Lean Office – Layout & Cells

Superfactory Excellence Program™
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Objectives of the Layout Strategy

- Develop an economical layout which will meet the requirements of:
  - product design and volume (product strategy)
  - process equipment and capacity (process strategy)
  - quality of work life (human resource strategy)
  - building and site constraints (location strategy)

What is Layout

- Location or arrangement of everything within & around buildings
- Objectives are to maximize
  - Customer satisfaction
  - Utilization of space, equipment, & people
  - Efficient flow of information, material, & people
  - Employee morale & safety

Strategic Importance of Layout

Proper layout enables:

- Higher utilization of space, equipment,and people
- Improved flow of information, materials, or people
- Improved employee morale and safer working conditions
- Improved customer/client interaction
- Flexibility

Six Layout Strategies

- Fixed-position layout
  - large bulky projects such as ships and buildings
- Process-oriented layout
  - deals with low-volume, high-variety production ("job shop", intermittent production)
- Office layout
  - positions workers, their equipment, and spaces/offices to provide for movement of information

Six Layout Strategies - continued

- Retail/service layout
  - allocates shelf space and responds to customer behavior
- Warehouse layout
  - addresses trade-offs between space and material handling
- Product-oriented layout
  - seeks the best personnel and machine use in repetitive or continuous production

Requirements of a Good Layout

- ✓ an understanding of capacity and space requirements
- ✓ selection of appropriate material handling equipment
- ✓ decisions regarding environment and aesthetics
- ✓ identification and understanding of the requirements for information flow
- ✓ identification of the cost of moving between the various work areas

Constraints on Layout Objectives

- Product design & volume
- Process equipment & capacity
- Quality of work life
- Building and site

Fixed-Position Layout

- Design is for stationary project
- Workers and equipment come to site
- Complicating factors
  - Limited space at site
  - Changing material needs

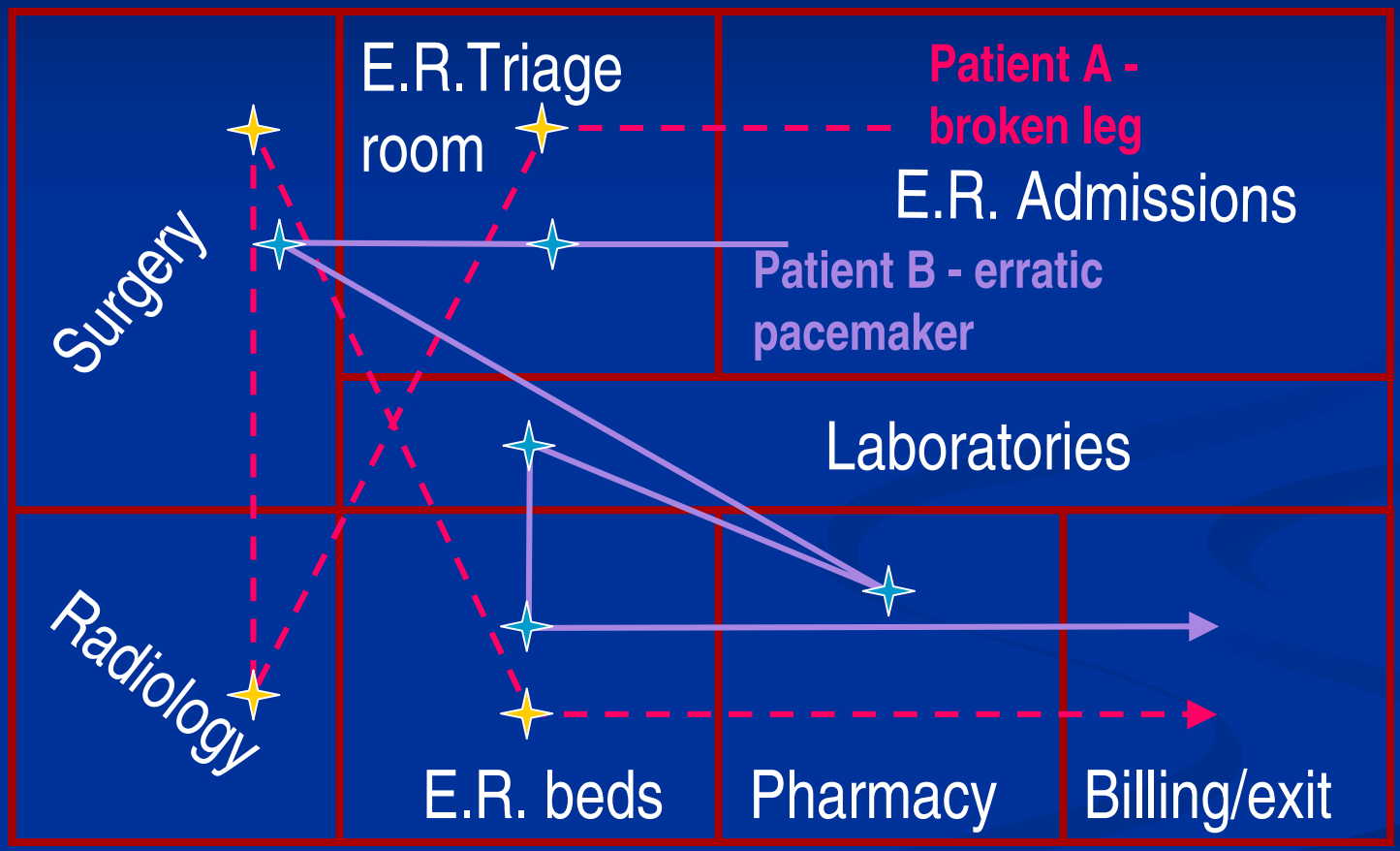
Factors Complicating a Fixed Position Layout

- There is limited space at virtually all sites
- At different stages in the construction process, different materials are needed – therefore, different items become critical as the project develops
- The volume of materials needed is dynamic

Process-Oriented Layout

- Design places departments with large flows of material or people together
- Department areas having similar processes located in close proximity
  - e.g., All x-ray machines in same area
- Used with process-focused processes

Emergency Room Layout



Steps in Developing a Process-Oriented Layout

1. Construct a "from-to matrix"
2. Determine space requirements for each department
3. Develop an initial schematic diagram
4. Determine the cost of this layout
5. By trial-and-error (or more sophisticated means), try to improve the initial layout
6. Prepare a detailed plan that evaluates factors in addition to transportation cost

Cellular Layout - Work Cells

- Special case of product-oriented layout - in what is ordinarily a process-oriented facility
- Consists of *different* operations brought together to make a product