TABLE 9.5: Features, Advantages, and Disadvantages of the Three Basic Types of Layouts

LAYOUT	FEATURES	ADVANTAGES	DISADVANTAGES
Process Layout	• High product variety with low volumes of production can be handled. • General-purpose equipment and skilled workers can be used. • No predetermined sequence of operations because each job has its unique sequence.	• Flexibility. • Low fixed costs because general-purpose equipment is used. • Job variety motivates workers. • The availability of multiple machines reduces the impact of equipment failure.	• Managing queues of WIP inventory is challenging because jobs to be completed have to wait for the workstation to be available. • Relatively inefficient because idle workers and equipment cause low-capacity utilization. • The variety and volume of WIP inventory require large amounts of storage space. • High levels of WIP inventory generate high-variable costs. • Frequent setups cause high setup costs. • Job complexity results in large supervisory costs. • Accounting, purchasing, and inventory control are complex.
Product Layout	• Sequential production because of the highly standardized nature of the product. • Adaptable to high and constant product demand.	• High efficiency and capacity utilization. • Straightforward and routine accounting, purchasing, and inventory control. Low supervisory costs because of the low complexity of jobs. • High volumes of production lead to economies of scale and low variable costs. • Job specialization and reduced training result in low labor costs.	• The inflexible layout makes product and process redesign difficult. • High capital investment is needed for the highly specialized equipment. • Low employee morale because the jobs are boring and routine. • Risk of idle labor and equipment time if the equipment breaks down.
Fixed-Position Layout	• Product is large, bulky, heavy, or fragile and cannot be easily moved. • Production is based on a project type of process. • Resources such as labor and equipment are brought to the project site. • Project completion time and product quality are critical.	• Most useful when the product is unique and requires a specialized project type of process.	• Limited space can cause the worksite to be crowded and clogged. • High variable costs because of the need for specialized workers. • Low equipment utilization, idle time, and cost overruns can occur if there are unexpected project delays. • The narrow span of supervision and higher administrative burdens results in high supervisory costs.