

.(Press to learn more) 3.3. The Continuum of Process Types Dividing processes into two fundamental categories of operations is helpful in our understanding of their general characteristics. To be more detailed, we can further divide each category according to product volume and degree of product standardization, as follows. Intermittent operations can be divided into project processes and batch processes. Repetitive operations can be divided into line processes and continuous processes. Figure 3.3 shows a continuum of process types. Next we look at what makes these processes different from each other ? Project processes: are used to make one-of-a-kind products exactly to customer specifications. These processes are used when there is high customization and low product volume, because each product is different. Examples can be seen in construction, shipbuilding, medical procedures, custom tailoring, and interior design. With project processes the customer is usually involved in deciding on the design of the product. ? Batch processes: are used to produce small quantities of products in groups or batches based on customer orders or product specifications. They are also known as job shops. The volumes of each product produced are still small, and there can still be a high degree of customization. Examples can be seen in bakeries, education, and printing shops. The classes you are taking at the university use a batch process. ? Line processes: are designed to produce a large volume of a standardized product for mass production. They are also known as flow shops, flow lines, or assembly lines. With line processes the product that is produced is made in high volume with little or no customization. Think of a typical assembly line that produces everything from cars, computers, television sets, shoes, candy bars, even food items. ? Continuous processes: operate continually to produce a very high volume of a fully standardized product. Examples include oil refineries, water treatment plants, and certain paint facilities. The products produced by continuous processes are usually in continual rather than discrete units, such as liquid or gas. They usually have a single input and a limited number of outputs. Also, these facilities are usually highly capital intensive and automated. Note that both project and batch processes have low product volumes and offer customization. The difference is in the volume and degree of customization. Project processes are more extreme cases of intermittent operations compared to batch processes. Also, note that both line and continuous processes primarily produce large volumes of standardized products. Again, the difference is in the volume and degree of standardization. Continuous processes are more extreme cases of high volume and product standardization than are line processes. The above figure positions these four process types along the diagonal to show the best process strategies relative to product volume and product customization. Companies whose process strategies do not fall along this diagonal may not have made the best process decisions. Bear in mind, however, that not all companies fit into only one of these categories: a company may use both batch and project processing to good advantage. For example, a bakery that produces breads, cakes, and pastries in batches may also bake and decorate cakes to order. COMMON DRIVERS OF PROCESS DESIGN Different process designs will target different areas of business activity, according to organizational focus and requirements. However, most process design projects are driven by a combination of these common requirements: o The need to increase efficiency: An inefficient business process leads to poor communication, duplication of effort, functional barriers, delays, unnecessary costs (money, materials and manpower) and, ultimately, an output that either partially or

wholly fails to achieve its designated purpose. An example is "mass-production" operations, which usually have much invested in their facilities and equipment to provide a high degree of product consistency. Often these facilities rely on automation and technology to improve efficiency and increase output rather than on labor skill. The volume produced is usually based on a forecast of future demands rather than on direct customer orders. The most common differences between intermittent and repetitive operations relate to two dimensions: (1) the amount of product volume produced, and (2) the degree of product standardization. Product volume can range from making a unique product one at a time to producing a large number of products at the same time. Product standardization refers to "a lack of variety in a particular product".

o The need to evaluate business practice as part of an organizational development project: For example, business process design might be required in preparation for the implementation of enterprise technology such as ERP modules for supply chain management or CRM, or prior to a proposed merger, acquisition or internal restructuring project. When the product concept has been finalized, the role of process management then is to develop cost estimates, define process architecture, conduct process simulation and validate suppliers. At the time the product development teams are developing the prototype, the process management teams test and try out tooling and equipment; help build second phase –an assembly line is a prototypes–; install equipment and specify process procedures. A business process is "a set of logically related business activities that combine to deliver something of value (e.g. products, goods, services or information) to a customer". While, Process design refers to "the activity of determining the workflow, equipment needs, and implementation requirements for a particular process". Work centers that interact frequently, with movement of material or people, should be located close together, whereas those that have little interaction can be spatially separated.

INTRODUCTION At the product conception stage, manufacturing proposes investigates processes and concepts. Concurrently with the detailed product design, process management is involved in the designing of the process, designing and developing tooling and participating in building full-scale prototype. This would minimize the time between customers requesting a product or service and them receiving it. Similarly, if an operation competed on low price, cost-related objectives would be likely to dominate its process design. Some kind of logic should link what the operation as a whole is attempting to achieve, and the performance objectives of its individual processes as illustrated in Table 3.1. This chapter introduces how new processes are designed, and how existing processes are redesigned in response to changing market needs and/or changing operational capabilities.

o The need to manage human resources: Business process design can help to identify current and future HR competence requirements, and is often an integral part of developing a human resource strategy.

PROCEDURES FOR PROCESS DESIGN Process design determines the best relative locations of functional work centers. The operations manager's role is vitally important in integrating all the contributors into the design/redesign process.

THE INTERRELATION BETWEEN PROCESS DESIGN AND PRODUCT/SERVICE DESIGN Often scholars will treat the design of services and products, on the one hand, and the design of the processes which make them, on the other, as though they were separate activities. For example, if an operation competed primarily on its ability to respond quickly to customer requests, its processes would need to be designed to give fast throughput times. Management

coordination: Supervision and communication should be assisted by the location of staff and communication devices.2. 3.1).5.6.???????7.