Motivating maintenance craftsmen – do we know what we're doing?

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Background

In the last quarter of the 20th century the UK enjoyed the luxury of a surplus of craft skills due to the demise of its manufacturing base. Throughout this period, maintenance craftsmen from manufacturing companies moved into other sectors such as utilities and facilities management. As a result, these sectors no longer needed to train their own apprentices. Also, with new technology improving the reliability of plant, the demand for traditional craft maintenance skills diminished and the multi-skilled operator/maintainer replaced single discipline craft expertise.

In the new millennium, however, we now see craft shortages and an ageing workforce in maintenance. As I shall demonstrate, this shortage is due to the impact of outsourcing and a lack of long-term planning.

But does it really matter? Why do we need maintenance craftsmen? We live in an age where reliability is expected: we have got used to things not going wrong. Yet when they do go wrong, can we find someone to fix the problem? And when we do find someone, how do we know they will do a good job? You only have to watch the television to see the horror stories of untrained, unskilled plumbers and electricians charging the earth for shoddy workmanship. If we want to insure our home central heating against failure, an annual service must be carried out to check that everything is in order by an approved and reputable organisation. How many people challenge the recommended service intervals for their car and risk the inconvenience of a breakdown through not investing in a timely and appropriate service? Isn't it strange how we adopt a common sense approach to anything we invest in for ourselves, yet fail to apply these principles when it comes to operating and maintaining plant and equipment in the workplace? Could our failure to use common sense explain why maintenance craftsmen are frustrated and a career in maintenance is so unattractive?

The introduction of the modern apprenticeship is intended to arrest the decline in craft skills. Many of these new craftsmen are, however, attracted to contract work, which is more lucrative than maintenance. The demise of maintenance craftsmen continues. Remuneration, however, may not be the only reason a career in maintenance has been, and still is, proving unattractive to skilled craftsmen. When we look at the role of maintenance craftsmen we find that they are still viewed in much the same way as

they were when manufacturing was at its height. Their role is typically highly reactive and time dependant. We expect them to sort out our problems out as soon as they arise and quickly. In this article I show how we need to look beyond remuneration to the job itself to understand why maintenance work continues to prove so unattractive in the twenty-first century.

Introduction

Do we really understand what makes maintenance craftsmen tick? After spending over thirty years working with maintenance craftsmen in a variety of industries and market sectors, I have come to the conclusion that the answer is 'No, not really'. Chief Executives often say to me that maintenance is a headache: a problem better managed by somebody else preferably through outsourcing. They describe craftsmen as 'a law unto themselves' and 'out of control'. Nothing seems to have changed much in my 30 years of working in the field of maintenance.

So is it the case that craftsmen and maintenance are 'out of control'? Or is it that we just don't understand what motivates craftsmen or what drives them to do an exceptional job?

This article will examine:

- some of the reasons why we believe craftsmen and maintenance are 'a law unto themselves';
- how craftsmen are perceived by others and how they themselves perceive others;
- why rewards and recognition are often misread, and
- what impact outsourcing has on the views of the craftsmen that do the work.

It will also set out a fresh approach to motivating craftsmen that will improve their productivity, improve the performance of the assets they maintain and engage all maintenance stakeholders in effective decision making.

The perception of craftsmen

Relationship between Production/Operations (Ops) and Maintenance

One of the core elements of my work is establishing improved working relationships between Ops and Maintenance. To gain an early understanding of how Ops see Maintenance and vice versa I often ask them to draw a picture of how they see each other. This exercise has always proved to be very revealing. In many cases, Ops draw their Maintenance colleagues as being laid back, often drinking large mugs of tea and with a lot to say! And how does Maintenance see Ops? Ops are often drawn as headless chickens, running round in a blind panic!

I then bring Ops and Maintenance together to discuss their pictures of each other and why they see each other in the way they do. The stories behind the pictures tell us a lot. The assumption by Ops that Maintenance are hanging around with nothing to do is challenged by Maintenance who say that there is little point in starting a planned job because they will always be expected to respond immediately to any operational failures. For their part, Ops are surprised to be seen as headless chickens when requesting maintenance work. They fail to recognise that their expectation of an immediate response to a maintenance request is received as Ops seeing every situation as a crisis - hence the headless chickens.

Could it be that the Ops approach to requesting maintenance work is actually creating an environment where the maintenance function is inevitably less productive?

Craftsmen's motivation
When I start work with a group of maintenance craftsmen there is often an obvious lack of drive, enthusiasm and excitement about what they do. Commitment, yes – but the 'spark' is missing. One highly skilled and extremely capable craftsman said in a workshop to discuss planning processes 'I'm not paid to think'. His Ops colleagues were appalled at his negativity. But what was he actually saying? In the environment where he worked, he had spent 25 years moving from one crisis to the next and had given up questioning whether every job he did was critical. He had taken the line of least resistance – do what you are told and don't ask questions.

Craftsmen's attitude to planned work
There is a deeply held belief that craftsmen see planned maintenance work as boring, and would much prefer the technical challenge of sorting out a problem. As a result planned maintenance work isn't completed leading to an ever increasing level of operational failures.

Where Ops demand an immediate response to their problems, Maintenance will typically meet that demand rather than carry out planned maintenance work. After all, who initiates planned maintenance in the first place? It certainly isn't Ops! Could it be that if Ops recognised the importance of planned maintenance failure rates would be reduced?

The language of craftsmen
What happens if you ask an open question such as 'How's the job going?' to craftsmen? Your intention may well be to expect a response that encapsulates all aspects of work, but the response given is invariably solely focussed on the work itself, together with all the technical jargon. And how does a non-technical person react to a 'techy' response? Being British, we smile politely and nod in an understanding way, whilst desperately hoping the technical diatribe will finish quickly – as if we really understand what they're talking about! Do we then persist with trying to seek the real response we want? In many cases not, for fear of yet more incomprehensible technicalities coming our way.

What happens then when they question us - particularly when they want our guidance? Once again, the technical jargon used by craftsmen assumes that you understand the technical issues, and we often respond through our demeanour in an understanding way. Yet we are really only wanting to be given the simple outcomes; cost, time, and resilience of the options, the things that we 'recognise' as being important. But how often do we ask for those outcomes? We prefer instead to accept their recommendation without question. And if eventually, the adopted option proves unacceptable against one or more of our simple outcomes are we not critical of the decision made?

Is it any surprise that with craft skills in short supply and a failure to recognise the motivators, then opportunities present themselves for those less scrupulous people who pass themselves off as skilled craftsmen? Once again, when faced with technical jargon we accept what we're told implicitly, not even asking for the simple outcomes of cost, time and resilience. We fail to recognise that the 'real' craftsmen will actually try to present options, and will put in place the optimum solution in our best interests. Instead, the 'con-man' will sell only their solution and justify it with technical (often false) claims that will maximise their financial return whilst delivering an inadequate

job. As a result, we have seen in recent years the rise of the ‘cowboy’ builder, plumber, and electrician.

How can we develop craftsmen so they can broaden their understanding of the business in which they work?
Why are craftsmen so narrowly focussed on technical issues in the world of work?
What are the benefits of craftsmen being able to relate their work to the wider business objectives?

Reward and recognition

Craft remuneration

Despite the fact that pay differentials between Ops and Maintenance are well defined, you commonly hear craftsmen complaining that they never take home as much as the operators. Craftsmen appear to be in love with overtime, continually looking for ways to boost their basic pay. The younger the craftsmen, the more overtime they seek. This, once again creates a perception that craftsmen are only interested in how much money they can make.

Could there be another reason why craftsmen look to secure overtime? Overtime worked by Ops is usually planned in advance to cover holidays, sickness and work volumes. In a reactive environment, and particularly where ‘run to fail’ methodologies are in operation, there is little or no planning of overtime for the craftsmen. But there is an expectation of an immediate response when things go wrong. The younger the craftsmen the more likely they are to respond in a crisis. Yes, they do want the money while the older craftsmen, looking for more predictability in their working life, tend to settle for the standard hours pay without overtime.

Standby and call out payments are usually the only source of additional income apart from incentive schemes and overtime. They are in place to provide failure cover outside normal working hours. Even then it is often the case that Ops will ignore whoever is on standby in order to bring in the relevant craftsmen with the most experience of dealing with the issue they are facing. This approach exacerbates the attitude of the craftsmen towards working overtime. Not only are they putting themselves out when on standby by being available for work should there be a problem, they also risk not being called. To make matters worse, there is every possibility that they will get called out when it is not their turn to be on standby.

It doesn’t take long in this environment for craftsmen to be cynical about their earnings capability for what they believe to be a service provided well beyond the remuneration given. Craftsmen balance out this perceived unfairness by forcing Ops to plan overtime working so that is at their convenience – hence the perception that they are actually seeking overtime.

Once Ops understand what drives the craftsmen’s behaviour and start to plan their forward workload more effectively, including planned overtime, then craftsmen take a much more positive approach to operational emergencies.

Incentive schemes

Incentive schemes for maintenance craftsmen come and go but one thing is for sure: I have yet to see one that works.

An effective incentive scheme would need to reward craftsmen for making the right decision either in resolving the issue they are faced with or in carrying out the work that has been planned for them.
Even with planned work, the status and condition of the asset to be worked on can have a significant impact on the time taken to carry out the work.
When it comes to breakdown work, there is a whole raft of issues that have to be considered to resolve problems effectively, issues such as:

- What are Ops' pressures and objectives?
- Can a permanent solution to the problem be delivered at the time?
- Are spares available, and if not, are they accessible in a relatively short timescale?
- Are we treating the symptom not the cause?
- Can downtime be planned to deliver a permanent solution?
- What are Ops' expectations?

Reward schemes cannot possibly take account of this range of issues. As a result they are generally discredited in the eyes of the craftsmen. My experience of reward schemes is that they are an invitation to the craftsmen to extract maximum reward for minimum effort! And they know exactly how to do it.

The impact of outsourcing
The 1990s trend in many market sectors to treat maintenance work as non-core has had a major influence on the recruitment of craftsmen into maintenance work. Running parallel with this trend there has been a significant decrease in the number of young people who want to become skilled trained craftsmen. This obviously leads to the question: is there a direct link between the fall-off in would-be craftsmen and the outsourcing of maintenance?

The answer, I believe, is that there is. These are the reasons:

The beliefs of craftsmen: feeding a negative self-image
The mere fact that maintenance is treated as an outsourced activity in many market sectors has reinforced the belief amongst craftsmen that maintenance is not a core part of most organisations' activities; it is best bought in from contractors. This has led to craftsmen feeling undervalued: they don't feel they are an important part of the organisation's future. Maintenance outsourcing often leads those craftsmen who have transferred to their new employer to leave for another job in maintenance or to seek to develop their careers outside maintenance altogether. The psychological impact on the affected craftsmen is enormous: unwanted by their original employers they see maintenance as a career leading nowhere. Many are prepared to take jobs with other companies, earning less money in order to enhance their prospects. Others turn their energies within the contract to maximising benefit for their new employer.

Misreading contractor's interests
Many organisations that have outsourced maintenance have persuaded themselves that their prospective contractors are primarily interested in acquiring their maintenance business. But the contractors have another interest.

Contractors bidding for outsourced maintenance work will reduce their profit margin not only to secure the **work,** but also to secure the **craftsmen**. This has been particularly noticeable in the privatised utilities that have directly employed skilled

maintenance craftsmen over many decades. Often they have maintained the skill base by offering apprenticeships to replace retiring craftsmen. This is a free lunch to the contractor: a ready-made skilled workforce: no recruitment costs, no training costs.

So, what will the contractor do with his free lunch? Sure, the successful contractor will be expected to improve productivity in the client's contract. He also gains a skilled maintenance workforce the best of which can be used in more lucrative work.

At first, the client organisation is pleased with the outcome of the outsourcing initiative as there is an immediate cost reduction. Before long, however, the contractor takes the most skilled resources away from the original contract leaving a more productive but less skilled workforce to service this contract. The consequences are predictable: an increase in breakdowns and costs, and subsequent client dissatisfaction with the performance of the contract. When the contract is re-tendered the focus is once again on cost reduction repeating the whole unsatisfactory cycle of events.

The clients thus dig their own grave – deeper and deeper - through failing to understand the contractor's interest.

Escalating contractual costs
How does contracting out maintenance craftsmen cause maintenance costs to climb? Client organisations fail to recognise that when craftsmen are directly employed they are making decisions in the direct interests of their own organisation. That philosophy doesn't change when they are outsourced, except that the outsourced company's interests are to maximise their volume of work in order to improve the return on the contract. The people most likely to influence work volume are the craftsmen themselves as they understand how the assets operate and so will know which solutions will give the maximum benefit to their new employer. And, of course, should the new employer reward them for growing the volume of maintenance work, and then it's even more in their interest to seek additional maintenance opportunities.

Decision making on the ground
The simplest way to understand the difference between in-house maintenance and maintenance provided by contract is to understand the decision making process that craftsmen go through when faced with a problem in the field. In approaching the resolution of the issue their first thoughts are to determine how best to carry out the work in their own interests before considering what their employer's expectations are.

Typically craftsmen's thought processes for internal craftsmen would include:

For **themselves**

- How quickly do I want the job done?
- Is there a financial benefit to me (e.g. overtime)?
- Is it convenient for me to deliver the right solution now?
- Do I really want to do this job?

For the **employer**

- What are the operational circumstances and how should I execute the job to meet them, i.e. quick fix or final solution?
- Are there other alternatives that will provide a more effective long-term answer to the problem?
- Is the repair best done on the spot or is it better to move the faulty equipment and do it in a workshop where all the tools are to hand?

However, in a contractual relationship, craftsmen employ a third stage of questioning. Instead of being directly employed, they now work for the maintenance contractor and would ask questions for their own benefit first, secondly for their new employer, and, last and certainly least, for their former employer (now their client):

Typically craftsmen's thought processes for contracted out craftsmen would now include:

For **themselves**

- How quickly do I want the job done?
- Is there a financial benefit to me (e.g. overtime)?
- Is it convenient for me to deliver the right solution now?
- Do I really want to do this job?

For the **new employer (the contractor)**

- Have I met the contractual measures with respect to the performance indicators in the contract?
- Is there an opportunity for further work in resolving this problem?
- What solution will maximise the benefit to my company?

For the **former employer (now client)**

- What are the operational circumstances and how should I execute the job to meet them, i.e. quick fix or final solution?
- Are there other alternatives that will provide a more effective long-term answer to the problem?
- Is the repair best done on the spot or is it better to move the faulty equipment and do it in a workshop where all the tools are to hand?

The failure of many organisations to grasp the changing emphasis of decision-making is invariably the reason for dissatisfaction with outsourced maintenance arrangements. Although in-house maintenance departments may appear to be a 'law unto themselves', they do understand Ops' needs and will usually make the right decision in the best interests of the **assets**. Outsourced maintenance organisations make decisions to meet their **contractual obligations** first.

Motivation and drivers

In order to understand what truly motivates craftsmen it is worth examining Herzberg's model (Appendix 1). This sets out two different kinds of influence on job satisfaction. The motivators, when present, give rise to positive job satisfaction and performance. The hygiene factors, on the other hand, can, when absent, give rise to

dissatisfaction but will not provide much positive satisfaction when they are increased.

The six motivators, which lead to high levels of job satisfaction, are: achievement, recognition, the work itself, responsibility, advancement and growth. How do these motivators apply in the world of maintenance craftsmen?

1. **Achievement**

   This is the most powerful motivator. In Ops this is typically realised through target setting based on volume and/or quality. Most Ops functions can celebrate achievement because it is relatively easy to measure.

   What is achievement for a maintenance craftsman? In a reactive environment, it is the ability to respond quickly and return the failed asset back into operation. Ops believe, or often behave as if they believe, that they are responsible for an asset when it's operating and that responsibility transfers to maintenance when it fails. Ops therefore expect the repair time of the failed asset to be minimized by maintenance so that they can regain ownership. But time driven repairs do not necessarily produce long term solutions. Yet Ops usually perceive minimal time taken as the most important factor in what maintenance achieve, even tolerating repeat failures to maintain the perception that failure time has been minimised.

   Craftsmen tend to look for the most effective solution bearing in mind the operational circumstances, and time is not the only factor. There are, indeed, operational circumstances where a 'quick fix' is the appropriate solution even with the potential for a repeat failure. Craftsmen are inclined, however, to weigh up all the circumstances, in particular health and safety implications, which often lead them to resist time pressures so as to ensure that an effective long-term solution is applied.

   We can immediately see a disparity between what Ops and craftsmen are likely to regard as achievement for successful maintenance: short-term fix vs. long-term solution.

2. **Recognition**

   In most market sectors the operational outcomes are visible and recognised when these have been achieved. On the other hand, craftsmen's contributions to these outcomes rarely attract their due recognition. The main driver behind effective maintenance is to prevent failure; this is the objective of planned maintenance. How many organisations measure asset availability and performance and recognise the craftsmen's role in achieving these two core objectives?

   Most organisations see maintenance as a purely reactive activity, involving minimal failures and a quick turnaround of failed assets. Yet, achieving minimal failures without planned maintenance is a pipedream and the rate of failure beyond the control of craftsmen. In such an environment, quick turn-round is a lottery, entirely dependant on the nature of the failure. A 'quick fix' can deliver a fast turnaround and positive recognition, but leave the asset

prone to failure again. A catastrophic failure due to a developing problem going unheeded can lead to significant downtime and a poor perspective on craft performance. Volume of failures and turnaround time are highly inappropriate measures of craft performance in a reactive environment.

In my experience, however, craftsmen are only given recognition for their response to reactive work, whilst effective and efficient planned and preventative maintenance goes unseen. In other words, this valuable motivator, recognition is only offered when things go wrong; when assets are operating well the maintenance input isn't recognised. So recognition, which has a major influence on the way people achieve job satisfaction and commitment, is effectively withheld from craftsmen when the assets they support are working well.

3. The work itself

Of all the motivators this is the one from which craftsmen can usually claim more satisfaction than their Ops colleagues. The challenge of resolving a problem is perhaps the key motivator in craftsmen's work; the more complex the better! Even though they may not be recognised for what they have done, craftsmen generally use a methodical approach to issue resolution and find the development of effective failure analysis techniques most rewarding. It is this factor above all others that maintains job interest for craftsmen – something that is not often appreciated by their immediate supervisors and rarely by Ops. In contrast Ops work is often quite mundane, with targets set to present a challenge amidst the routine of the work.

This motivator, or the lack of it, is one of the main reasons why craftsmen are less interested in doing Planned Preventative Maintenance (PPM). Where there is no recognition of the quality of the work done, and where completion of the work itself is the overriding consideration, motivation to do PPM suffers. Ops can see craftsmen's lack of enthusiasm for PPM. For their own part, with the operational effort or downtime required in order for PPM to be carried out, Ops are also disinclined to ensure that PPM is completed.

4. Responsibility

Ops work is usually clearly defined and the operator knows what is expected of him, although his responsibility is shared with other members of his team. Maintenance craftsmen, however, usually operate in a supervised environment where work is allocated on an individual basis job by job. Their ability to influence who receives what work is usually limited. Lacking an overview of the maintenance work demand and being drip fed work by their supervisor often proves to be most frustrating for craftsmen. Maintenance supervisors rarely plan and prepare for maintenance work with their craft team. Supervisors generally allocate work based on their estimate of an individual's ability to complete the job, and their assessment of Ops' priorities. Craftsmen can, therefore, take responsibility only for the successful completion of the particular job they are working on. Generally, they have no overview of the outstanding maintenance work, or how it is planned and programmed. Their only responsibility is to apply their technical skills

successfully to each job they are given. Their capacity to take responsibility for anything beyond the job itself is not considered.

5. Advancement

Advancement in Ops is usually through the management hierarchy route: initially to team leader, then through supervisory and management positions. For maintenance craftsmen there are two routes: either through the maintenance management hierarchy or through technical development. Because of the technical nature of maintenance, craft workers typically prefer advancement through becoming technicians and then engineers. It is from these positions that they may then move across to management. However, managers from an engineering background are often criticised for their poor man-management skills: they are seen to prefer to work on technical rather than people issues. It is generally the case that maintenance supervisory positions are taken up by the less technically competent craftsmen, and, as such, they rarely progress beyond first line management.

The opportunities for advancement through career progression are not obvious in the field of maintenance. Technical advancement gives the opportunity to specialise which can prove interesting but not particularly lucrative. Managerial advancement through supervision rarely goes beyond first line management before a switch to Ops management is required for a more clearly defined career path

6. Growth

The opportunity to grow within a maintenance job is through acquiring expertise or skill in order to achieve a higher level of technical or personal competence. As indicated earlier, this enables progress to technician and engineering status. In remaining as a craftsman, however, the ability to achieve growth is extremely limited and generally calls for a change of job to a different field that will bring a new technical challenge.

Where craftsmen choose to stay as craftsmen, it seems to me that sooner or later they ‘give up on growth’. Having given up on growth, the demotivated craftsman sticks to what he knows best at the expense of the assets. No longer do craftsmen strive to implement long-term solutions to problems. Rather, they repair them on a short-term basis even though they know that the asset will fail again.

This tactic has the attraction of creating dependency. Craftsmen seek to guarantee their job security, as they know intimately how to resolve the problems should they re-occur. Ops, wittingly or unwittingly, collude in this where they take a short-term view of their own interests. Thus Ops see no value in enhancing craftsmen’s skills if it does not have a direct impact on the short-term performance of the assets the craftsmen are working on.

When assets are renewed or upgraded, however, the shortcomings of this complacent attitude become apparent. Craftsmen become negative towards the new development. They fear their failure to grow within their job will show in their inability to understand the technical challenges of the new equipment.

Any resulting problems will be blamed on bad design, lack of maintainability or poor commissioning – anything that deflects attention away from their own restricted abilities.

To summarise, the typical motivational opportunities for craftsmen are:

- **the work itself** and **recognition** are present but *actually operate against the long-term interests of asset performance by only rewarding quick response and fast turn round of reactive work;*

- **responsibility** and **achievement** are denied, and

- **advancement** and **growth** are absent, limited or unclear.

Motivating Craftsmen: a case study and a framework for development
With these serious shortcomings in the way craftsmen are managed, what needs to be done to create the conditions for highly motivated, effective and productive craftsmen?

Background: the problematic role of the maintenance supervisor
Why do companies invest money and education to achieve highly competent maintenance craftsmen and then over-control what they do through supervision?

In my experience the vast majority of supervisors are actually planners and administrators. They act as a 'buffer' between Ops and the craftsmen, allocating work on a job by job basis to individual craftsmen. Once each job is completed craftsmen return to their supervisor for their next task. Craftsmen generally have no forward view of likely workload, or are advised of Ops priorities when the work is issued. They generally determine Ops' expectations for themselves once they arrive at the job.

With maintenance supervision being primarily a planning and supervisory role, those appointed to this position generally lack the technical knowledge to support the craftsmen. As a result, craftsmen often have no respect for their supervisors and believe they add little value to the work that craftsmen carry out. Craftsmen in the main need access to technical expertise to help solve complex problems. Most maintenance supervisors are unable to provide this support.

For their part, Ops are often frustrated with the role that the maintenance supervisor adopts, particularly as he is often remote from the work being carried out. Typically, Ops then call for the integration of the craftsmen within the operational teams to ensure that Ops priorities are correctly addressed.

Self-management by maintenance workers
I spent a number of years working in technical and managerial positions in the water industry. A water company's assets are geographically spread and are widely diverse: from complex process treatment works through to the simplest submersible pumping station.

One of my key tasks was to establish maintenance as a business, moving it from being a budget holding function to an internal service provision organisation, with Ops as its customer. The first and most obvious priority in this new environment was the

working relationships between Ops, the craftsmen and the maintenance supervisors. Now that Ops were the budget holders they were demanding an improved service from Maintenance, and were sharply critical of what they were getting.

It soon became clear that the supervisors' role was a problem. I looked closely at the supervisors' work and found that a major shortcoming was their piecemeal management of reactive maintenance work. Ops would contact the maintenance supervisor for emergency work. The supervisor would then divert the relevant craftsman from his current job - usually whoever was geographically best placed to attend the problem. Little or no consideration would be given to the priority of the ongoing work, the status of the job in hand or the impact of leaving the work unfinished.

'Supervision' actually involved issuing each craftsman with his daily work at the start of the day and collecting back from him what had been completed at the end. The execution of the work, sourcing materials, seeking technical support, organising Ops, and bringing in specialist services were all done by the craftsmen themselves.

I came to the conclusion that Ops could fulfil the planning and administrative tasks without the need for a maintenance supervisor, provided they worked with the craftsmen in forward planning. It was important however, that I sought the views of the existing craftsmen and supervisors.

We carried out a review of the working arrangements for the Maintenance business. In order to check out my assumptions about supervision, we asked all 250 staff and craftsmen for their ideas on substantially improving completion and turnaround of all maintenance work. We were inundated with ideas from the craftsmen themselves. The most popular suggestion was to get rid of supervisors!

We had one idea submitted from the supervisory staff which said that there should be 'no change'. The outcome of the review was to remove supervision from the craft workforce and establish the craftsmen in self-directed work teams. The impact was both immediate and dramatic: productivity improved by 30% and continued on an upward trend for the following three years.

The reason for this remarkable productivity improvement? We as a management team had unknowingly introduced one of Herzberg's motivators - **responsibility**. For the first time, craftsmen had responsibility for prioritising and organising their own work to meet Ops needs without the supervisor dictating who does what.

Objective setting and recognition

Most organisations operate some form of PPM system as well as the craftsmen carrying out repairs when assets fail. If you ask Ops what they see as their success criterion for craftsmen they would say 'a quick turn round when things go wrong'. This results in 'coat-hook craftsmen', waiting for the next problem to arise, who never get round to doing planned maintenance because they are expected to respond immediately to the next Ops' problem.

How can the work of craftsmen be managed in such a way that failures are reduced, and the overall performance of the assets improves? The most effective way is to establish a Service Level Agreement (SLA) between Ops and Maintenance that is focussed on optimising the performance of the assets. In establishing such an

arrangement Ops then start to take ownership of planning the work craftsmen do, and to understand the drivers and priorities that maintenance craftsmen need to do an effective job. The benefit for the craftsmen is that, for the first time, Ops clearly define their expectations of Maintenance. With expectations now clearly defined, measures can be put in place to monitor progress.

A typical SLA which has been implemented by one of the ten largest UK water and waste water utilities is shown in Appendix 2.

With an SLA in place, Ops quickly realise that expecting craftsmen to respond immediately to every problem arising is impractical and could not possibly achieve the objectives of the SLA. Ops then recognise that their own behaviour has to change for the craftsmen to meet Ops' expectations. The vehicle for such a change is planning. There are very few organisations that encourage craftsmen and Ops to sit down and actually plan maintenance work. Some say that it is impossible to plan and predict failure. However, the time lost in repeatedly diverting craftsmen from the work in hand to the latest emergency can be as much as 30% of the available time at work. This amount of lost time arising from a purely reactive approach to maintenance makes planning even more important.

With the SLA in place, planning PPM to ensure that it is completed is clearly a core Ops responsibility. After all, the objective of PPM is to prevent failure and hence reduce the need for an immediate response from craftsmen.

How many of us refuse to service our cars when we know that failure to do so will, in the long term, lead to mechanical failure? Of course, most of us service our cars in line with the manufacturer's recommended interval so as to minimise the risk of failure which, we know, has a habit of occurring at the most inconvenient time.

So why hasn't this same mentality been applied to operational assets? This is because Ops have not seen themselves as custodians of the assets, and quite often do not have responsibility for the maintenance budget. By defining both budget and asset performance as an Ops responsibility, with maintenance work delivered through an SLA, Maintenance ensures that Ops take ownership of planning the maintenance activity.

Quite naturally, craftsmen recognise the fact that Ops are now taking an interest in their area of expertise and Herzberg's '**recognition**' factor starts to kick in. The SLA provides the vehicle for Ops to ask relevant questions about maintenance performance and to develop their working relationship with the craftsmen. Furthermore, Ops move from an 'everything is a crisis' mentality to managing their own expectations and priorities of maintenance work so as to ensure that the objectives of the SLA are met.

Maintenance craftsmen are quick to note that Ops now understand the importance of PPM: successful PPM execution drives failure reduction. Craftsmen's attitude to carrying out effective PPM also changes because Ops, their client, now see the relevance and importance of PPM. What's more, Ops now take responsibility for ensuring that this work is carried out.

The SLA has created a client/supplier relationship between Ops and Maintenance which for the first time recognises all the maintenance work that has to be done. The discipline of working to an SLA formalises the working relationship so eliminating

subjective assessments of maintenance performance. Craftsmen value the fact that Ops are now engaged in understanding all the issues that are associated with effective delivery of maintenance work.

Having established that all maintenance work is carried out effectively to improve the performance of the assets, the craftsmen's attitude to PPM changes. No longer is PPM a chore; it is now an integral part of optimising asset performance. Craftsmen pride themselves in seeing a reduction in failures because of effective PPM, and ensuring that any follow up work is planned with Ops. Herzberg's '**work itself**' motivator is no longer found just in the challenge of applying technical skills to failure. The satisfaction of a job well done – the work itself (optimising the asset) – is now found in the enhanced asset performance to which the craftsmen have been key contributors.

Performance measures and achievement
Having established an SLA, which defines what is expected of a maintenance workforce, performance measures are then applied against the objectives of the SLA so that achievement can be understood. For the SLA shown in Appendix 2, a suite of typical performance measures is shown in Appendix 3. These measures, reviewed on a monthly basis, together with graphical representation of trends, enable progress to be monitored against targets.

Monitoring progress against agreed targets ensures both the visibility of maintenance work and enables craftsmen to identify their achievements against operational objectives. This creates the opportunity to gain satisfaction from another of Herzberg's motivators – '**achievement'**.

Planning meetings
In order that prioritisation and decision making can be made on outstanding maintenance work, Ops and Maintenance must hold a planning meeting at least once a week. What constitutes a planning meeting? It is not just a question of re-addressing the previous week's priorities. The following questions must also be addressed:-

-How and who should execute the forthcoming planned maintenance work?
-What planned repair work should be either continued or started, and completed without diversion?
-What maintenance resources should be dedicated to emergency/reactive work?
-How should additional emergency work be dealt with?

In addressing these questions a maintenance plan can be produced along the lines of that shown in Appendix 4.
It is crucial to understand that while Maintenance is involved in developing the weekly plan it is Ops that own it. Maintenance has the responsibility for the delivery.

Craft development
So how have the skills of craftsmen changed with the introduction of self-management? In a traditional supervisory structure, craftsmen's skills are limited to the demands of the job they are working on. In a self-managed environment, with Ops as their customer, operating to an SLA, they also have to be work planners, financial planners, coordinators, team facilitators, and self motivators. The scope of the job has changed significantly, and with it the opportunity for '**growth**'

And the expanding scope of maintenance craftsmen's work brings other opportunities. With the addition of the core elements of a supervisor's job, they have the incentive and opportunity to develop the managerial skills that can open up opportunities in other fields. No longer is '**advancement'** limited to technical development or maintenance supervision; the fields of engineering management and production management become much more readily accessible.

Now, equipped with the knowledge of contractual arrangements, craftsmen see other opportunities. For example, developing a maintenance services business becomes a realistic possibility.

Confident and eloquent craftsmen?
In this new working environment, does the language of craftsmen change? Most definitely in my experience. When asked 'How's the job going?' there is a change in emphasis in the response.

The first thing to notice is the tendency to use the word 'we' rather than 'I'. Planning meetings with Ops reinforces a team working ethic. Not only are the craftsmen's immediate craft colleagues part of the 'we', but also their Ops clients. The 'job' is no longer the specific technicalities of the work itself, but now covers the performance of the SLA, the assets, work carried out by other craftsmen, and future plans. Craftsmen also recognise operational objectives and pressures

Craftsmen are now able to explain in simple terms the cost, time and resilience of options questions, because they understand where the questioner is coming from, and no longer need a defensive response littered with technical jargon.
It is a salutary lesson for anyone who orders craft services. The truly honest and effective craftsmen will identify up front and in layman's language, the cost, time and resilience of options before starting work. They know that the customer needs this information to feel as if they're in control of the work being carried out on *their* assets. Anyone who starts work without doing this should be challenged and if they can't satisfactorily respond should not be allowed to continue.

Craftsmen are more eloquent in the sense that their use of language is much more appropriate to the situation and the people they are addressing. This new found eloquence breeds confidence not only from a personal perspective, but also with their colleagues and customers. It raises the importance of their contribution to the operational performance of the assets they maintain.

To summarise, the new motivational opportunities for craftsmen working with Ops through the vehicle of a SLA are:

- The intrinsic interest of the **work itself,** which is now redefined as making a key contribution to asset performance for which craftsmen gain **recognition**.

- **Responsibility**, which arises through craftsmen's full involvement in the SLA planning and review process, and **achievement** through the visibility of performance measures.

- **Growth,** which is realised through developing a full understanding of the wider maintenance picture, in acquiring skills in dealing with Ops as a client

and in facilitating decision making within their own teams. In turn, growth has provided a wider set of realistic possibilities for **advancement**.

Concluding remarks

Many organisations have failed to learn the lessons of the past thirty years in the way they manage maintenance craftsmen. Enhancing the financial package alone will not make a long-term career in maintenance attractive. With the growth of the service sector and especially the development of the utilities, it is crucially important to appreciate how the maintenance role has been misunderstood and to learn the lessons of Herzberg.

The introduction of service provision as a framework for maintenance craftsmen's work is a vital step in creating ownership and responsibility. This is achieved through the use of Service Level Agreements (SLA's), whether internal or outsourced, to make visible Operations' performance expectations of maintenance craftsmen.

Maintenance craftsmen are skilled, trained and potentially self-motivated people. Set them objectives and targets; give them responsibility; and most of all, value them – they are in demand! Even if outsourcing is the right decision, remember they are still working on your assets. If you treat them as motivated and self-managed individuals, they will reward you by making the right decisions in your assets' best interests.

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Reference

Herzberg F, *'One more time: how do you motivate employees?'*
Harvard Business Review, Jan/Feb 1968

APPENDIX 1

Frederick Herzberg

Frederick Herzberg produced his much acclaimed paper:

'ONE MORE TIME: HOW DO YOU MOTIVATE EMPLOYEES?
Not by improving work conditions, raising salaries, or shuffling tasks'

for the Harvard Business Review of January-February 1968.

The paper was a response to what he defined as KITA (Kick in the A****) management thinking. He was particularly critical of the positive use of KITA, the absence of punishment, as a perceived motivational tool, as well as its negative use.

Herzberg's key contribution was to introduce the distinction between hygiene factors, the influences that surround the job, and motivators which are intrinsic to the job itself. (see Fig 1 for the motivators and hygiene factors) Herzberg argued that the attempt to use hygiene factors as motivators was doomed to failure. He drew his theory from an examination of events in the lives of engineers and accountants, which was later validated by a further 16 investigations on the same basis in a world wide study even involving communist countries. This made the original research one of the most replicated studies in the field of job attitudes.

The original research was drawn from samples of 1,685 employees in 12 different investigations and including lower level supervisors, professional women, agricultural administrators, men about to retire from management positions, hospital maintenance personnel, manufacturing supervisors, nurses, food handlers, military officers, engineers, scientists, housekeepers, teachers, technicians, female assemblers, accountants, Finish foreman and Hungarian engineers. They were asked what job events had occurred in their work that had led to extreme satisfaction or extreme dissatisfaction on their part. Their responses show the percentages of total 'positive' job events and of total 'negative' job events listed by motivators and hygiene factors.

Herzberg showed that employees only respond positively to the motivating factors. When motivating factors are present, employees gain job enrichment, and job enrichment is where managers should focus their efforts. Job satisfaction and productivity are direct outcomes.

These were his concluding remarks:

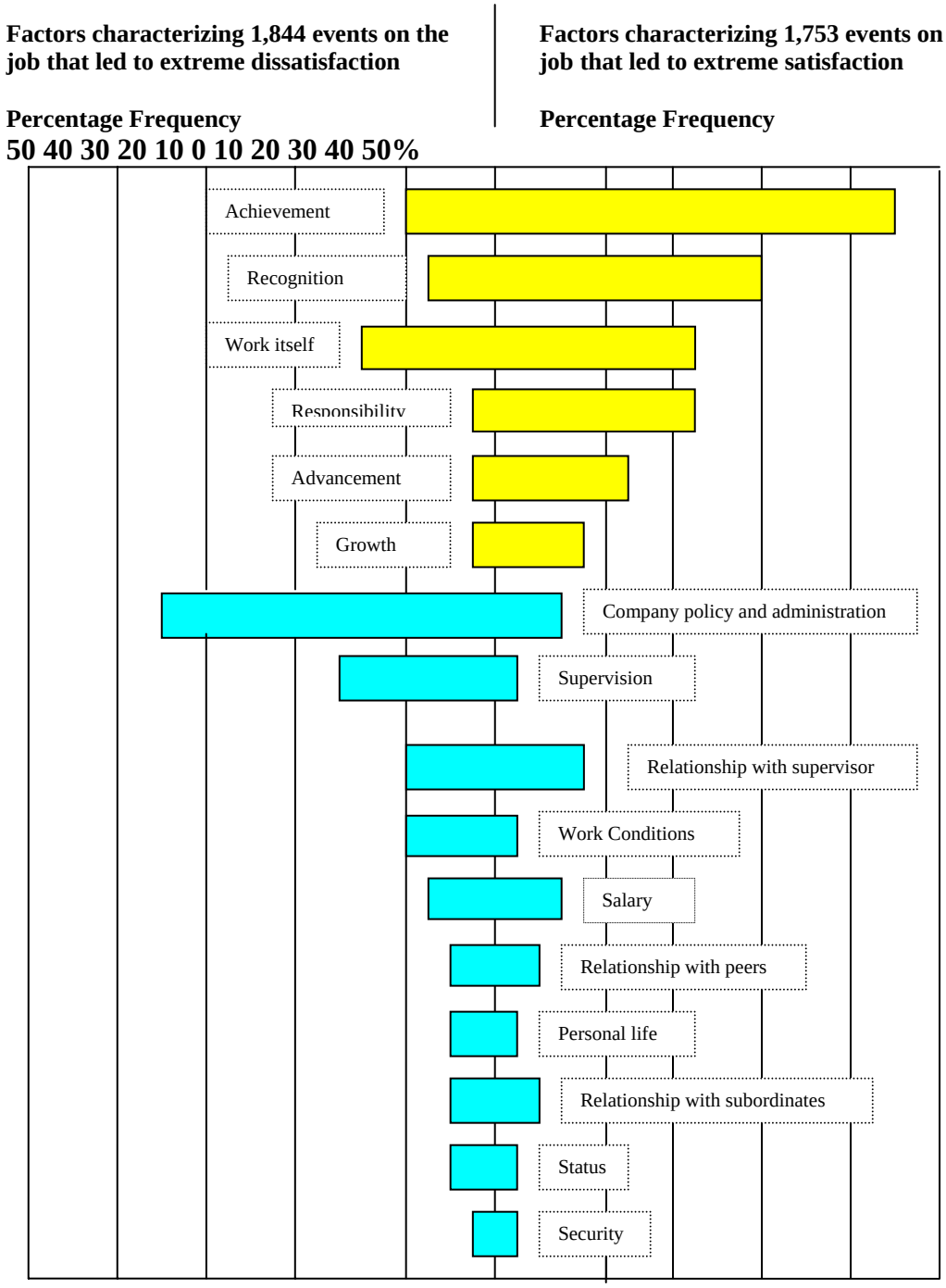
'Job enrichment will not be a one-time proposition, but a continuous management function. The initial changes, however, should last for a very long period of time. There are a number of reasons for this:

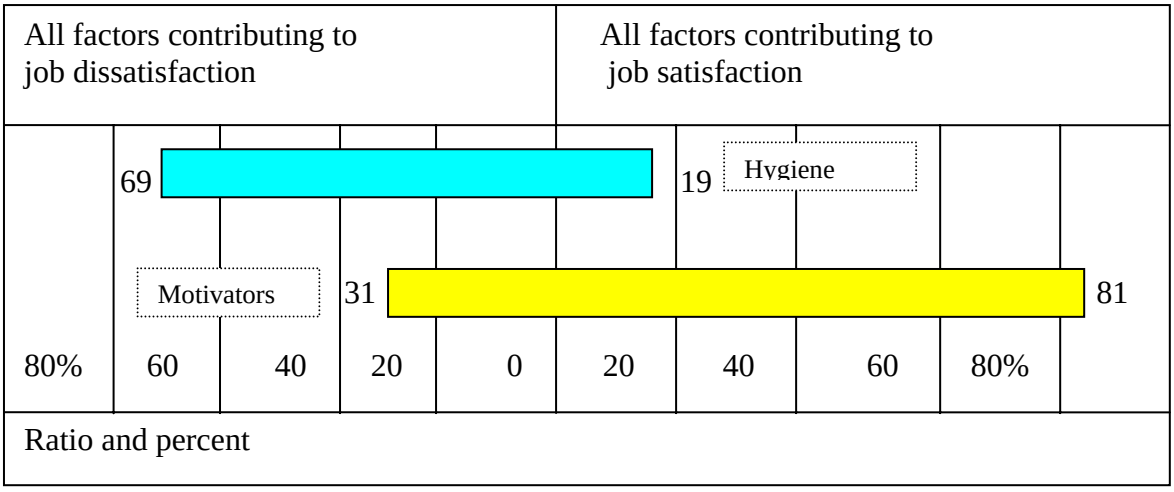
- *The changes should bring the job up to the level of challenge commensurate with the skill that was hired.*
- *Those who have still more ability eventually will be able to demonstrate it better and win promotion to higher-level jobs.*
- *The very nature of motivators, as opposed to hygiene factors, is that they have a much longer-term effect on employees' attitudes. Perhaps the job will have to be enriched again, but this will not occur as frequently as the need for hygiene.*

Not all jobs can be enriched, nor do all jobs need to be enriched. If only a small percentage of the time and money that is now devoted to hygiene, however, were given to job enrichment efforts, the return in human satisfaction and economic gain would be one of the largest dividends that industry and society have ever reaped through their efforts at better personnel management.

The argument for job enrichment can be summed up quite simply: If you have someone on a job, use him. If you can't use him on the job, get rid of him, either via automation or by selecting someone with lesser ability. If you can't use him and you can't get rid of him, you will have a motivation problem.'

Figure 1 HERZBERG'S MOTIVATORS AND HYGIENE FACTORS
Factors affecting job attitudes, as reported in 12 investigations





APPENDIX 2 SERVICE LEVEL AGREEMENT - Between Water Supply and Waste Water (Ops) and Engineering Services (Maintenance)

REACTIVE WORK

Priority	Job Created by (Job creation time)	Required Site Arrival (Job start time)	Job Completion time	Notes
T0	Via call out from Control Centre (Retrospective work order to be raised next working day)	100% within 2 Hrs (Out of hours)	100% completion within 48Hrs	If work unable to be completed (e.g. spares required on long delivery) the work will be re-prioritised at a lower cost
T1	Work order raised by Ops	100% within 2 Hrs (Within hours)	100% completion within 48Hrs	If work unable to be completed (e.g. spares required on long delivery) the work will be re-prioritised at a lower cost
T2	Work order raised by Ops	100% within 24 Hrs	100% completion within 7 days	If work unable to be completed (e.g. spares required on long delivery) the work will be re-prioritised at a lower cost

PLANNED WORK

Priority	Job Created by (Job creation time)	Required Site Arrival (Job start time)	Job Completion time	Notes
T3	Work order raised by Ops	1 - 7 Calendar days	100% Completed within 21 days	
T4	Work order raised by Ops	Planned Work 8+ calendar days	As per local agreement between both parties	
T5 PPM	System Generated (agreed with Ops)	System generated	75 % completed with 2 weeks 100% completed within 4 weeks	
Ops FLM	System Generated / Written schedules	System generated / schedules	75 % completed with 2 weeks 100% completed within 4 weeks	

Overall Objective - % ratio of planned: reactive to be 75:25

- Work orders will be raised by (Ops) directly onto the Computerised Maintenance System.
- Planned Preventative Maintenance (PPM) and First Line Maintenance (FLM) schedules to be agreed between Ops and Engineering Services
- All parties will attend weekly maintenance planning meetings

APPENDIX 3 PERFORMANCE REPORTING

MONTH – (state)

PRIORITY	RESPONSE TIME					COMPLETION TIME				
	TARGET	THIS MONTH		YEAR TO DATE		TARGET	THIS MONTH		YEAR TO DATE	
		ACTUAL	% ACHIEVED	ACTUAL	% ACHIEVED		ACTUAL	% ACHIEVED	ACTUAL	% ACHIEVED
TO	2 hours					48 hours				
T1	2 hours					48 hours				
T2	24 hours					7 days				
T3	7 days					21 days				
T4	8+ days		n/a		n/a	by agreement		n/a		n/a
PPM	n/a	n/a	n/a	n/a	n/a	75% in 14 days				
						100% in 28 days				
FLM	n/a	n/a	n/a	n/a	n/a	75% in 14 days				
						100% in 28 days				

APPENDIX 4 MAINTENANCE WEEKLY PLAN

Ops/Maintenance Area: Date:
Meeting Attendees:

Planned Preventative /Condition Based Maintenance

Key sites	Resource

Planned Repair

Job No.	Site	Resource

Reactive Work

Job No.	Site	Resource

Capital Maintenance

Job No.	Site	Resource

Capital Investigation

Work request	Site	Est. cost