The difference between BS100 and MTM100

Industrial Engineers and others involved in setting performance levels and targets will know that 100 in the BS100 definition means Standard Performance – end of. However, they also have to be aware that some companies operate with standards set at MTM100 – and that's a whole different ball game.

To clarify

For **Standard Performance**, the British Standard BS100 definition is: *"The rate of output which qualified workers can achieve without over-exertion as an average over the working day or shift provided they adhere to the method and provided they are specially motivated to apply themselves to their work."* BS32324.

In TMUs, BS100 performance is 2,000 TMUs per minute.

For **MTM** users, however, their standard has a different basis. MTM is synthetic data, established in the late 1940s and the basis of many synthetic time systems successfully used today. The performance level of 100 in the MTM system is described as *"It was to be a pace which appears somewhat slow when observed and which can be accelerated without too much difficulty"* and *"He was not expected to be noticeably good at doing the job..."*. This MTM100 performance level was considered 'average', a lower level 'poor' increasing to 'fair' and beyond 'average', 'good', 'excellent' and 'super skill'.

These performance definitions are within the MTM extracts from the work of the people who founded the MTM system: Maynard, Stegemerten and Schwab in their book "Methods-Time Measurement" published in 1948.

In TMUs, MTM100 is set at 1,666 TMUs per minute or 100,000 TMUs per hour (largely in Europe and the US). So the equivalent of MTM100 in British Standard is BS83.3. This was based on micromotion photography with a camera speed of 16 frames/second. They wanted the time expressed as decimal minutes and the new time measurement unit (TMU) was 0.00001 hours. This is 0.0006 minutes and 0.036 seconds, hence 1,666 TMUs per minute. (This doesn't include any rest or personal allowance nor contingencies or other delays. Note also the time from the film was 'levelled' by a form of rating by several experienced observers.)

Let's put these comparative performances into context

Using the following description of the BS100 and the MTM100,

BS100 is described as *"good, motivated, rhythmical, works in a correct and proper manner".* In MTM terms, MTM100/BS83.3 is described as *"not noticeably good at doing the job but not noticeably poor"*

MTM100 (or BS83.3) we describe as: modest, mediocre and contained, moderate energy and lacking rhythm.

If say 85% performance is achieved against a standard set at BS83.3, it is practically then only BS70.8 performance which is officially described as *"very ordinary, not good."* A consequence is that someone achieving BS83.3 performance against standards set at BS100 only 'earns' around 80% of the Relaxation Factor/Rest Allowance included in the Standard Minutes which are applied at BS100.

In summary

Practically, an organisation can apply time standards and manage performance against them at whatever level they choose, providing that performance level is understood, transparent, consistent and sensibly managed.

What Industrial Engineers should be aware of is whether they're measuring performance against BS100 or MTM100. If they confuse the latter for the former, they will sacrifice a potential 20% uplift (100/83.3) in performance.

The majority of businesses in the UK use BS100 as their standard. Some international businesses including software suppliers use data set at MTM100 as their standard. Unless this latter is converted, their targets are effectively being set at BS83.3 so there will be significant disparity between performance levels and targets. And that's when 100 is not 100!