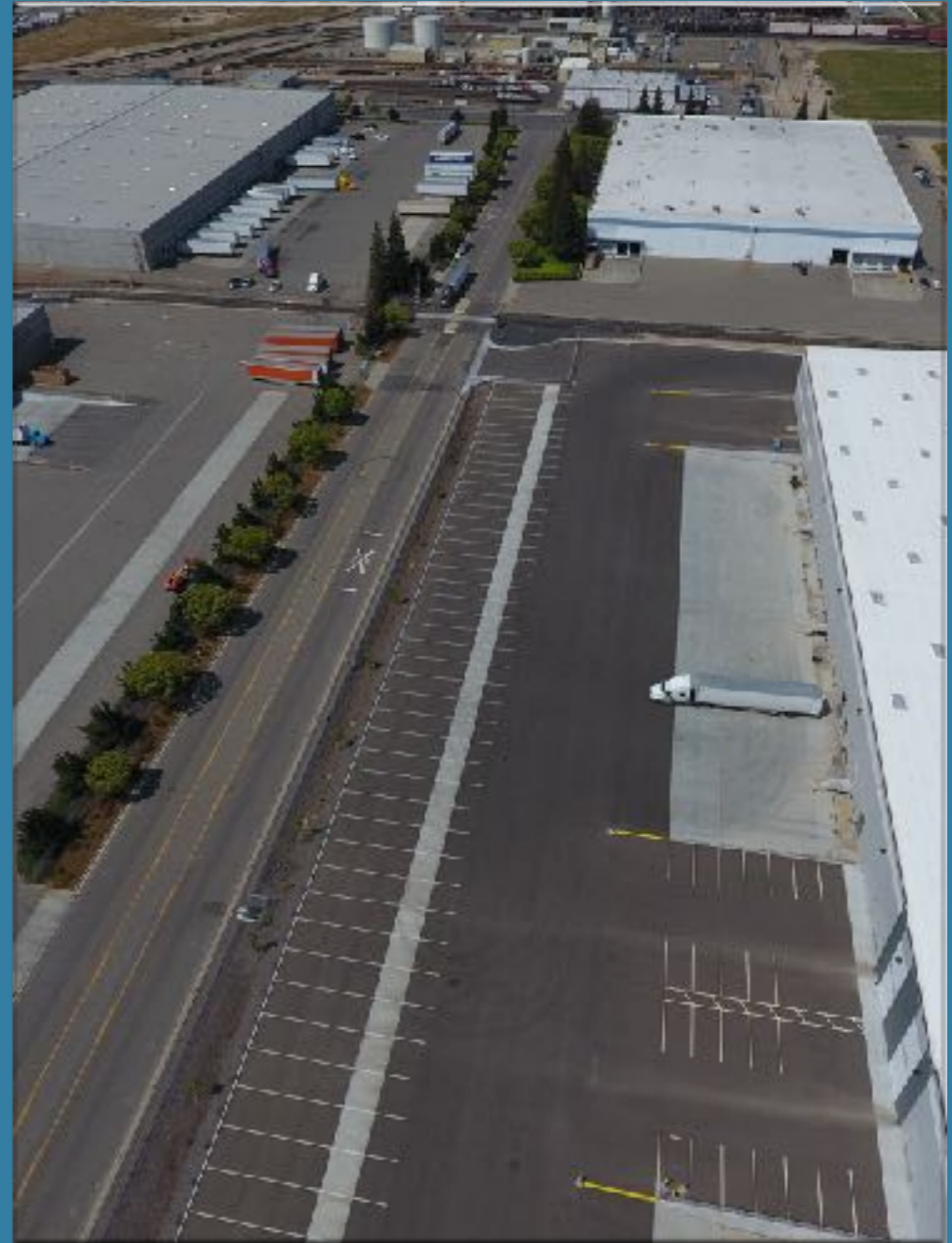
Automation strategies

Integration of operations

Increased flexibility

*Improved material handling and
storage systems*

On-line inspection

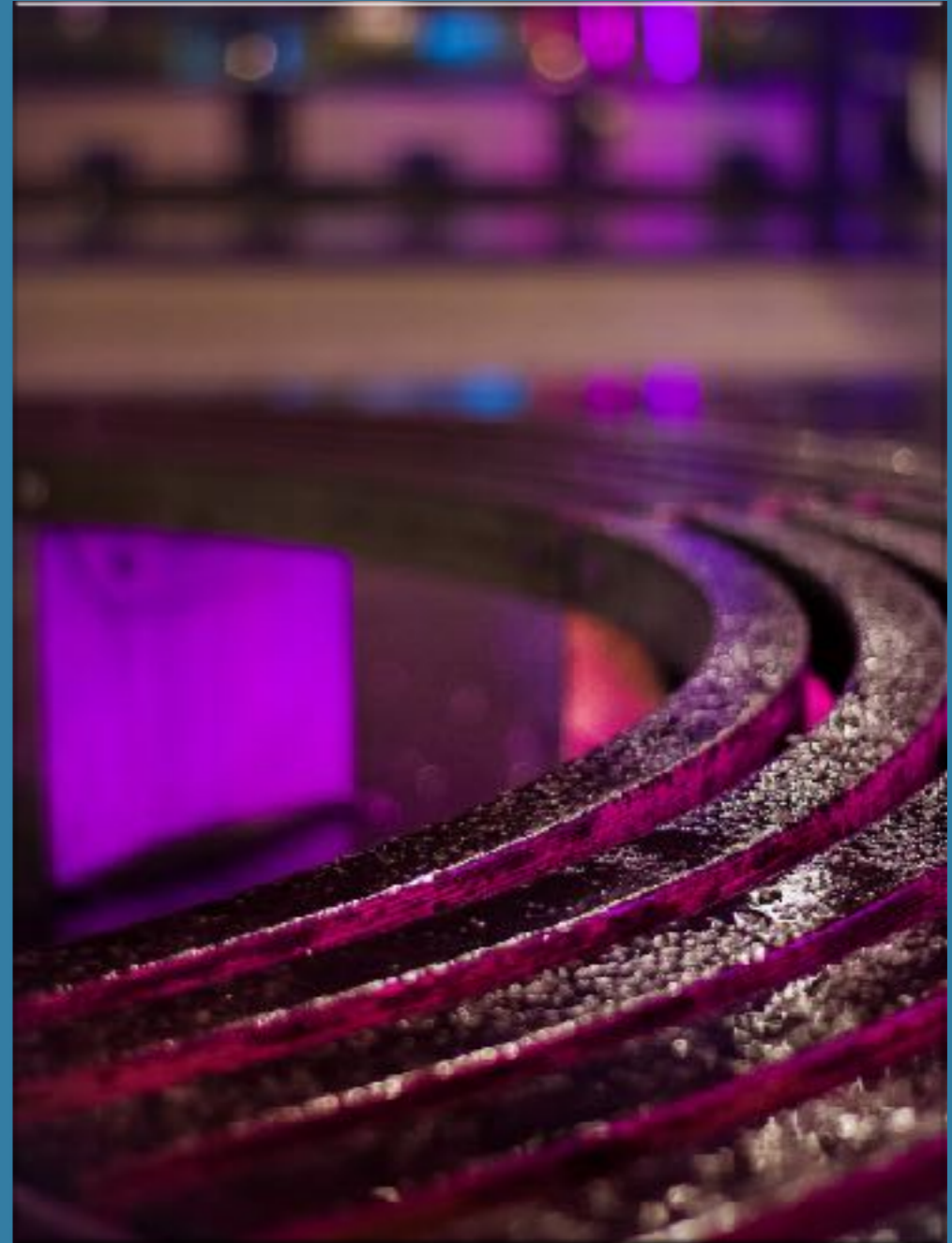


Automation strategies

Process control and optimization

Plant operations control

*Computer integrated
manufacturing*

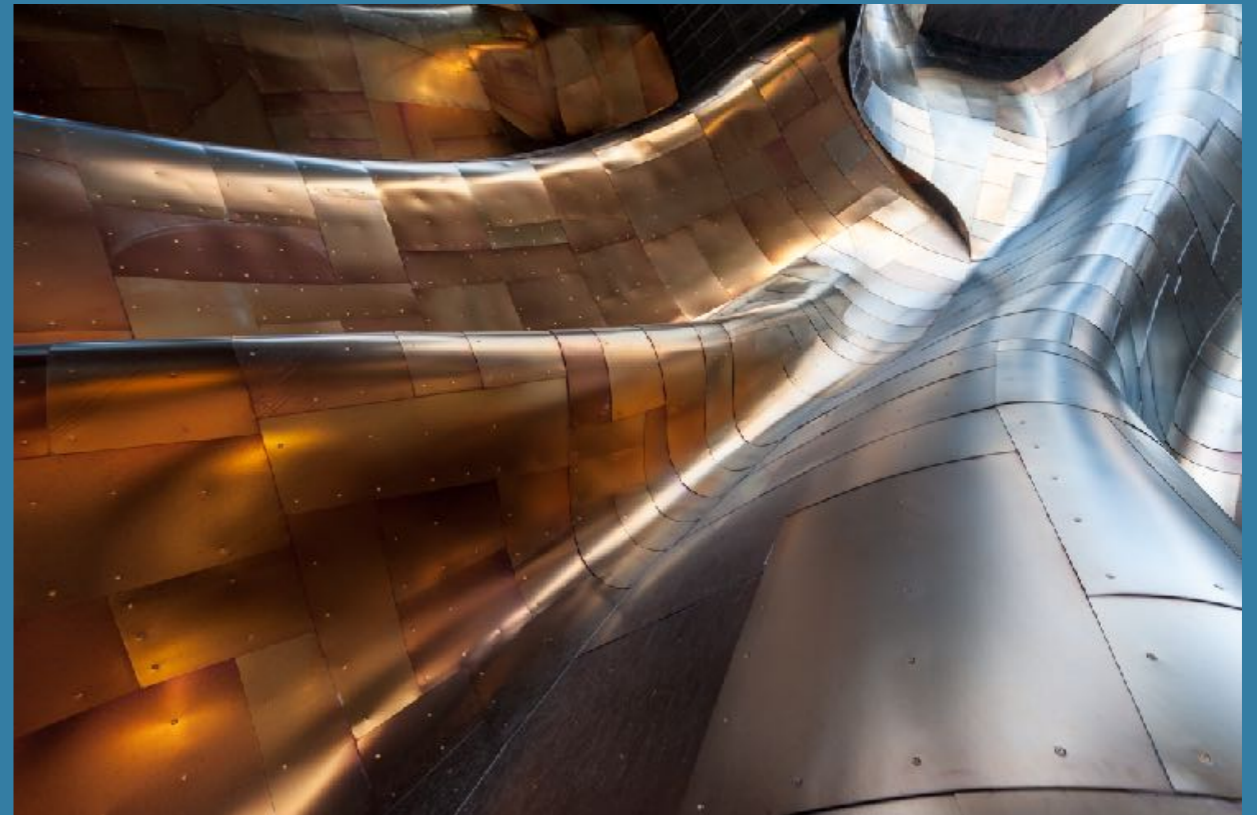




Automated guided vehicles systems

types of agvs

- *Driverless trains*
- *AGVS pallet trucks*
- *AGVS unit load carriers*





Automated storage/retrieval systems

types of as/rs

- *Unit load as/rs*
- *Miniload as/rs*
- *Man-on-board as/rs*
- *Automated item retrieval system*
- *Deep-lane as/rs*

Carousel storage systems

- *storage and retrieval operations*
- *transport and accumulation*
- *unique applications*

the end

muslimraxmon@gmail.com