There is an enormous variety of size enlargement equipment available in the market place. In many industries, the choice of equipment and the expertise related to it has resided with the equipment vendor. This is not ideal from the practitioners point of view and unnecessary, given the current understanding of granulation science as described in chapters 2 to 6.

A better approach to equipment choice is to approach the decision from a product design perspective (section 1.3). This consists of two clear stages:

- Clear, quantitative definition of the desired product granule attributes.
- Choice of a combination of equipment and formulation that will achieve these attributes (see figure 7.1)

To use this approach, the engineer or technologist needs to have both a good understanding of both product use and sensible product characterisation; and a good understanding of the granulation processes that govern the product attributes and the formulation and equipment parameters that influence them.

There are many possible constraints that may also influence equipment choice including:

- The form of the active ingredient feed (dry powder, melt, slurry, solution)
- The need for a dry process for moisture sensitive materials
- Robustness of the process to handle wide ranging feeds
- The need for enclosure due to dust and fume issues
- The desired scale of operation
- The integration of the size enlargement equipment within the existing process plant
- Existing experience within the company on specific types of equipment
- Existing folklore within the company about specific types of the equipment.

In the past, the final two constraints may have often played the largest part in equipment choice. However, our improved quantitative knowledge of granulation processes makes such reliance unnecessary.
Table 7.1 lists a size enlargement processes with some broad comments on the range of granule size, morphology and porosity that can be achieved in different pieces of equipment. It is important to note that because both process parameters and formulation properties can be manipulated, there is no unique “best” choice of equipment for a given situation.

Below, size enlargement processes are classified and briefly introduced. Chapters 8 to 10 describe the different classes of equipment and their design, operation and scale up in more detail.