

ENGINEUITY TUTORIAL



**Setting Staffing Levels for the Head Office,
QHSE and Measurement Departments**



Setting Staffing Levels for the Head Office, QHSE and Measurement Departments

The staff in these departments perform tasks related to the company's jobs in progress :-

- **Head Office** staff deal with buying, accounting and IT issues
- **QHSE** staff deal with quality, health & safety and environmental issues
- **Measurement** staff (quantity surveyors) ensure that money is recovered from the client

The task of the Overhead Manager is to ensure that the level of staff in each department each period is able to manage the company's jobs in progress without any deterioration in the performance of the jobs.

We will now look at an example of how to set adequate staffing levels for each department.



Setting Staffing Levels for the Head Office, QHSE and Measurement Departments

MAKING Overhead decisions for period 5 in the Early Years

Change period Key information Help

Consider the following situation.

It is the beginning of period 5, and the Overhead Manager needs to decide upon the staffing levels for the Head Office, QHSE and Measurement Departments.

The principal for setting the staffing level applies to all 3 departments, **so we will concentrate on the Head Office Department.**

OTHER DEPARTMENTS

STAFFING LEVEL

Department	Last period	This period	
	Company staff	Company staff	Agency staff
Head Office	3	3	0
QHSE	2	2	0
Measurement	2	2	0

The staffing levels for the Head Office, QHSE and Measurement Departments for the current period can only be set once appropriate labour has been allocated to jobs in progress on the Job Progression (Labour) Decisions Screen

Calculate projected turnover for jobs in progress



Setting Staffing Levels for the Head Office, QHSE and Measurement Departments

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Change period Key information Help

This period we currently have 3 Head Office staff, all are company staff and there are no agency staff.

How do we know if 3 staff will be enough to manage the company's turnover this period ?

To answer this question we must do two things :-

1. Assess the level of turnover that each person can support
2. Determine the expected turnover in the period for all jobs being progressed

KEY POINTS

The **turnover of the company in the period** is the amount of money the company receives from progressing all jobs in progress, and is directly related to the amount of effective labour on each site.

OTHER DEPARTMENTS

STAFFING LEVEL

Department	Last period	This period	
	Company staff	Company staff	Agency staff
Head Office	3	3	0
QHSE	2	2	0
Measurement	2	2	0

The staffing levels for the Head Office, QHSE and Measurement Departments for the current period can only be set once appropriate labour has been allocated to jobs in progress on the Job Progression (Labour) Decisions Screen

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Setting Staffing Levels for the Head Office, QHSE and Measurement Departments

Overhead Performance Navigate to "Main menu/Making decisions/Overhead decisions/Key information/Head office, QHSE, Measurement staffing"

Management consultant report

MARKETING DEPARTMENT HEAD OFFICE / QHSE / MEASUREMENT

Period	Status	Turnover	Bench	Head Office				QHSE				Measurement			
				Number of staff				Number of staff				Number of staff			
				Comp	Agen	Total	Comment	Comp	Agen	Total	Comment	Comp	Agen	Total	Comment
1	History	0		0	0	0		0	0	0		0	0	0	
2	History	0		0	0	0		0	0	0		0	0	0	
3	History	7,963,220		3	0	3		2	0	2		2	0	2	
4	History	12,834,570	YES	3	0	3		2	0	2		2	0	2	

INFORMATION

- Period 4 should be used as a benchmark when determining the staffing level required
- "Comp" is the company's own staff
- No comment indicates that

ASSESSING THE LEVEL OF TURNOVER THAT EACH PERSON CAN SUPPORT

Period 4, the last period of the History, sets the **benchmark** staffing/turnover level i.e., the number of staff required to support the level of turnover without impairing performance.

We can see that 3 head office staff can cope with 12,834,570 of turnover.

This is the benchmark for all future staffing levels for the Head Office Department.



Setting Staffing Levels for the Head Office, QHSE and Measurement Departments

Projected turnover in period 5

A measure of how much work the company will do in the period.

Job	Labour on site			Expected turnover per labourer			Projected turnover
	Own	Sub	Total	Bid value	Total planned labour	Expected turnover for each labourer	
1	117	0	117	18,806,140	291	64,626	7,561,242
25	53	9	62	4,454,338	140	31,817	1,972,654
29	40	0	40	2,801,234	66	42,443	1,697,720
56	45	0	45	8,401,668	131	64,135	2,886,075
69	34	0	34	4,290,445	72	59,590	2,026,060

16,143,750

TERMINOLOGY

The expected turnover for each labourer each period = bid value / total planned labour for the job

USING PROJECTED TURNOVER

The projected turnover is used to determine the optimum number of head office, QHSE and measurement staff required in the period to cope with the amount of work in progress.

Job size reference	This period		
	% Split	Country preference	Job Size Preference
No preference	10	No preference	No preference
No preference	46	No preference	No preference
No preference	31	No preference	No preference
No preference	7	No preference	No preference
No preference	6	No preference	No preference

100 %

No preference	No preference
Prefer UK jobs	Prefer large jobs
Prefer Overseas jobs	Prefer medium jobs
	Prefer small jobs

staff

The staffing levels for the Head Office, QHSE and Measurement Departments for the current period can only be set once appropriate labour has been allocated to jobs in progress on the Job Progression (Labour) Decisions Screen

Calculate projected turnover for jobs in progress

DETERMINING THE EXPECTED TURNOVER IN THE PERIOD FOR ALL JOBS PROGRESSED

ASSUMING that appropriate labour allocations have been made on the Job Progression screen, the **expected turnover** for all jobs being progressed can be determined using the **Calculate projected turnover for jobs in progress** button.

The expected turnover in period 5 across all jobs being progressed is 16,143,750.



Setting Staffing Levels for the Head Office, QHSE and Measurement Departments

Bearing in mind the benchmark of 3 Head Office staff being able to support 12,834,570 of turnover, if the turnover is expected to be 16,143,750, the number of staff required is $(16,143,750 / 12,834,570) \times 3 = 3.77$, rounded up to **4 staff**, since fractions of staff are not allowed.

Since there are currently 3 Head Office staff employed at the moment, an extra 1 person needs to be recruited to cover the slight **shortfall**, and to facilitate this there are two choices :-

- Employ more **company staff**, bearing in mind that there is a limit on the number of new company staff that can be employed each period, as defined in the **Industry parameters** (3 for Head Office). New company staff also incur a recruitment & training cost in their first period.
- Employ **agency staff** for the current period only. Agency staff attract a higher salary than company staff.

Since the company is looking to increase turnover in the next year, its more **cost-effective in the long run** to increase the company's own staff rather than use agency staff, so we will employ an additional 1 company staff, which is within the limitations for new staff.

Department	Company staff				No. of extra staff allowed each period	Agency Annual salary
	Annual salary	Recruit & training cost	Paying off cost	% annual salary		
Marketing	28,000	18 %	16 %		2	
Head Office	22,000	12 %	14 %		3	33,000
QHSE	30,000	18 %	16 %		2	45,000
Measurement	35,000	20 %	17 %		2	54,000



Setting Staffing Levels for the Head Office, QHSE and Measurement Departments

MAKING Overhead decisions for period 5 in the Early Years

Change period Key information Help

MARKETING DEPARTMENT

STAFFING LEVEL

Last period	This period
Company staff	Company staff
2	2

MARKETING EFFORT

Sector	Last period			This period		
	% split	Country preference	Job size preference	% Split	Country preference	Job Size Preference
Industrial	10 %	No preference	No preference	10	No preference	No preference
Building & Commercial	46 %	No preference	No preference	46	No preference	No preference
Transport	31 %	No preference	No preference	31	No preference	No preference
Energy	7 %	No preference	No preference	7	No preference	No preference
Water & Sewage	6 %	No preference	No preference	6	No preference	No preference
				100 %	No preference Prefer UK jobs Prefer Overseas jobs	No preference Prefer large jobs Prefer medium jobs Prefer small jobs

OTHER DEPARTMENTS

STAFFING LEVEL

Department	Last period	This period	
	Company staff	Company staff	Agency staff
Head Office	3	4	0
QHSE	2	3	0
Measurement	2	3	0

The staffing levels for the Head Office, QHSE and Measurement Departments for the current period can only be set once appropriate labour has been allocated to jobs in progress on the Job Progression (Labour) Decisions Screen

Calculate projected turnover for jobs in progress

The staffing levels for the QHSE and Measurement Departments are determined in the same manner, based upon benchmark staffing levels and anticipated turnover levels.

Having performed the necessary calculations **an extra 1 person** is required in each Department to prevent any shortfall.

KEY POINTS

If the fraction of required level of staffing is very low i.e., below 0.05, such as 3.02, 4.03 etc, then rounding up to the next integer is **probably not cost effective**, and the integer value can be used e.g., if 3.02 staff are required, 3 can be used.



Setting Staffing Levels for the Head Office, QHSE and Measurement Departments

MAKING Overhead decisions for period 5 in the Early Years

Change period Key information Help

We have seen that setting adequate staffing levels in the current period for the Head Office, QHSE and Measurement Departments involves :-

1. For each department establishing the level of turnover that each person can support, known as the **benchmark level**, which comes from the staffing/turnover levels during period 4.
2. Complete the labour allocations for the current period on the Job Progression Screen, and determine the **expected turnover in the current period**.
3. Use the information from step 1, and the expected turnover level in step 2 to determine the **required staffing levels** for each department in the current period.

KEY POINTS

The benchmarks in step 1 will not change, **but the company's expected turnover will vary each period.**

OTHER DEPARTMENTS

STAFFING LEVEL

Department	Last period	This period	
	Company staff	Company staff	Agency staff
Head Office	3	4	0
QHSE	2	3	0
Measurement	2	3	0

The staffing levels for the Head Office, QHSE and Measurement Departments for the current period can only be set once appropriate labour has been allocated to jobs in progress on the Job Progression (Labour) Decisions Screen

Calculate projected turnover for jobs in progress



Setting Staffing Levels for the Head Office, QHSE and Measurement Departments

Overhead Performance Navigate to "Main menu/Making decisions/Overhead decisions/Key information/Head office, QHSE, Measurement staffing"

Management consultant report

MARKETING DEPARTMENT **HEAD OFFICE / QHSE / MEASUREMENT**

Period	Status	Turnover	Bench	Head Office				QHSE				Measurement			
				Number of staff				Number of staff				Number of staff			
				Comp	Agen	Total	Comment	Comp	Agen	Total	Comment	Comp	Agen	Total	Comment
1	History	0		0	0	0		0	0	0		0	0	0	
2	History	0		0	0	0		0	0	0		0	0	0	
3	History	7,963,220		3	0	3		2	0	2		2	0	2	
4	History	12,834,570	YES	3	0	3		2	0	2		2	0	2	
5	Early Years	12,925,720		4	0	4		3	0	3		3	0	3	

INFORMATION

- Period 4 should be used as the benchmark when determining the staffing level required
- "Comp" is the company's own staff; "Agen" are agencies
- No comment indicates that the staffing levels are optimum

When the decisions have been processed for the period, and the results received, an analysis can be done of how effective the staffing levels have been for the previous period.

If there are no comments in the "Comment" column it indicates that the optimum level of staff have been allocated.

We will not look at what happens if the staffing levels set are lower (**understaffing**) than the required levels, or higher (**overstaffing**).

KEY POINTS

The turnover shown is the actual turnover, not the expected turnover.

For example, if some jobs have been over manned too much, resulting in ineffective labour that does not contribute to progressing the job, the actual turnover will be less than the expected turnover, as in the example given.



Setting Staffing Levels for the Head Office, QHSE and Measurement Departments

Overhead Performance Navigate to "Main menu/Making decisions/Overhead decisions/Key information/Head office, QHSE, Measurement staffing"

Management consultant report

MARKETING DEPARTMENT HEAD OFFICE / QHSE / MEASUREMENT

Period	Status	Turnover	Bench	Head Office				QHSE				Measurement			
				Number of staff				Number of staff				Number of staff			
				Comp	Agen	Total	Comment	Comp	Agen	Total	Comment	Comp	Agen	Total	Comment
1	History	0		0	0	0		0	0	0		0	0	0	
2	History	0		0	0	0		0	0	0		0	0	0	
3	History	7,963,220		3	0	3		2	0	2		2	0	2	
4	History	12,834,570	YES	3	0	3		2	0	2		2	0	2	
5	Early Years	12,925,260		2	0	2	Noticeable understaffing	1	0	1	Significant understaffing	1	0	1	Significant understaffing

INFORMATION

- Period 4 should be used as the benchmark when determining staffing level required
- "Comp" is the company's own staff; "Agen" are agency staff
- No comment indicates that the staffing levels set are sufficient

UNDERSTAFFING

Understaffing of the Head Office, QHSE and Measurement departments, below the required level, will have **negative affects** across all jobs being progressed, namely :-

- Head Office, an **increase in job costs** (build costs)
- QHSE, an **increase in job costs** (build and risk costs)
- Measurement, a **reduction in measured value** (turnover)

Understaffing is a false economy. It might reduce overhead costs, but will also reduce job profits, resulting in reduced operating profits for the company.

The example shown indicates that staffing in all 3 departments was insufficient.



Setting Staffing Levels for the Head Office, QHSE and Measurement Departments

Overhead Performance

Navigate to "Main menu/Making decisions/Overhead decisions/Key information/Head office, QHSE, Measurement staffing"

Management consultant report

MARKETING DEPARTMENT

HEAD OFFICE / QHSE / MEASUREMENT

Period	Status	Turnover	Bench	Head Office				QHSE				Measurement			
				Number of staff			Comment	Number of staff			Comment	Number of staff			Comment
Comp	Agen	Total	Comp	Agen	Total	Comp		Agen	Total	Comp		Agen	Total		
1	History	0		0	0	0		0	0	0		0	0	0	
2	History	0		0	0	0		0	0	0		0	0	0	
3	History	7,963,220		3	0	3		2	0	2		2	0	2	
4	History	12,834,570	YES	3	0	3		2	0	2		2	0	2	
5	Early Years	12,925,460		6	2	8	Significant overstaffing	4	2	6	Significant overstaffing	4	2	6	Significant overstaffing

INFORMATION

- Period 4 should be used as the benchmark when setting staffing level required
- "Comp" is the company's own staff; "Agen" are agency staff
- No comment indicates that the staffing levels set are sufficient

OVERSTAFFING

Overstaffing of the Head Office, QHSE and Measurement departments, above the required level, has no negative affects across jobs being progressed, **but does incur unnecessary additional overhead costs.**

The example shown indicates that staffing in all 3 departments was more than sufficient .

KEY POINTS

Understaffing is to be avoided at all costs, and it is better to slightly overstaff if the optimum level cannot be met due to the rounding of staffing levels to whole people.