Exercise – (available) capacity

Your organisation employs 100 production staff on full-time contracts, and you have been asked to establish the organisation's average weekly manhour output capacity (i.e. what you are able to sell to your customers) for budgetary and planning purposes. Assuming that staff are contracted to attend a 37.5 week, determine what you would consider to be a realistic average weekly manhour output capacity?

Explain the assumptions you have made in arriving at this figure.

Exercise – (available) capacity

Model Answer

If each member of staff is contracted to attend their place of work for 37.5 hours, then on an annual basis they are paid for 37.5 hours x 52 (weeks) = 1,950 hours.

But they don't attend every rostered working day, so we need to make allowance for this:

1. Annual Leave. This is typically 26 days per annum and additionally there are 8 statutory days across the year yielding a total of 34 days or 34 x 7.5 = 255 hours.
2. Training. Key for maintaining staff recency and developing further competencies, however, prevents productive work. Usual to make a percentage allowance, say 3%, 1,950 x 3% = 58.5 hours.
3. Sickness. Allow 3% for this as well, yielding a further 58.5 hours loss.

Leave, training and sickness reduce the paid attended hours by 255 + 58.5 + 58.5 = 372 hours

So, of the paid 1950, the total attended hours become 1,950 – 372 = 1,578 hours

In addition to this, contractually, it is likely that there are paid breaks in each working shift:

- Shift start allowance (getting changed etc.) 0.25 hours
- Meal break 0.50 hours
- End of shift allowance (wash up, changing etc.) 0.25 hours

So, on each attended shift there is 1 hour of non-productive time that is paid for by the organisation.

Over the year, the net attended shifts is 1,578 ÷ 7.5 ≅ 210 (rounded to the nearest whole number)

Paid breaks across the year equates to 210 x 1 hour = 210 hours

So, of the 1,578 attended hours, after deducting paid breaks 1,578 – 210 = 1,368 hours of productive time or manhours are left (or expressed in another way, about 70% of the paid hours)

Taking this back down to a weekly level, 1,368 ÷ 52 = 26.31 manhours/week/production staff

So, for 100 production staff the organisation can expect an average of 26.31 x 100 = 2,631 manhours per week.

If productivity was 100% then it would be reasonable to sell this number of manhours. However, in reality, for a maintenance type environment, it is unlikely to be more than 60% (this figure would apply to best in class).

Taking an optimistic view, after factoring in productivity, total average weekly output capacity = 2,631 x 60% = 1,579 manhours.