


Process type	Product		Process description
	Category	Examples	
Project	Special	<ul style="list-style-type: none"> • Sydney Opera House • Oresund bridge connecting Denmark and Sweden • San Gottardo Tunnel in the Alps 	Products that cannot be physically moved once completed use a project process. Here resources (materials, equipment and people) are brought to the site where the product is to be built. These resources are allocated for the duration of the job and will be reallocated once their part of the task is completed or at the end of the job
	Standard	<ul style="list-style-type: none"> • Estate housing • Prefabricated industrial and warehouse units 	
Jobbing	Special	<ul style="list-style-type: none"> • Ocean-going racing yacht • Injection moulding tools • Formula One and Indy racing cars • The design and installation of a process control system 	Once a product can be moved, companies will choose to make it in house and then despatch it to the customer. Jobbing is the name of the process that is used for special (that is, unique) products that will typically not be repeated. Here, one person or a small group of skilled people will complete all the product. Often the task requires the provider to install and commission the product as part of the job
Batch	Standard	 <ul style="list-style-type: none"> • Business cards • Golf tees • Packaging • Plastic bottles 	The repeat and higher volume nature of standard products requires a process designed to take advantage of these characteristics. Batch, line and continuous processing are the alternatives. Which one to use depends on the volumes involved and the nature of the products. Batch can be appropriately used for low through to high (mass) volumes. As how to make the product is known, the steps involved are predetermined and products move from step to step until complete. Batch is chosen for standard products with volumes insufficient to dedicate processes. Thus, different products share the same processes by setting and resetting each time. Consequences of this include waiting between steps and the prioritizing of jobs using the same process
	Mass		
Line	Mass	<ul style="list-style-type: none"> • Domestic appliances • Cans of Coca-Cola • Automobiles • Pet food • Mobile phones 	Higher volumes mean that processes can be dedicated to the needs of a given range of products. Whereas in batch a process has to be reset each time a new product is to be made, in line the process does not have to stop as it has been designed to make the range of products required without being reset. As with batch, the products are standard. The steps to make them are sequentially laid out in line and a product goes from step to step until completed. Although the range of products will vary, to the process they can be made without stopping and resetting the line
Continuous processing	Mass	<ul style="list-style-type: none"> • Petrochemicals • Oil refineries • Some chemical plants 	For some products, the high volumes involved are best handled by continuous processing. In addition to high volume, these products will need to be transferable through piping or in liquid form. Continuous processing is similar to line in that it handles mass products without being stopped and reset. Its distinguishing feature is, however, that to stop and restart the process is lengthy and expensive and consequently it is designed to be run continuously

SOURCE: Hill, T. (2005) *Operations Management*, 2nd edn, Basingstoke, Palgrave Macmillan

EXHIBIT 5.11 Manufacturing processes and their relationship to the product categories in Exhibit 5.1