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### Negotiating Equipment Maintenance Contracts: Simplification of a Complex Art

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Author

**ChrisWright**

*Senior Lecturer*

*University of Cumbria*

*Cumbria, United Kingdom*

[chris.wright@cumbria.ac.uk](mailto:chris.wright@cumbria.ac.uk).

**Maintenance of equipment post warranty is a major challenge to radiology managers. As one of the largest organisational costs, the need for efficient management is paramount. However, the level of complexity is often overwhelming. Service contracts are attractive because of their ease of use and perceived comprehensiveness. Despite this, their costs may be too high. This paper explains the critical components and enables managers to evaluate their performance.**

Maintenance has two clear components, 'preventative (or planned)' and 'corrective'. These further subdivide into 'time (labour)' and 'materials (parts)'. Typically, a planned maintenance contract excludes all parts and provides the labour required to carry out only the routine service requirements of the device as stipulated by the OEM. Corrective contracts include 'breakdowns' in addition to planned maintenance and are commonly 'comprehensive' to include both parts and labour, although some suppliers offer 'labour only' contracts exclusive of parts.

#### Contract Mechanics

OEMs offer a plethora of maintenance options. Comparison is inherently difficult – however, remove the marketing hype and beneath lies a very simple formula. Labour has an 'hourly rate' published by each service provider. The same rate may well be charged for 'travel'.

With the exception of remote areas, one-hour travel time would be reasonable, and prudent customers will fix this limit, perhaps even invoicing engineer travel as a separate entity based on their own regime (e.g. price per km). The maintenance regime for each device includes the number of planned maintenance hours, e.g.;

Hourly Rate x Number of Planned Maintenance Hours = **A**

In principle 'A' should be the maximum price of the planned maintenance contract.

The 'comprehensive' contract represents the opposite end of the spectrum and is inclusive of parts and 'corrective' labour. Corrective Labour = Hourly Rate x Number of Corrective Hours = **B** Combining these factor results in:

Comprehensive Contract Price – A – B =

Cost of Parts + Profit

Almost all the major OEMs have implemented six sigma style quality processes, and are now designing systems to perform with remarkable levels of reliability. The physical requirements for servicing have also changed significantly. Planned maintenance visits have reduced by as much as 50% and the number of corrective maintenance actions resolved remotely has increased by around 50%. This reduces the cost element for labour though is not necessarily reflected in the prices charged.

#### Insurance-Style Contracts

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Though budgeting can only ever provide a rough guideline, the greater number of devices considered, the lower the risk. Insurance-style contracts adopt this principle and can be effective with reliable equipment. Large organisations such as the National Health Service (NHS) in the UK have in principle, tremendous buying power capable of delivering huge economies of scale, though there is no evidence that these are achieved.

## The Asset Register

An accurate and complete database of installed equipment is an essential starting point for any asset management process. The opportunity to analyse utilisation facilitates future workload planning. The asset register is 'dynamic' and therefore a spreadsheet is the ideal management tool. Specialist programmes are available although MS Excel is perfectly adequate to provide the necessary granularity and budgetary control.

## UpTime and ResponseTime

There is a subtle difference between 'up time' and 'response time' guarantees. The latter may well result in an engineer being dispatched to site within the allotted time period, but does not ensure an effective repair will be made. Typical up time guarantees are 95% and 98% and are particularly attractive to customers who rely heavily on one specific device.

Failure to meet the target conceptually results in the OEM having to provide a rebate to the customer relative to the excessive down time, although measurement is fraught with challenges.

## OEM orThird Party?

Traditionally the OEM provides maintenance cover via its own specialist engineers. Third party servicing may be provided by in-house engineering departments or via unique companies. Regardless, the maintenance regime is dictated by the product licence, which must be adhered to in order to ensure safe use of the device.

Cost reduction in the region of 20% may be achieved by outsourcing to a service provider encompassing equipment from numerous OEMs, commonly known as multi vendor services (MVS). Many OEM service organisations have also developed a multi vendor service channel and compete directly with one another for their maintenance business in addition to the smaller freelance companies.

Diagnostic software is required to repair almost all modern radiology devices. The software is usually proprietary, creating a significant barrier to in-house engineers and other OEM and third party service providers.

Most equipment problems occur within the first year after installation. Major software revision is the next flash point. Standard warranty periods are adequate to identify design flaws and highlight repetitive failures. Inconsistent performance during warranty is a strong indicator of the future trend.

A rogue device will almost certainly incur significant costs and cause infinite operational problems throughout its life. The procurement process should incorporate a clause that allows for rejection of the equipment, transferring all risk back to the OEM.

## Upgrades

OEMs often design 'software upgrades' to require a 'hardware component', in order to support a new software product. The total cost of the upgrade can therefore be significantly higher than first envisaged. Once upgraded, the service contract may be invalidated or reopened for negotiation.

By the end of the twentieth century, OEMs realised that customers had a major problem implementing the many new upgrades. For leasing customers, predominantly in the US, the issue was not so acute, as the costs for the upgrade could be built in, either by an extension to the term or by increase in payment.

Either way, the costs were revenue-based. In Europe, the majority of customers operate on a capital and revenue basis, which means that additional capital is required in order to purchase upgrades. Institutions with a rolling programme of replacement may have no spare capital so they have to either defer one of the other systems due to be replaced, or buy an upgrade for an existing asset.

## The Price of Risk

Detailed analysis of the asset register can often reveal significant cost saving opportunities. The span of prices for the maintenance of identical equipment can be extensive, not only by country, but within the same hospital. Multiple devices may well be serviced on the same day by the same engineer, yet multiple charges are made for travel.

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Utilising the simple models outlined earlier, contract price versus performance can easily be assessed. It is not uncommon to find very reliable equipment covered by highly priced maintenance contracts.

By negotiation, a 'shared risk' approach may allow, at the end of each year, the total costs associated with the maintenance of the equipment to be calculated, and the difference between this figure and the contract price is shared between customer and supplier. Another simple option is to negotiate discount by contract volume to encourage single provider status.

## Conclusion

Over its lifetime, a radiology asset incurs as much as its purchase price in maintenance costs, therefore when acquiring new equipment the maximum whole life cost should be assessed. A complete asset register allows benchmarking and the ability to assess value for money. Multi vendor services and insurance offer alternative solutions to the traditional OEM approach, though improvements may be achievable through careful analysis of the existing contract volume and renegotiation.

Many organisations have a preoccupation with meeting budgets, rather than efficient asset management, often opting for annual renewal on demand without evaluation of the true price of risk..



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